Template updated by Commission on June 15, 2020

Standard LSE Plan

CLEAN ENERGY ALLIANCE
AMENDED 2020 INTEGRATED RESOURCE PLAN
SEPTEMBER 1, 2020

Public Version

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VERIFICATION

I, Barbara Boswell, declare the following: I am the Interim Chief Executive Officer of the Clean Energy Alliance, and I am authorized to make this verification. I have read the 2020 Integrated Resource Plan of Clean Energy Alliance and am familiar with its contents. The information contained in the document is supplied by my personal knowledge, or has been supplied by the employees, attorneys or agents of Clean Energy Alliance. The information obtained in the document is true, except as to matters which were provided by the by the employees, attorneys or agents of Clean Energy Alliance, and as to those matters, I believe them to be true. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on August 28, 2020 at Carlsbad, California.

Barbara Boswell
Interim Chief Executive Officer
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I. Introduction and Executive Summary

a. Introduction

Description of CEA

Clean Energy Alliance is a Joint Powers Authority ("JPA") formed by the communities of Carlsbad, Del Mar and Solana Beach in November 2019.

As a JPA CEA is a *local government agency*. CEA is governed by a three-member board composed of representatives of its member local governments. Through these representatives CEA is controlled by and accountable to the communities CEA serves.

CEA plans to provide retail electric generation services and complementary energy programs to customers within the municipal boundaries of the following communities:

- City Carlsbad
- City of Del Mar
- City of Solana Beach

CEA plans to begin serving load in May 2021, with and anticipated customer base of approximately 51,000 residential accounts and 8,000 commercial and industrial accounts. The Solana Energy Alliance is an existing CCA program serving the City of Solana Beach, and the customers currently served by the Solana Energy Alliance are planned to be transferred to service by CEA in May 2021. As directed by the Commission, CEA's integrated resource plan includes the loads and resources associated with the existing Solana Energy Alliance CCA program.

CEA's Mission

CEA was formed for the express purpose of empowering its member communities to choose the generation resources that reflect their specific values and needs. CEA's purpose is to be an energy services provider, which benefits the community through the delivery of cleaner and more locally produced electricity, demand reduction, economic investment and competitive rates for residents, businesses, and municipal facilities in the service territory.

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

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

Introduction to CEA's IRP

In accordance with the requirements of California Public Utilities Code Sections 454.51 and 454.52 and Commission Decisions ("D.") 20-03-028, D.19-11-016, D.18-02-018, D.19-04-040, and formal guidance provided by the Commission's Energy Division , CEA is providing its load serving entity ("LSE") -specific Integrated Resource Plan ("IRP") to the Commission for certification review and use in the Commission's statewide planning process. In addition to this narrative, CEA's IRP includes the following documents:

- CEA's 38 MMT Resource Data Template
- CEA's 46 MMT Resource Data Template
- CEA's 38 MMT Clean System Power Calculator
- CEA's 46 MMT Clean System Power Calculator

As directed in D.20-03-028, CEA is submitting two conforming portfolios in this IRP, one based on the Commission's 46 MMT greenhouse gas (GHG) reduction benchmark and associated 38 MMT reference system portfolio ("RSP"), and a second based on the Commission's 46 MMT benchmark and RSP.

As demonstrated by the significant differences between the Commission's 2017-2018 RSP and its 2019-2020 RSP, projecting resource need over the time horizon covered by the IRP is an inexact matter. Further, CEA is a new entity currently focused primarily on activities leading to the successful launch of the program in 2021. The future resources identified in CEA's IRP represent CEA's best good-faith projection of the resource mix that it will procure over the IRP planning horizon, based on the best information currently available. The resources identified in future iterations of CEA's IRP may change due to new information and changed circumstances, and the ultimate resource mix that CEA actually procures may differ from what is reflected in the plan due to a number of variables including availability of supply, price of supply and/or other market or regulatory considerations.

Board Approval of IRP

In compliance with Public Utilities Code Section 454.52(b)(3), this IRP was formally submitted to CEA's governing board for approval based on the IRPs compliance with Sections 454.51 and 454.52 (the "IRP Statute") and all relevant board-adopted procurement requirements CEA's governing board. On August 20, 2020 CEA's board issued Resolution 2020-004 which formally approves this IRP and adopts CEA's 46 MMT Preferred Conforming Portfolio ("46 MMT PCP") and its 38 MMT Preferred Conforming Portfolio ("38 MMT PCP"). In Resolution 2020-004 CEA's

board also makes the following determinations regarding CEA's Preferred Conforming Portfolios ("PCPs"):

- CEA's PCPs achieves economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Section 454.52(a)(1)(A-I).
- CEA's PCPs includes a diversified procurement portfolio consisting of both short-term and long-term electricity and electricity-related and demand reduction products.
- CEA's PCPs achieves the resource adequacy requirements established pursuant to Public Utilities Code Section 380.
- CEA's PCPs are consistent with the procurement timing, resource mix, and operational attributes of both the Commission's 38 MMT RSP and the Commission's 46 MMT RSP.
- CEA's PCPs are fully compliant with all CEA board-adopted procurement directives.

A copy of Resolution 2020-004 is attached to this IRP Narrative and is identified as Attachment A.

Request for Certification

CEA respectfully requests that the Commission certify this IRP.

As both the Legislature and the Commission have recognized, The Legislature has granted CCAs broad authority to procure resources on their customers' behalf, an authority limited only where "other generation procurement arrangements have been expressly authorized by statute."[2] The Commission has likewise recognized that the Legislature has granted CCAs autonomy in setting their own rates and managing interactions with their customers.[3] The Commission has three primary interests the CCA IRP process:

[2] Public Utilities Code Section 366.2(a)(5).

[3] D.05-12-041 at 5 ("Nothing in the statute directs the CPUC to regulate the CCA's program except to the extent that its programs may affect utility operations and the rates and services to other customers. For example, the statute does not require the CPUC to set CCA rates or regulate the quality of its services."); D.19-04-040 at 18 ("[T]he Commission does not approve CCA or ESP rates.").

- Ensuring that CCA IRPs provide the CCA procurement information that the Commission needs to develop its statewide plan.[4]
- Ensuring that CCAs' current and planned procurement is consistent with the resource adequacy ("RA") requirements established pursuant to Public Utilities Code Section 380.[5]
- Ensuring that CCAs' current and planned procurement satisfies the CCA's share of renewables integration resource identified in the Commission's Reference System Portfolio ("RSP"), and that the CCA either self-provides or pays for IOU procurement for its share of any renewable integration shortfall.[6]

CEA has prepared its IRP with these interests in mind, and thanks the Commission in advance for its recognition of CCA procurement autonomy and the benefits of a collaborative approach with CCAs in its certification review of CEA's IRP.

b. Executive Summary

This narrative provides a detailed description of the development and content of CEA's PCPs, each portfolio's compliance with applicable requirements, and an action plan detailing CEA's planned next steps.

CEA developed its IRP through the following steps:

- CEA compiled data for its existing energy contracts, Resource Adequacy ("RA") capacity contracts, and its share of capacity for allocated Cost Allocation Mechanism ("CAM") resources.
- For each IRP planning year, CEA identified its short positions relative to CEA planning targets in consideration of its assigned load forecast.
- CEA populated the Resource Data Template with all current contracts.
- CEA compiled detailed information on projects for which it is currently negotiating power purchase agreements, including information regarding project status and timing.
- CEA identified future contracts it expects for new solar, storage, and wind generation. CEA prioritized the selection of future resources that ensure CEA's overall portfolio of new resources is consistent with the relevant Reference System Portfolio's resource

[4] D.19-04-040 at 17-18 ("The Commission's portfolio aggregation and evaluation process, which relies of fulfillment of IRP filing requirements by LSEs, is the only process capable of assessing the overall needs of the CAISO grid and meeting the statewide GHG, reliability, and least-cost goals collectively. While LSEs may use their IRP process to meet local planning needs as well, the statewide planning function is the statutorily required process ..... ").

[5] Section 454.52(b)(3)(C).

[6] Section 454.51.

attribute/category mix,[7] procurement timing, and CEA's proportional share of planned new procurement.

- CEA added generic future contracts with existing resources to help fill its remaining open positions.
- CEA used the Commission's Clean System Power Calculator Tool to check the GHG emissions associated with the resulting portfolio to ensure that these emissions are equivalent to CEA's assigned share of the 38 MMT benchmark; CEA added planned purchases of large hydro-electric energy in sufficient volume to ensure that portfolio emissions were equal to or below CEA's assigned share of the 38 MMT GHG benchmark
- CEA identified the resulting portfolio as its 38 MMT PCP
- Using the 38 MMT PCP as a starting point, CEA replaced planned large hydro-electric and renewable energy procurement with system power until the portfolio had emissions equal to the CEA assigned share of the 46 MMT GHG benchmark.
- CEA identified the resulting portfolio as its 46 MMT PCP.
- CEA checked both its 38 MMT PCP and its 46 MMT PCP for reliability by comparing the total portfolio net qualifying capacity against CEA's RA requirements for the month of September in each year of the planning period. CEA further established that its planned incremental capacity exceeds its pro rata share of capacity that may be needed for replacement of Diablo Canyon.

CEA reached the following findings regarding its 38 MMT PCP:

- CEA's 38 MMT portfolio includes the procurement of the following new resources:
    - New hybrid resources totaling 150 MW solar/ 75 MW battery storage
    - New wind resources totaling 75 MW
    - New long duration storage of 7 MW
    - New short duration storage of 2 MW (incremental capacity procured by SDG&E on CEA's behalf)
- CEA's 38 MMT portfolio provides for the following overall resource mix in 2030:
    - 13 MW of large hydro
    - 107 MW of Wind
    - 200 MW of Solar
    - 77 MW of Short Duration Battery Storage
    - 7 MW of Long Duration Storage

[7] Consistent with the Commission's direction in Ordering Paragraph 7 of D.20-03-028, SDCP tested its portfolios by comparing its planned procurement under the five resource "buckets" identified in the Decision against its load proportional share of the RSPs' respective "buckets." The "buckets" identified in Ordering Paragraph 7 are: long duration storage; short duration storage; hybrid resources; renewables; and other.

    - 114 MW of Natural Gas/Other (capacity-only)
- CEA's 38 MMT portfolio is consistent with procurement timing, resource quantities, and general resource attributes identified in the 38 MMT RSP.
- CEA's 38 MMT portfolio would have 2030 emissions of 0.151 MMT. This is slightly below CEA's assigned share of 2030 emissions, 0.152 MMT.
- CEA's 38 MMT portfolio meets all relevant reliability metrics.
- CEA's 38 MMT portfolio provides more than CEA's load-proportional share of renewable integration resources.

CEA reached the following findings regarding its 46 MMT portfolio:

- CEA's 46 MMT portfolio includes the procurement of the following new resources:
    - New hybrid resources totaling 150 MW solar/ 75 MW battery storage
    - New wind resources totaling 75 MW
    - New long duration storage of 7 MW
    - New short duration storage of 2 MW (incremental capacity procured by SDG&E on CEA's behalf)
- CEA's 46 MMT portfolio provides for the following overall resource mix in 2030:
    - 94 MW of Wind
    - 180 MW of Solar
    - 77 MW of Short Duration Battery Storage
    - 7 MW of Long Duration Storage
    - 114 MW of Natural Gas/Other (capacity-only)
- CEA's 46 MMT portfolio conforms to the procurement timing, resource quantities, and general resource attributes identified in the 46 MMT RSP.
- CEA's 46 MMT portfolio would have 2030 emissions of 0.189 MMT. This is equivalent to CEA's assigned share of 2030 emissions, 0.189 MMT .

To implement its PCPs, CEA is adopting the action plan described in section IV, below. This action plan consists of the following steps:

- CEA will periodically solicit offers for new renewable generation and storage projects. These resources are typically secured through long term power purchase agreements. CEA expects to secure power purchase agreements for new projects in multiple solicitations conducted over the next several years.
- Periodically throughout the year, CEA will solicit offers for short term renewable energy, resource adequacy, system energy, and other products needed to balance the portfolio and adhere to position limits established through CEA's risk management policy and

practices. These solicitations can take the form of formal request for offers processes, bilateral discussions, and transactions arranged through broker markets.

II. Study Design

a. Objectives

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

1. Identify a 38 MMT portfolio with emissions equal to CEA's proportional share of the 38 MMT GHG reduction benchmark, as determined using the Commission's emissions calculator.

2. Identify a 46 MMT portfolio with emissions equal to CEA's proportional share of the 46 MMT GHG reduction benchmark, as determined using the Commission's emissions calculator.

3. Identify 38 and 46 MMT portfolios that achieve economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Section 454.52(a)(1)(A-I).

4. Identify diverse and balanced 38 and 46 MMT portfolios that include both short-term and long-term electricity and electricity-related and demand reduction products.

5. Identify portfolios that achieve the resource adequacy requirements established pursuant to Public Utilities Code Section 380 and fully provide CEA's share of system reliability and renewable integration resources.

6. Identify portfolios that fully comply with all CEA board-adopted procurement directives.

7. Identify portfolios that are fully compliant with CEA's obligations under the Renewable Portfolio Standard program.

8. Identify portfolios that are cost-effective and minimize rate impacts on CEA's customers.

b. Methodology

i. Modeling Tool(s)

In developing its planned portfolios CEA uses modeling tools that quantify portfolio targets for renewable energy content, capacity, and portfolio GHG emissions, as well as physical and financial positions to ensure adherence to sound risk management business practices. CEA uses proprietary models to assess annual, monthly, and hourly open positions taking account of forecast hourly electric loads and expected deliveries from CEA's resource portfolio. CEA uses a proprietary financial model to project power supply costs and incorporate existing and planned procurement into an overall financial assessment of revenues, costs, and cash flows. CEA also utilities a commercially available energy trading and risk management system to monitor positions, market exposure, credit exposure, value-at-risk, and other risk management metrics.[8]

For new resource selection, CEA relied upon the modeling and assumptions in the Reference System Portfolio as well as CEA's recent procurement experience which provides insight into resource availability and cost. The mix of new resources selected in the RSP is similar to the mix CEA would select based on its procurement experience.

GHG emissions were assessed using the Commission's Clean System Power tool for the 38 MMT and 46 MMT variations.

ii. Modeling Approach

Load Forecast

CEA developed its IRP using its assigned load forecast from Attachment A to the May 20, 2020 *Administrative Law Judge's Ruling Correcting April 15, 2020 Ruling Finalizing Load Forecasts and Greenhouse Gas Benchmarks for Individual 2020 Integrated Resource Plan Filings* ("Load Forecast Ruling"). As instructed by the Commission, CEA's integrated resource plan includes the existing contracts and the 2020 loads of the Solana Energy Alliance. CEA's assigned load forecast, including Solana Energy Alliances 2020 assigned load forecast, is as follows:

Table 1: CEA's 2020-2030 Load Forecast

Year	Load Forecast (GWh)
2020	58
2021	144

[8] Pioneer Solutions TRMTracker SaaS

2022	929
2023	927
2024	929
2025	933
2026	938
2027	946
2028	953
2029	960
2030	968

Load Shape

In developing its portfolio CEA used the default load shape from the Clean System Power Calculator, which reflects the CAISO hourly system average load shape forecast for the 2019 IEPR Mid Baseline Mid AAEE case.

The use of this load shape does not change CEA's total annual energy volumes for both load and load modifiers, and these energy volumes remain consistent with CEA's assigned load forecast.

Load-Proportional GHG Emissions Benchmark

CEA assessed its modeling against its 2030 load-proportional share of the respective 38 MMT and 46 MMT benchmarks, as specified in the 38 MMT and 46 MMT Clean System Power tools. CEA understands these values to be consistent with the benchmarks assigned in Table 1 of the Load Forecast Ruling, with adjustment for certain allocated emissions as reflected in the Clean System Power tools:[9]

Table 2: CEA's Assigned Shares of GHG Reduction Benchmarks

2030 Load (GWH)	Proportion of 2030 Load Within IOU Territory	2030 GHG Benchmark (MMT) – 46 MMT Scenario	2030 GHG Benchmark (MMT) – 38 MMT Scenario
1,141	5.3%	0.189	0.152

Compiling Existing Resources

To populate its baseline resource templates, CEA added existing resources from the following sources:

[9] Load Forecast Ruling at 5-7 (Table 1)

- Energy Contracts.
- Capacity (Resource Adequacy) Contracts.
- CEA's assigned share of capacity for CAM resources, taken from the most recent year-ahead CAM resource list available on the Commission's Resource Adequacy Compliance Materials webpage.

Selecting New Resources

To identify its new resource procurement, CEA first determined the new resource capacity it intends to add each year, in consideration of resource need (open positions), long-term renewable contracting requirements, renewable portfolio standards, resource adequacy requirements, the need for incremental resource adequacy capacity to contribute to system reliability and renewable integration needs, the potential for technological improvements, and financial considerations. CEA selected resource types based on its experience with competitive solicitations for new renewable and storage resources as well as by making reference to the studies and modeling underlying the adopted Reference System Portfolios.

Confirming Reliability

CEA's portfolios were evaluated to ensure that sufficient dependable capacity (net qualifying capacity) is available to meet peak load requirements plus a 15% reserve margin. CEA used technology specific Effective Load Carrying Capacity ("ELCC") factors provided by the Commission to assess the contribution of each resource to system reliability. CEA's portfolios were designed to ensure that current incremental resource adequacy capacity obligations are met and that CEA contributes to new resource development to address fossil fuel retirements and decommissioning of the Diablo Canyon nuclear power plant.

Calculating GHG Emissions

CEA calculated the emissions associated with its 38 MMT PCP and its 46 MMT PCP using the Commission's Clean System Power calculator tool. The assigned load forecast and default load shapes and behind the meter adjustments were used for this assessment, along with the planned supply portfolios. The results were checked against the assigned GHG benchmarks included in the Clean System Power tools.

III. Study Results

a. Conforming and Alternative Portfolios

As required by the Commission, CEA is submitting two conforming portfolios – a 38 MMT PCP that conforms to the Commission's 38 MMT RSP and a 46 MMT PCP that conforms to the Commission's 46 MMT RSP. CEA is not submitting alternative portfolios.

CEA's 38 MMT PCP

The table included as Attachment B to this Narrative provides a summary of CEA's 2030 38 MMT Portfolio, identifying resources by type and distinguishing between the following procurement categories:

- Existing resources (energy and capacity) that CEA owns or contracts with, consistent with definitions provided in the Resource Data Template.
- Existing resources (energy and capacity) that CEA plans to contract with in the future.
- Existing resources (capacity) that CEA partially pays for through CAM.
- New Resources (energy and capacity) that are under development that CEA is planning to procure.
- Future new resources (energy and capacity) that CEA is planning to procure.

In summary, to meet CEA's projected 2030 energy demand of 968 GWh, CEA has selected a 2030 38 MMT PCP composed primarily of the following resources:

- Existing solar (planned procurement) – 50 MW
- Existing wind (planned procurement) – 32 MW
- Existing hydro (planned procurement) – 19 MW
- New solar (future resources) – 150 MW
- New wind (future resources) - 75 MW
- New short duration storage (future resources) – 77 MW (includes 2 MW procured by SDG&E)
- New long duration storage (future resources) – 7 MW

Additionally, CEA's 2030 38 MMT PCP includes capacity-only resources composed primarily of the following resources:

- CAM, Demand Response and Energy Efficiency Allocations – 45 MW
- Existing natural gas and other (planned procurement) - 69 MW

CEA's portfolio includes a mix of existing and new resources. Approximately 309 MW of CEA's 2030 portfolio is composed of new resources, reflecting CEA's role as an active player in the State's development of new renewable and storage resources.

CEA's 38 MMT PCP Is Consistent With The 38 MMT RSP

The new resources included in CEA's 38 MMT PCP are consistent with the 38 MMT RSP's 2030 new resource mix. Under D.20-03-028, "LSEs are not required to adhere directly to the exact proportion of resources selected by RESOLVE in the 46 MMT or 38 MMT portfolios, in developing their own portfolios" and "specific resources may be used as proxies for similar resources."[10] The Decision requires that LSEs procure resources in four broad categories defined by their attributes: long-duration storage (8-12 hours); short-duration storage (4 hours or less); hybrid resources; and other resources.[11]

As demonstrated in the following table, CEA's 38 MMT portfolio is generally consistent with CEA's proportional share of *new procurement* for each of the four "resource types" identified in D.20-03-028:

Table 3: 38 MMT PCP New Resource Procurement by Resource Type Compared to 38 MMT RSP

Resource Type	38 MMT RSP New Resources[12]	CEA Load-Proportional Share of 38 MMT RSP New Resources	CEA's 38 MMT Portfolio
Long-Duration Storage	1,605 MW	7	7
Short Duration Storage (4 hours or less)	9,714 MW	41	77
Renewable Resources	20,274	85	225
Hybrid Resources[13]	0 MW		0
Other Resources	222	1	0

The differences between CEA's raw proportional share of the 38 MMT RSP New Resources and the resources amounts in CEA's 38 MMT Portfolio reflect CEA's planned contributions to new resource development during this planning period. In particular, CEA plans to add significant

10 D.20-03-028 at 63

11 Id.

12 D.20-03-028 at 46 (Table 8)

13 CEA interprets the category "hybrid resources" as including generation resources that are capable of reliably dispatching to meet late-afternoon peak load. This would include biogas generation, combined solar and storage, and geothermal.

new renewable generation and storage capacity to help reduce reliance on fossil fueled generation, while minimizing GHG emissions and maintaining reliability. As compared to the RSP, CEA's 38 MMT PCP includes more renewable energy and more short and long duration storage which helps contribute to system reliability and renewable resource integration.

CEA's 46 MMT PCP

The table included as Attachment B to this Narrative provides a summary of CEA's 2030 46 MMT PCP, identifying resources by type and distinguishing between the following procurement categories:

- Existing resources (energy and capacity) that CEA owns or contracts with, consistent with definitions provided in the Resource Data Template.
- Existing resources (energy and capacity) that CEA plans to contract with in the future.
- Existing resources (capacity) that CEA partially pays for through CAM.
- New Resources (energy and capacity) that are under development that CEA is planning to procure.
- Future new resources (energy and capacity) that CEA is planning to procure.

In summary, to meet CEA's projected 2030 load of 968 GWh, CEA has selected a 2030 46 MMT PCP composed primarily of the following resources:

- Existing solar (planned procurement) – 30 MW
- Existing wind (planned procurement) – 19 MW
- New solar (future resources) – 150 MW
- New wind (future resources) - 75 MW
- New short duration storage (future resources) – 77 MW (includes 2 MW procured by SDG&E)
- New long duration storage (future resources) – 7 MW

Additionally, CEA's 2030 38 MMT PCP includes capacity-only resources composed primarily of the following resources:

- CAM, Demand Response and Energy Efficiency Allocations – 45 MW
- Existing natural gas and other (planned procurement) - 69 MW

CEA's portfolio includes a mix of existing and new resources. Approximately 309 MW of CEA's 2030 portfolio is composed of new resources, reflecting CEA's role as an active player in the State's development of new renewable and storage resources.

As demonstrated in the following table, CEA's 46 MMT PCP is generally consistent with CEA's proportional share of new procurement for each of the four "resource types" identified in D.20-03-028:

Table 4: 46 MMT PCP New Resource Procurement by Resource Type Compared to 46 MMT RSP

Resource Type	46 MMT RSP New Resources[14]	CEA Proportional Share of 46 MMT RSP New Resources	CEA's 46 MMT PCP
Long-Duration Storage	973 MW	4	7
Short Duration Storage (4 hours or less)	8,873 MW	37	77
Renewable Resources	14,460	61	225
Hybrid Resources[15]	0 MW	0	0
Other Resources	222 MW	1	0

The differences between CEA's raw proportional share of the 46 MMT RSP New Resources and the resources amounts in CEA's 46 MMT PCP reflect CEA's planned contributions to new resource development during this planning period. In particular, CEA plans to add significant new renewable generation and storage capacity to help reduce reliance on fossil fueled generation, while minimizing GHG emissions and maintaining reliability. As compared to the RSP, CEA's 46 MMT PCP includes more renewable energy and more short and long duration storage which helps contribute to system reliability and renewable resource integration.

b. Preferred Conforming Portfolios

38 MMT PCP

As demonstrated in Appendix A, CEA's 38 MMT PCP consists of a combination of:

- Utility-Scale Solar
- In-State Wind
- Large Hydro
- Short-Duration Storage

[14] D.20-03-028 at 41 (Table 5).

[15] CEA interprets the category "hybrid resources" as including generation resources that are capable of reliably dispatching to meet late-afternoon peak load. This would include biogas generation, combined solar and storage, and geothermal.

- Long-Duration Storage
- Natural Gas/Other (capacity only)

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

GHG Reduction Goals

CEA's 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(A) goal of meeting the Commission's 38 MMT GHG reduction benchmark. The 2030 emissions from CEA's 38 MMT PCP are slightly lower than CEA's load-proportional share of the 38 MMT emissions benchmark. CEA's proportional share of the 38 MMT benchmark is 0.159 MMT. According to the Commission's emissions calculator, CEA's 38 MMT PCP would account for 0.158 MMT in 2030 emissions, which is slightly below the assigned benchmark.

Renewable Energy

CEA's 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(B) goal of ensuring that portfolios are composed of at least 50% eligible renewable resources. In 2030 CEA's 38 MMT overall PCP portfolio would consist of 82 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

CEA's 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on ratepayers' bills. CEA's portfolio consists primarily of renewable resources that benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future.

CEA's recent procurement experience indicates that solar costs continue to decline, and lithium ion battery storage is increasingly cost effective relative to other capacity products available in the market, particularly when offered in a tax-advantaged hybrid configuration with solar generation.

CEA prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. CEA anticipates that bill impacts will be minimized as new solar generation projects generally have lower net costs than the prices paid in the short-term renewable energy markets. Coupling new solar with battery storage increases the capacity value of the projects, displacing the need to buy expensive resource adequacy products, and provides limited

dispatchability for the solar generation, minimizing the risk of degradation in energy value. Further, CEA's 38 MMT PCP minimizes exposure to volatile natural gas prices and the bill impacts that can result from periodic spikes in fossil fuel prices.

Ensuring System and Local Reliability

CEA's 38 MMT PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability. The 38 MMT PCP meets system resource adequacy requirements as detailed in Section III.f. CEA will meet its local resource adequacy requirements until such time as a central procurement entity may take on this responsibility pursuant to D.20-06-002 or subsequent decisions that adopt a central procurement entity framework for the SDG&E area. If applicable, some of the planned capacity-only contracts in CEA's 38 MMT PCP could be displaced by local resource adequacy procured by the central procurement entity. However, adoption of the central procurement entity construct is a recent development and does not yet apply to the SDG&E area. To ensure there are no reliability gaps in CEA's 38 MMT PCP, and pursuant to Energy Division Guidance, CEA's portfolio assumes no CAM allocations or CAM resources beyond what is described in the most recently issued year-ahead CAM resource list and allocations. This approach, while consistent with Energy Division direction, will likely ultimately indicate more RA than CEA will be responsible for procuring. Thus, CEA provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

CEA's 38 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(G) goal of enhancing demand-side energy management. CEA's portfolio includes the effects of allocated demand response programs administered by SDG&E on behalf of all delivery service customers within its service area. CEA does not have current plans to administer demand response programs, but CEA may contract with demand response resources for resource adequacy capacity to the extent such opportunities are cost competitive and contribute to system reliability.

Minimizing Localized Air Pollutants With Emphasis on DACs

CEA's 38 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(H) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities. CEA's 38 MMT portfolio relies primarily on renewable generation and hydro-electric generation and would have relatively low GHG and localized air pollution emissions. CEA's 38 MMT portfolio minimizes CEA's reliance on unspecified system power, instead opting for renewable generation procurement and development and hydro generation whenever feasible.

Results from the CSP tool indicate the following localized air pollutants associated with CEA's 38

MMT portfolio in 2030:

- NOx: 13
- PM 2.5: 7
- SO2: 1

These emissions derive from planned use of system energy in the 38 MMT PCP, as well as emissions from CHP resources and system energy assigned to the CEA portfolio by the CSP tool.

46 MMT PCP

As demonstrated in Appendix A, CEA's 46 MMT PCP consists of a combination of:

- Utility-Scale Solar
- In-State Wind
- Short-Duration Storage
- Long-Duration Storage
- Natural Gas/Other (capacity only)

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

GHG Reduction Goals

CEA's 46 MMT PCP achieves emissions *equal to* CEA's proportional share of the 46 MMT benchmark. CCA Program's Proportional Share of the 46 MMT benchmark is 0.189 MMT. According to the Commission's emissions calculator, CEA's 46 MMT portfolio would account for 0.189 MMT in 2030 emissions.

Renewable Energy

CEA's 46 MMT portfolio achieves results and performance characteristics that are consistent with the Section 454.52(a)(1)(B) goal of ensuring that portfolios are composed of at least 50% eligible renewable resources. In 2030 CEA's 46 MMT portfolio would consist of 74 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

CEA's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on ratepayers' bills. CCA's portfolio consists primarily of renewable resources that benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future. CEA's portfolio consists primarily of renewable resources that

benefitted from increasing economies of scale over the past several years and have price projections that continue to drop in the foreseeable future.

CEA's recent procurement experience indicates that solar costs continue to decline, and lithium ion battery storage is increasingly cost effective relative to other capacity products available in the market, particularly when offered in a tax-advantaged hybrid configuration with solar generation.

CEA prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. CEA anticipates that bill impacts will be minimized as new solar generation projects generally have lower net costs than the prices paid in the short-term renewable energy markets. Coupling new solar with battery storage increases the capacity value of the projects, displacing the need to buy expensive resource adequacy products, and provides limited dispatchability for the solar generation, minimizing the risk of degradation in energy value. Further, CEA's 46 MMT PCP minimizes exposure to volatile natural gas prices and the bill impacts that can result from periodic spikes in fossil fuel prices.

Ensuring System and Local Reliability

CEA's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability.

The 46 MMT PCP meets system resource adequacy requirements as detailed in Section III.f. CEA will meet its local resource adequacy requirements until such time as a central procurement entity may take on this responsibility pursuant to D.20-06-002 or subsequent decisions that may adopt a central procurement entity framework for the SDG&E area. If applicable, some of the planned capacity-only contracts in CEA's 46 MMT PCP could be displaced by local resource adequacy procured by the central procurement entity. However, adoption of the central procurement entity construct is a recent development and does not yet apply to the SDG&E area. To ensure there are no reliability gaps in CEA's 46 MMT PCP, and pursuant to Energy Division Guidance, CEA's portfolio assumes no CAM allocations or CAM resources beyond what is described in the most recently issued year-ahead CAM resource list and allocations. This approach, while consistent with Energy Division direction, will likely ultimately indicate more RA than CEA will be responsible for procuring. Thus, CEA provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

CEA's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(G) goal of enhancing demand-side energy management. CEA's portfolio includes the effects of allocated demand response programs administered by SDG&E on behalf of all delivery service customers within its service area. CEA does not have current plans to

administer demand response programs, but CEA may contract with demand response resources for resource adequacy capacity to the extent such opportunities are cost competitive and contribute to system reliability.

Minimizing Localized Air Pollutants With Emphasis on DACs

CEA's 46 MMT portfolio achieves results and performance characteristics consistent with the Section 454.52(a)(1)(H) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities. CEA's 46 MMT portfolio relies primarily on renewable generation in combination with system energy and would have relatively low GHG and localized air pollution emissions.

Results from the CSP tool indicate the following localized air pollutants associated with CEA's 46 MMT portfolio in 2030:

- NOx: 16
- PM 2.5: 9
- SO2: 1

These emissions derive from planned use of system energy in the 46 MMT PCP, as well as emissions from CHP resources and system energy assigned to the CEA portfolio by the CSP tool.

c. GHG Emissions Results

CEA used its load-based proportional share of the 38 and 46 MMT benchmark to determine the emissions compliance for its 38 PCP and its 46 MMT PCP. CEA's assigned load-proportional share of the 38 MMT benchmark is 0.159 MMT. Based on the 38 MMT version of the CSP calculator, CEA's 38 MMT portfolio would result in total 2030 GHG emissions of 0.158 MMT, outperforming CEA's assigned share of the 38 MMT GHG reduction benchmark by 0.001 MMT.

CEA's assigned load-proportional share of the 46 MMT benchmark is 0.202 MMT. Based on the 46 MMT version of the CSP calculator, CEA's 46 MMT portfolio would result in total 2030 GHG emissions of 0.189 MMT, which is equal to its assigned load-proportional share of the 46 MMT benchmark.

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

The 38 MMT version of the CSP calculator estimates the following emissions associated with CEA's 38 MMT portfolio:

- NOx: 13
- PM 2.5: 7

- SO2: 1

The 46 MMT version of the CSP calculator estimates the following emissions associated with CEA's 46 MMT portfolio:

- NOx: 16
- PM 2.5: 9
- SO2: 1

ii. Focus on Disadvantaged Communities

CEA's IRP is fully consistent with the goal of minimizing local air pollutants, with early priority on DACs. As identified in CalEnviroScreen 3.0, CEA serves no census tracks categorized as Disadvantaged Communities.

In total, CEA serves 0 customer accounts located within DACs. This is approximately 0 percent of CEA's total customer base (59,000 customers).

In developing its IRP, CEA carefully considered the impact of its resource procurement on DACs. All of the new resources CEA plans to develop are renewable or storage with no local emissions.

e. Cost and Rate Analysis

CEA's 38 MMT and 46 MMT portfolios are both reasonable from a cost perspective. In selecting resources for its portfolios, CEA carefully considered the cost implications of specific resource selections and procurement timing. This analysis was informed by CEA's procurement experience and the standard assumptions and results of the Commission's RESOLVE/SERVM modeling.

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

CEA's PCPs take advantage of the rapidly falling cost of solar, wind, and battery storage resources. CEA's PCPs also take advantage of the fact that, compared to Investor Owned Utilities, CCAs have significantly shorter generation project development timelines, in part due

to the fact that CCAs do not require Commission approval of such projects. These shorter timelines result in significant direct savings and give CEA more flexibility to time its procurement to take maximum advantage of falling renewable generation prices.

f. System Reliability Analysis

Both CEA's 38 MMT PCP and its 46 MMT PCP are reliable and contribute CEA's fair share to system reliability.

The effective capacity of CEA's 38 MMT PCP is provided in the following "System Reliability Progress Tracking Table" from its 38 MMT Resource Data Template dashboard (note that the rows containing peak demand are confidential and have been redacted from this table). The net qualifying capacity for the month of September is shown for each year in the following table:

System Reliability Progress Tracking Table (NQC MW) for month of September by contract status, 38 MMT portfolio	ELCC type	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
online	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
online	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
online	biomass	-	-	-	-	-	-	-	-	-	-	-
online	cogen	-	-	-	-	-	-	-	-	-	-	-
online	geothermal	-	-	-	-	-	-	-	-	-	-	-
online	hydro	-	-	-	-	-	-	-	-	-	-	-
online	thermal	10	10	10	-	-	-	-	-	-	-	-
online	battery	-	-	-	-	-	-	-	-	-	-	-
online	nuclear	-	-	-	-	-	-	-	-	-	-	-
online	solar	1	-	-	-	-	-	-	-	-	-	-
online	psh	-	-	-	-	-	-	-	-	-	-	-
online	unknown	-	45	45	45	45	45	45	45	45	45	45
development	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
development	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
development	biomass	-	-	-	-	-	-	-	-	-	-	-
development	cogen	-	-	-	-	-	-	-	-	-	-	-
development	geothermal	-	-	-	-	-	-	-	-	-	-	-
development	hydro	-	-	-	-	-	-	-	-	-	-	-
development	thermal	-	-	-	-	-	-	-	-	-	-	-
development	battery	-	-	-	-	-	-	-	-	-	-	-
development	nuclear	-	-	-	-	-	-	-	-	-	-	-
development	solar	-	-	-	-	-	-	-	-	-	-	-
development	psh	-	-	-	-	-	-	-	-	-	-	-
development	unknown	-	-	-	-	-	-	-	-	-	-	-
review	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
review	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
review	biomass	-	-	-	-	-	-	-	-	-	-	-
review	cogen	-	-	-	-	-	-	-	-	-	-	-
review	geothermal	-	-	-	-	-	-	-	-	-	-	-
review	hydro	-	-	-	-	-	-	-	-	-	-	-
review	thermal	-	-	-	-	-	-	-	-	-	-	-
review	battery	-	1	2	2	2	2	2	2	2	2	2
review	nuclear	-	-	-	-	-	-	-	-	-	-	-
review	solar	-	-	-	-	-	-	-	-	-	-	-
review	psh	-	-	-	-	-	-	-	-	-	-	-
review	unknown	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_existing	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_existing	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_existing	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	battery	-	-	-	-	-	-	-	-	-	-	-
planned_existing	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_existing	solar	-	-	-	-	-	-	-	-	-	-	-
planned_existing	psh	-	-	-	-	-	-	-	-	-	-	-
planned_existing	unknown	-	147	147	109	93	94	63	64	66	68	69
planned_new	wind_low_cf	-	-	-	-	17	17	17	17	17	17	17
planned_new	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_new	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_new	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_new	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_new	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	battery	-	-	-	0	0	0	7	7	7	7	7
planned_new	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_new	solar	-	-	-	-	-	-	-	-	-	-	-
planned_new	psh	-	-	-	-	-	-	-	-	-	-	-
planned_new	unknown	-	-	-	50	50	50	75	75	75	75	75
TOTAL supply, NQC MW		11	203	203	206	206	207	208	209	211	213	214

As demonstrated in this Table, CEA's 38 MMT PCP contributes 214 MW of peak monthly net qualifying capacity ("NQC") in 2030. While not shown in the table above, this NQC exceeds CEA's peak load plus 15% planning reserve margin. Of this total, 92 MW are from new renewable and hybrid resources, 2 MW are from new short duration storage, and 7 MW are from new long duration storage. CEA's 38 MMT PCP includes planned contracts with existing resources, likely to be predominantly resource in the existing natural gas generator fleet, for 114 MW of NQC.[17] This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding CEA's share of any system-wide renewable integration resource requirement.

The effective capacity of CEA's 46 MMT PCP is provided in the following "System Reliability Progress Tracking Table" from its 46 MMT Resource Data Template dashboard (note that the rows containing peak demand are confidential and have been redacted from this table). The net qualifying capacity for the month of September is shown for each year in the following table:

[17] An undetermined portion of this capacity may ultimately be procured by the central procurement entity if one is adopted for the SDG&E area.

System Reliability Progress Tracking Table (NQC MW) for month of September by contract status, 46 MMT portfolio	ELCC type	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
online	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
online	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
online	biomass	-	-	-	-	-	-	-	-	-	-	-
online	cogen	-	-	-	-	-	-	-	-	-	-	-
online	geothermal	-	-	-	-	-	-	-	-	-	-	-
online	hydro	-	-	-	-	-	-	-	-	-	-	-
online	thermal	10	10	10	-	-	-	-	-	-	-	-
online	battery	-	-	-	-	-	-	-	-	-	-	-
online	nuclear	-	-	-	-	-	-	-	-	-	-	-
online	solar	1	-	-	-	-	-	-	-	-	-	-
online	psh	-	-	-	-	-	-	-	-	-	-	-
online	unknown	-	45	45	45	45	45	45	45	45	45	45
development	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
development	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
development	biomass	-	-	-	-	-	-	-	-	-	-	-
development	cogen	-	-	-	-	-	-	-	-	-	-	-
development	geothermal	-	-	-	-	-	-	-	-	-	-	-
development	hydro	-	-	-	-	-	-	-	-	-	-	-
development	thermal	-	-	-	-	-	-	-	-	-	-	-
development	battery	-	-	-	-	-	-	-	-	-	-	-
development	nuclear	-	-	-	-	-	-	-	-	-	-	-
development	solar	-	-	-	-	-	-	-	-	-	-	-
development	psh	-	-	-	-	-	-	-	-	-	-	-
development	unknown	-	-	-	-	-	-	-	-	-	-	-
review	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
review	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
review	biomass	-	-	-	-	-	-	-	-	-	-	-
review	cogen	-	-	-	-	-	-	-	-	-	-	-
review	geothermal	-	-	-	-	-	-	-	-	-	-	-
review	hydro	-	-	-	-	-	-	-	-	-	-	-
review	thermal	-	-	-	-	-	-	-	-	-	-	-
review	battery	-	1	2	2	2	2	2	2	2	2	2
review	nuclear	-	-	-	-	-	-	-	-	-	-	-
review	solar	-	-	-	-	-	-	-	-	-	-	-
review	psh	-	-	-	-	-	-	-	-	-	-	-
review	unknown	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_existing	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_existing	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_existing	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	battery	-	-	-	-	-	-	-	-	-	-	-
planned_existing	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_existing	solar	-	-	-	-	-	-	-	-	-	-	-
planned_existing	psh	-	-	-	-	-	-	-	-	-	-	-
planned_existing	unknown	-	147	147	109	93	94	63	64	66	68	69
planned_new	wind_low_cf	-	-	-	-	17	17	17	17	17	17	17
planned_new	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_new	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_new	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_new	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_new	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	battery	-	-	-	0	0	0	7	7	7	7	7
planned_new	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_new	solar	-	-	-	-	-	-	-	-	-	-	-
planned_new	psh	-	-	-	-	-	-	-	-	-	-	-
planned_new	unknown	-	-	-	50	50	50	75	75	75	75	75
TOTAL supply, NQC MW		11	203	203	206	206	207	208	210	211	213	214

As demonstrated in this Table, CEA's 46 MMT PCP contributes 214 MW of peak monthly net qualifying capacity ("NQC") in 2030. While not shown in the table above, this NQC exceeds CEA's peak load plus 15% planning reserve margin. Of this total, 92 MW are from new renewable and hybrid resources, 2 MW are from new short duration storage, and 7 MW are from new long duration storage. CEA's 46 MMT PCP includes planned contracts with existing resources, likely to be predominantly resource in the existing natural gas generator fleet, for 114 MW of NQC.[18] This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding CEA's share of any systemwide renewable integration resource requirement.

g. Hydro Generation Risk Management

CEA's portfolios have little dependence on hydroelectricity and relatively little exposure to the risk of reduced hydro availability due to in-state drought. CEA's 46 MMT PCP has no planned use of hydro, and its 38 MMT PCP includes hydro in smaller amounts than the proportions included in the RSP (see table below). However, if draught conditions or other factors restrict available hydro energy, CEA would plan to substitute renewable energy resources to ensure it meets its assigned GHG benchmark.

Table 5: CEA Preferred Conforming Portfolio's Planned Use of Hydro Compared to RSP

Hydro Resource	38 and 46 MMT RSP MW	CEA Proportionate Share	CEA 46 MMT PCP	CEA 38 MMT PCP
CAISO Hydro	7,070	30	0	13
Hydro Imports	2,852	12	0	6

[18] An undetermined portion of this capacity may ultimately be procured by the central procurement entity if one is adopted for the SDG&E area.

h. Long-Duration Storage Development

The Commission's 38 MMT RSP calls for 1,605 MW of new long-duration storage to be developed and operational by 2026, while the 46 MMT RSP calls for 973 MW of new long-duration storage to be operational by 2026.

In response to the Commission's analysis, thirteen CCAs (the Joint CCAs) issued a request for information ("RFI") on long-duration storage in June 2020. This RFI defined long-duration storage resources as those with the capability to discharge at full capacity for at least 8 hours. The RFI requested the following types of information: (1) storage technology and commercial history; (2) project specifics, including location, permitting, financing and development risks; (3) contracting terms and preferences, including indicative pricing.

The Joint CCAs received responses from 31 entities representing numerous types of chemical, mechanical and thermal long-duration storage technologies, such as: lithium-ion batteries; vanadium redox and other flow batteries; used electric vehicle batteries; waste to fuels via ultrasound; hydrogen storage; pumped storage hydro; geomechanical pumped storage; crane and stacked blocks; compressed air; flywheels; and molten salt and other thermal storage technologies. Moreover, the respondents identified 25 specific projects that represent more than 9,000 MW of capacity, two thirds of which is advertised as able to achieve commercial operation by 2026.

CEA will be considering the information made available through the RFI and will be assessing the economics of such projects. This assessment is expected to lead to Requests for Offers (RFOs) and transactional discussions aimed at bringing actual projects online by 2026. For its part, CEA anticipates it will procure its share of the CPUC's 1,605 MW target, which for CEA translates to 7 MW of long-duration storage online by 2026. Due to the scale and complexity of these projects, however, successful development will depend on efficient collaboration among numerous entities including load-serving entities, developers, manufacturers, market operators, regulators and environmental stakeholders.

i. Out-of-State Wind Development

The Commission's 38 MMT RSP calls for 3,000 MW of new out-of-state wind generation ("OOS Wind") to be developed and operational by 2030, while the 46 MMT RSP calls for 606 MW of new OOS Wind to be operational by 2030. CEA understands that the transmission projects needed to connect OOS wind to the CAISO grid require significant lead-times. However, given the fact that OOS Wind is not needed until 2030, CEA believes that a careful and considered approach to potential OOS Wind projects is best. CEA does not have specific plans for use of

OOS wind at this time, but is open to purchases of such resources and will evaluate offers it receives during its regular procurement process.

j. Transmission Development

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

- CEA has a general preference for resources located within its service area and the communities it serves.
- CEA preferred projects in locations that can utilize existing transmission infrastructure with minimal upgrade/modification costs.
- CEA preferred low-impact renewable energy projects that provide economic benefit to DACs, subject to community interest in locally siting such projects.

Unlike the IOUs, CEA is not a transmission and distribution ("T&D") system operator. CEA does not enjoy the benefits of a granular knowledge of PG&E's T&D system, and CEA is not in the best position to identify optimal resource locations. In practice, CEA relies on project developers to conduct the research and technical studies necessary for siting potential generation projects. CEA evaluates projects offered by developers based on a variety of criteria, including transmission availability, nodal prices and potential for congestion, project viability, environmental, workforce, and other factors. As such, CEA generally utilized the RSP selected candidate resources as a guide for likely resource locations in its 38 MMT PCP and its 46 MMT PCP. These should be treated as general expectations based on the above-listed considerations, not set-in-stone selections, and actual project locations will be selected during CEA's solicitation processes.

CEA's 38 MMT PCP and 46 MMT PCP include a total of 232 MW of new resources to be built at the locations identified in CEA's 38 MMT resource data template. The following table provides a list of these resources, their identified locations, and CEA's preferred alternate locations if the Commission's modeling finds that the selected locations are not feasible.

New Resource Type	Size (MW)	Selected Resource	Preferred Alternative Resource/Location
Wind	75	Tehachapi_Wind	Southern_California_Desert_Ex_Wind
Hybrid	150	New_Hybrid	N/A
Storage, Long Duration*	7	New_Li_Battery	New_Flow_Battery

*CEA is exploring numerous long-duration storage technology types, as highlighted above in section H. However, the new resolve categories limits LSEs to “new lithium-ion” and “new flow” technology types for purposes of the Resource Data Template.

IV. Action Plan

a. Proposed Activities

CEA’s procurement process includes the following key activities:

a) Identification of planned resources by type, desired online date, and capacity.
b) Planning for procurement activities in consideration of CEA’s risk management policy; resource acquisition lead times including, where applicable, development timelines; staff capacity; and financial considerations
c) Design and administration of resource solicitations. For new resources, these typically take the form of periodic request for offers processes, while for existing resources, procurement activity is more frequent and routinized
d) Careful negotiation of contract terms to ensure positive outcomes for CEA customers with appropriate risk mitigation
e) Ongoing contract management, including where applicable, careful monitoring of development milestones.

b. Procurement Activities

CEA intends to take the following near-term (in the next 1-3 years) to implement its IRP and associated portfolio:

- Complete negotiations for projects selected in CEA’s recently completed request for offers for renewable energy projects.
- Conduct one or more competitive solicitations for new renewable resources with planned online dates before 2026.
- Refine plans for procurement of long duration storage and begin solicitation process in 2023 or 2024 for a planned online date in 2026
- Carefully manage CEA’s supply portfolio to achieve CEA’s policy objectives and ensure compliance with all regulatory requirements

CEA’s Procurement of Incremental System Capacity Pursuant to D.19-11-016

In D.19-11-016, the Commission ordered LSEs to collectively procure a total of 3,300 MW of incremental system capacity by 2023, with specific procurement obligations allocated to each LSE. CEA's share of incremental capacity is being procured by SDG&E.

c. Potential Barriers

CEA has identified the following market, regulatory, financial, or other barriers or risks that may impede CEA's ability to acquire the resources identified in its Portfolio:

- Impacts of the Covid-19 pandemic on supply chains, the labor force, financial markets, and the overall ability of firms to timely develop generation and storage resources
- The potential for regulatory changes, including centralized procurement and rule changes that create uncertainty and undermine CEA's willingness or ability to enter into long term resource commitments
- Uncertainty around possible resource allocations from SDG&E resulting from the PCIA working group process and the lack of an allocation method to efficiently transfer excess resources from SDG&E to new CCAs.
- The inflexibility in long term contracting requirements under the renewable portfolio standards program, which does not accommodate a gradual ramping of resource commitments that would be appropriate for newly forming CCAs.
- Factors that may restrict availability of resource adequacy capacity such as retirement of conventional resources, the potential re-rating of renewable resource or battery storage Effective Load Carrying Capacity
- Factors that may increase CEA customer costs such as potential regulatory changes relating to the treatment of SDG&E generation costs and the share of costs allocated to CEA customers through the PCIA

d. Commission Direction or Actions

CEA encourages the Commission to adopt durable rules and processes to bring greater stability to the regulatory framework within which CEA and suppliers must plan and operate. Frequent rule changes disrupt CEA's ability to plan for the long term and to execute on the plan while minimizing costs to its customers.

e. Diablo Canyon Power Plant Replacement

CEA has included plans for new capacity development in its PCPs that are sufficient to meet its share of replacement capacity from the Diablo Canyon Power Plant. CEA's load ratio share of Diablo Canyon is estimated to be 10 MW, and CEA has plans to add 309 MW of new capacity, including 101 MW of (September) net qualifying capacity by 2030. 69 MW of the planned incremental net qualifying capacity would be available by 2024 when decommissioning of Diablo Canyon commences.

V. Lessons Learned

CEA's experience completing the resource data template and the clean system power tools leads to the following observations and suggestions:

- The Resource Data Template "dashboard" sheet could be enhanced to auto-populate comparisons of the LSE portfolio to the Reference System Portfolio, which could then be directly used in the IRP Narrative.
- The requirement to use "transfer_sale" and "transfer_purchase" for certain entries in the resource field caused a loss of information. It would be better to allow the actual resource information to be entered in the resource field and include another field to indicate if the transaction is a sale or purchase with another load serving entity.
- The resource categories in the Clean System Power tool should be consistent with those in the Resource Data Template, and ideally a summary sheet would be created in the Resource Data Template to compile the Supply data needed for the Clean System Power calculator. For example, there is no category for a hybrid resource in the Clean System Power tool and no obvious category mapping.
- The Resource Data Template should include annual CAM capacity and allow the LSE to simply enter its load ratio share to auto-populate its CAM allocations.
- Reliability metrics should be standardized and specified to the extent that the NQC dashboard presented in the RDT does not capture required reliability attributes.

The late receipt of final templates and instructions makes it extremely challenging complete the IRP and obtain Board approval before the filing deadline. There were many changes in the IRP requirements this cycle, which took considerable time to understand and get clarification where needed. CEA recognizes the challenge Commission staff faces in trying to refine and manage the IRP process, but more consideration must be given to the burdens this process puts on respondent load serving entities, many of which are small entities with limited staff. In this cycle, updated guidance was provided by the Commission as late as August 11th, which is

unreasonably late in the process, considering the unchanged September 1st filing deadline. The Commission should establish rules that require a minimum of four months from the time that final templates, guidance, and instructions are published and the due date for filing the IRPs.

Glossary of Terms

Alternative Portfolio: *LSEs are permitted to submit "Alternative Portfolios" developed from scenarios using different assumptions from those used in the Reference System Plan. Any deviations from the "Conforming Portfolio" must be explained and justified.*

Approve (Plan)*: the CPUC's obligation to approve an LSE's integrated resource plan derives from Public Utilities Code Section 454.52(b)(2) and the procurement planning process described in Public Utilities Code Section 454.5, in addition to the CPUC obligation to ensure safe and reliable service at just and reasonable rates under Public Utilities Code Section 451.*

Balancing Authority Area (CAISO): *the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.*

Baseline resources: *Those resources assumed to be fixed as a capacity expansion model input, as opposed to Candidate resources, which are selected by the model and are incremental to the Baseline. Baseline resources are existing (already online) or owned or contracted to come online within the planning horizon. Existing resources with announced retirements are excluded from the Baseline for the applicable years. Being "contracted" refers to a resource holding signed contract/s with an LSE/s for much of its energy and capacity, as applicable, for a significant portion of its useful life. The contracts refer to those approved by the CPUC and/or the LSE's governing board, as applicable. These criteria indicate the resource is relatively certain to come online. Baseline resources that are not online at the time of modeling may have a failure rate applied to their nameplate capacity to allow for the risk of them failing to come online.*

Candidate resource: *those resources, such as renewables, energy storage, natural gas generation, and demand response, available for selection in IRP capacity expansion modeling, incremental to the Baseline resources.*

Capacity Expansion Model: *a capacity expansion model is a computer model that simulates generation and transmission investment to meet forecast electric load over many years, usually with the objective of minimizing the total cost of owning and operating the electrical system. Capacity expansion models can also be configured to only allow solutions that meet specific requirements, such as providing a minimum amount of capacity to ensure the reliability of the system or maintaining greenhouse gas emissions below an established level.*

Certify (a Community Choice Aggregator Plan)*: Public Utilities Code 454.52(b)(3) requires the CPUC to certify the integrated resource plans of CCAs. "Certify" requires a formal act of the Commission to determine that the CCA's Plan complies with the requirements of the statute and the process established via Public Utilities Code 454.51(a). In addition, the Commission must review the CCA Plans to determine any potential impacts on public utility bundled customers under Public Utilities Code Sections 451 and 454, among others.*

Clean System Power (CSP, formerly "Clean Net Short") methodology*: the methodology used to estimate GHG emissions associated with an LSE's Portfolio based on how the LSE will expect to rely on system power on an hourly basis.*

Community Choice Aggregator*: a governmental entity formed by a city or county to procure electricity for its residents, businesses, and municipal facilities.*

Conforming Portfolio*: the LSE portfolio that conforms to IRP Planning Standards, the 2030 LSE-specific GHG Emissions Benchmark, use of the LSE's assigned load forecast, use of inputs and assumptions matching those used in developing the Reference System Portfolio, as well as other IRP requirements including the filing of a complete Narrative Template, a Resource Data Template and Clean System Power Calculator*.

Effective Load Carrying Capacity*: a percentage that expresses how well a resource is able avoid loss-of-load events (considering availability and use limitations). The percentage is relative to a reference resource, for example a resource that is always available with no use limitations. It is calculated via probabilistic reliability modeling, and yields a single percentage value for a given resource or grouping of resources.*

Electric Service Provider*: an entity that offers electric service to a retail or end-use customer, but which does not fall within the definition of an electrical corporation under Public Utilities Code Section 218.*

Filing Entity*: an entity required by statute to file an integrated resource plan with CPUC.*

Future*: a set of assumptions about future conditions, such as load or gas prices.*

GHG Benchmark (or LSE-specific 2030 GHG Benchmark)*: the mass-based GHG emission planning targets calculated by staff for each LSE based on the methodology established by the California Air Resources Board and required for use in LSE Portfolio development in IRP.*

GHG Planning Price: *the systemwide marginal GHG abatement cost associated with achieving a specific electric sector 2030 GHG planning target.*

Integrated Resources Planning Standards (Planning Standards)*: the set of CPUC IRP rules, guidelines, formulas and metrics that LSEs must include in their LSE Plans.*

Integrated Resource Planning (IRP) process*: integrated resource planning process; the repeating cycle through which integrated resource plans are prepared, submitted, and reviewed by the CPUC*

Long term*: more than 5 years unless otherwise specified.*

Load Serving Entity*: an electrical corporation, electric service provider, community choice aggregator, or electric cooperative.*

Load Serving Entity (LSE) Plan*: an LSE's integrated resource plan; the full set of documents and information submitted by an LSE to the CPUC as part of the IRP process.*

Load Serving Entity (LSE) Portfolio*: a set of supply- and/or demand-side resources with certain attributes that together serve the LSE's assigned load over the IRP planning horizon.*

Loss of Load Expectation (LOLE): *a metric that quantifies the expected frequency of loss-of-load events per year. Loss-of-load is any instance where available generating capacity is insufficient to serve electric demand. If one or more instances of loss-of-load occurring within the same day regardless of duration are counted as one loss-of-load event, then the LOLE metric can be compared to a reference point such as the industry probabilistic reliability standard of "one expected day in 10 years," i.e. an LOLE of 0.1.*

Net Qualifying Capacity: *Qualifying Capacity reduced, as applicable, based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions. The Net Qualifying Capacity determination shall be made by the California ISO pursuant to the provisions of this California ISO Tariff and the applicable Business Practice Manual.*

Non-modeled costs*: embedded fixed costs in today's energy system (e.g., existing distribution revenue requirement, existing transmission revenue requirement, and energy efficiency program cost).*

Nonstandard LSE Plan*: type of integrated resource plan that an LSE may be eligible to file if it serves load outside the CAISO balancing authority area.*

Optimization*: an exercise undertaken in the CPUC's Integrated Resource Planning (IRP) process using a capacity expansion model to identify a least-cost portfolio of electricity resources for meeting specific policy constraints, such as GHG reduction or RPS targets, while maintaining reliability given a set of assumptions about the future. Optimization in IRP considers resources assumed to be online over the planning horizon (baseline resources), some of which the model may choose not to retain, and additional resources (candidate resources) that the model is able to select to meet future grid needs.*

Planned resource: *any resource included in an LSE portfolio, whether already online or not, that is yet to be procured. Relating this to capacity expansion modeling terms, planned resources can be baseline resources (needing contract renewal, or currently owned/contracted by another LSE), candidate resources, or possibly resources that were not considered by the modeling, e.g., due to the passage of time between the modeling taking place and LSEs developing their plans. Planned resources can be specific (e.g., with a CAISO ID) or generic, with only the type, size and some geographic information identified.*

Qualifying capacity*: the maximum amount of Resource Adequacy Benefits a generating facility could provide before an assessment of its net qualifying capacity.*

Preferred Conforming Portfolio*: the conforming portfolio preferred by an LSE as the most suitable to its own needs; submitted to CPUC for review as one element of the LSE's overall IRP plan.*

Preferred System Plan: *the Commission's integrated resource plan composed of both the aggregation of LSE portfolios (i.e., Preferred System Portfolio) and the set of actions necessary to implement that portfolio (i.e., Preferred System Action Plan).*

Preferred System Portfolio: *the combined portfolios of individual LSEs within the CAISO, aggregated, reviewed and possibly modified by Commission staff as a proposal to the Commission, and adopted by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Preferred System Plan.*

Reference System Plan: *the Commission's integrated resource plan that includes an optimal portfolio (Reference System Portfolio) of resources for serving load in the CAISO balancing authority area and meeting multiple state goals, including meeting GHG reduction and reliability targets at least cost.*

Reference System Portfolio*: the multi-LSE portfolio identified by staff for Commission review and adopted/modified by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Reference System Plan.*

Short term*: 1 to 3 years (unless otherwise specified).*

***Staff**: CPUC Energy Division staff (unless otherwise specified).*

***Standard LSE Plan**: type of integrated resource plan that an LSE is required to file if it serves load within the CAISO balancing authority area (unless the LSE demonstrates exemption from the IRP process).*

CEA 2030 Resource Mix – 38 MMT BAPP

Resource Type	Existing Resources (Owned/Contracted)	Existing Resources (Planned Procurement)	Existing Resources (CAM)	New Resources (In Development)	Future New Resources	Total
Nuclear						0
CHP						0
Natural Gas						0
Coal						0
Hydro (Large)		13				13
Hydro (Scheduled Imports)		6				6
Biomass						0
Geothermal						0
Hydro (Small)						0
Wind		32			75	107
Out-of-State Wind on New Transmission						0
Solar		50			150	200
Customer Solar						0
Battery Storage					75	75
Pumped (long-duration) Storage						0
Shed Demand Response						0
Capacity-Only						
Natural Gas		69	45			114
Battery Storage					2	2
Long Duration Storage					7	7

CEA 2030 Resource Mix – 46 MMT PCP

Resource Type	Existing Resources (Owned/Contracted)	Existing Resources (Planned Procurement)	Existing Resources (CAM)	New Resources (In Development)	Future New Resources	Total
Nuclear						0
CHP						0
Natural Gas						0
Coal						0
Hydro (Large)						0
Hydro (Scheduled Imports)						0
Biomass						0
Geothermal						0
Hydro (Small)						0
Wind		19			75	94
Out-of-State Wind on New Transmission						0
Solar		30			150	180
Customer Solar						0
Battery Storage					75	75
Pumped (long-duration) Storage						0
Shed Demand Response						0
Capacity-Only						
Natural Gas		69	45			114
Battery Storage					2	2
Long Duration Storage					7	7

RESOLUTION NO. 2020-004

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CLEAN ENERGY ALLIANCE APPROVING AN INTEGRATED RESOURCE PLAN

WHEREAS, Community Choice Aggregation (CCA), authorized by Assembly Bill 117, is a state law that allows cities, counties and other authorized entities to aggregate electricity demand within their jurisdictions in order to purchase and/or generate alternative energy supplies for residents and businesses within their jurisdiction while maintaining the existing electricity provider for transmission and distribution services; and

WHEREAS, Senate Bill 350, approved October 7, 2015, establishes a requirement for Community Choice Aggregation Programs to develop an Integrated Resource Plan and submit it to the California Public Utilities Commission for certification; and

WHEREAS, Clean Energy Alliance's Integrated Resource Plan was developed consistent with the requirements as established by the California Public Utilities Commission.

NOW, THEREFORE, BE IT RESOLVED, BY THE BOARD OF DIRECTORS OF THE CLEAN ENERGY ALLIANCE, AS FOLLOWS:

SECTION 1. That based upon and in consideration of staff reports, presentations, public testimony and comment, and such other matters presented to the Board of Directors during the public meeting on this matter, the Board of Directors finds and declares the foregoing recitals to be true and correct and incorporates the same as substantive findings herein.

SECTION 2. That the Integrated Resource Plan for CEA has been developed in compliance with SB 350 and California Public Utilities Commission direction and is hereby approved.

SECTION 3. That the Board Secretary shall certify to the adoption of this Resolution, and it shall become effective immediately upon adoption.

PASSED, APPROVED and ADOPTED this 20th day of August 2020 by the following vote:

AYES: Haviland, Becker, Schumacher .

NOES: None.

ABSTAIN: None.

ABSENT: None.

ATTEST:

for

Sheila Cobian, Board Secretary

APPROVED:

Ellen Haviland, Chair