Template updated by Commission on June 15, 2020

Standard LSE Plan

SAN DIEGO COMMUNITY POWER
2020 INTEGRATED RESOURCE PLAN
SEPTEMBER 1, 2020

Public Version

VERIFICATION

I, Cody Hooven, declare the following: I am the Interim Executive Officer of San Diego Community Power, and I am authorized to make this verification. I have read the 2020 Integrated Resource Plan of San Diego Community Power 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 San Diego Community Power. The information contained in the document is true, except as to matters which were provided by the by the employees, attorneys or agents of San Diego Community Power, 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 31, 2020 at San Diego, California.

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I. Introduction and Executive Summary

a. Introduction

Description of SDCP

San Diego Community Power is a Joint Powers Authority ("JPA") formed by the communities of Chula Vista, Encinitas, Imperial Beach, La Mesa, and San Diego in October 2019.

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

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

- City Chula Vista
- City of Encinitas
- City of Imperial Beach
- City of La Mesa
- City of San Diego

SDCP plans to begin serving load to its first phase of customer enrollments in March 2021. Once all enrollment phases are completed, SDCP's anticipated customer base will include approximately 667,000 residential accounts and 71,500 commercial and industrial accounts.

SDCP's Mission

SDCP was formed for the express purpose of empowering its member communities to choose the generation resources that reflect their specific values and needs. SDCP was established to procure and develop electrical energy for customers in participating jurisdictions, address climate change by reducing energy-related greenhouse gas emissions, promote electrical rate price stability, and foster local economic benefits such as job creation, local energy programs and local power development.

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

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

Introduction to SDCP'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 , SDCP 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, SDCP's IRP includes the following documents:

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

As directed in D.20-03-028, SDCP 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, SDCP is a new entity currently focused primarily on activities leading to the successful launch of the program in 2021. The future resources identified in SDCP's IRP represent SDCP'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 SDCP's IRP may change due to new information and changed circumstances, and the ultimate resource mix that SDCP 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 SDCP'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 SDCP's governing board. On August 27th, 2020, SDCP's board approved this IRP narrative, which adopts SDCP's 46 MMT Preferred Conforming Portfolio ("46 MMT PCP") and its 38 MMT Preferred Conforming Portfolio ("38 MMT PCP"). In approving this IRP narrative, SDCP's board also makes the following determinations regarding SDCP's Preferred Conforming Portfolios ("PCPs"):

- SDCP'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).
- SDCP's PCPs includes a diversified procurement portfolio consisting of both short-term and long-term electricity and electricity-related and demand reduction products.
- SDCP's PCPs achieves the resource adequacy requirements established pursuant to Public Utilities Code Section 380.
- SDCP'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.
- SDCP's PCPs are fully compliant with all SDCP board-adopted procurement directives.

Request for Certification

SDCP 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:

- 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]

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[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.").

[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).

- 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]

SDCP 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 SDCP's IRP.

b. Executive Summary

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

SDCP developed its IRP through the following steps:

- SDCP 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, SDCP identified its short positions relative to SDCP planning targets in consideration of its assigned load forecast.
- SDCP populated the Resource Data Template with all current contracts.
- SDCP compiled detailed information on projects for which it is currently negotiating power purchase agreements, including information regarding project status and timing.
- SDCP identified future contracts it expects for new solar, storage, geothermal, and wind generation. SDCP prioritized the selection of future resources that ensure SDCP's overall portfolio of new resources is consistent with the relevant Reference System Portfolio's resource attribute/category mix,[7] procurement timing, and SDCP's proportional share of planned new procurement.
- SDCP added generic future contracts with existing resources to help fill its remaining open positions.

[6] Section 454.51.

[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.

- SDCP 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 at or below SDCP's assigned share of the 38 MMT benchmark.
- SDCP identified the resulting portfolio as its 38 MMT PCP.
- Using the 38 MMT PCP as a starting point, SDCP replaced planned large hydro-electric with system power until the portfolio had emissions equal to the SDCP assigned share of the 46 MMT GHG benchmark.
- SDCP identified the resulting portfolio as its 46 MMT PCP.
- SDCP checked both its 38 MMT PCP and its 46 MMT PCP for reliability by comparing the total portfolio net qualifying capacity against SDCP's RA requirements for the month of September in each year of the planning period. SDCP further established that its planned incremental capacity exceeds its pro rata share of capacity that may be needed for replacement of Diablo Canyon.

SDCP reached the following findings regarding its 38 MMT PCP:

- SDCP's 38 MMT portfolio includes the procurement of the following new resources:
    - New hybrid resources totaling 600 MW solar/ 300 MW battery storage
    - New wind resources totaling 300 MW
    - New solar resource totaling 400 MW
    - New geothermal resources totaling 100 MW
    - New long duration storage of 65 MW
    - New short duration storage of 116 MW (incremental capacity procured by SDG&E on SDCP's behalf)
- SDCP's 38 MMT portfolio provides for the following overall resource mix in 2030:
    - 426 MW of large hydro
    - 556 MW of wind
    - 1,398 MW of solar
    - 100 MW of geothermal
    - 416 MW of short duration battery storage
    - 65 MW of long duration storage
    - 1,327 MW of natural gas/other (capacity-only)
- SDCP's 38 MMT portfolio is consistent with procurement timing, resource quantities, and general resource attributes identified in the 38 MMT RSP.
- SDCP's 38 MMT portfolio would have 2030 emissions of 1.084 MMT. This is below SDCP's assigned share of 2030 emissions, 1.210 MMT.
- SDCP's 38 MMT portfolio meets all relevant reliability metrics.

- SDCP's 38 MMT portfolio provides more than SDCP's load-proportional share of renewable integration resources.

SDCP reached the following findings regarding its 46 MMT portfolio:

- SDCP's 46 MMT portfolio includes the procurement of the following new resources:
    - New hybrid resources totaling 600 MW solar/ 300 MW battery storage
    - New wind resources totaling 300 MW
    - New solar resource totaling 400 MW
    - New geothermal resources totaling 100 MW
    - New long duration storage of 65 MW
    - New short duration storage of 120 MW (incremental capacity procured by SDG&E on SDCP's behalf)
- SDCP's 46 MMT portfolio provides for the following overall resource mix in 2030:
    - 1 MW of large hydro
    - 556 MW of wind
    - 1,398 MW of solar
    - 100 MW of geothermal
    - 420 MW of short duration battery storage
    - 65 MW of long duration storage
    - 1,327 MW of natural gas/other (capacity-only)
- SDCP's 46 MMT portfolio conforms to the procurement timing, resource quantities, and general resource attributes identified in the 46 MMT RSP.
- SDCP's 46 MMT portfolio would have 2030 emissions of 1.510 MMT. This is equivalent to SDCP's assigned share of 2030 emissions, 1.510 MMT.

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

- SDCP will periodically solicit offers for new renewable generation and storage projects. These resources are typically secured through long term power purchase agreements. SDCP expects to secure power purchase agreements for new projects in multiple solicitations conducted over the next several years.
- Periodically throughout the year, SDCP 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 SDCP'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

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

1. Identify a 38 MMT portfolio with emissions equal to SDCP'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 SDCP'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 SDCP's share of system reliability and renewable integration resources.

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

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

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

b. Methodology

i. Modeling Tool(s)

In developing its planned portfolios SDCP 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. SDCP uses proprietary models to assess annual, monthly, and hourly open positions taking account of forecast hourly electric loads and expected deliveries from SDCP's resource portfolio. SDCP 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. SDCP 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, SDCP relied upon the modeling and assumptions in the Reference System Portfolio as well as SDCP'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 SDCP would select based on its procurement experience, although SDCP anticipates use of new geothermal resources that are not reflected in the RSP.

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

SDCP 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"). SDCP's assigned load forecast is as follows:

Table 1: SDCP's 2020-2030 Load Forecast

Year	Load Forecast (GWh)
2020	
2021	3227

[8] Pioneer Solutions TRMTracker SaaS

2022	7407
2023	7393
2024	7406
2025	7442
2026	7485
2027	7541
2028	7601
2029	7660
2030	7719

Load Shape

In developing its portfolio SDCP 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 SDCP's total annual energy volumes for both load and load modifiers, and these energy volumes remain consistent with SDCP's assigned load forecast.

Load-Proportional GHG Emissions Benchmark

SDCP 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. SDCP 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: SDCP's Assigned Shares of GHG Reduction Benchmarks

2030 Load (GWH)	Proportion of 2030 Load Within IOU Territory	2030 GHG Benchmark (MMT) – 38 MMT Scenario	2030 GHG Benchmark (MMT) – 46 MMT Scenario
7,719	42.4%	1.210	1.510

Compiling Existing Resources

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

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

- Energy Contracts.
- Capacity (Resource Adequacy) Contracts.
- SDCP'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.
- SDCP's share of incremental capacity procured by SDG&E.

Selecting New Resources

To identify its new resource procurement, SDCP 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. SDCP 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

SDCP'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. SDCP used technology specific Effective Load Carrying Capacity ("ELCC") factors provided by the Commission to assess the contribution of each resource to system reliability. SDCP's portfolios were designed to ensure that current incremental resource adequacy capacity obligations are met and that SDCP contributes to new resource development to address fossil fuel retirements and decommissioning of the Diablo Canyon nuclear power plant.

Calculating GHG Emissions

SDCP 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, SDCP 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. SDCP is not submitting alternative portfolios.

SDCP's 38 MMT PCP

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

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

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

- Existing solar (planned procurement) – 398 MW
- Existing wind (planned procurement) – 256 MW
- Existing hydro (planned procurement) – 426 MW
- New solar (future resources) – 1,000 MW
- New wind (future resources) - 300 MW
- New geothermal (future resources) – 100 MW
- New short duration storage (future resources) – 416 MW (includes 116 MW procured by SDG&E)
- New long duration storage (future resources) – 65 MW

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

- CAM, Demand Response and Energy Efficiency Allocations – 172 MW
- Existing natural gas and other (planned procurement) – 1,155 MW

SDCP's portfolio includes a mix of existing and new resources. Approximately 1,881 MW of SDCP's 2030 portfolio is composed of new resources, reflecting SDCP's role as an active player in the State's development of new renewable and storage resources.

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

The new resources included in SDCP'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, SDCP's 38 MMT portfolio is generally consistent with SDCP'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]	SDCP Load-Proportional Share of 38 MMT RSP New Resources[13]	SDCP's 38 MMT Portfolio
Long-Duration Storage	1,605 MW	61	65
Short Duration Storage (4 hours or less)	9,714 MW	369	416
Renewable Resources	20,274	770	1,400
Hybrid Resources[14]	0 MW		0
Other Resources	222	0	0

10 D.20-03-028 at 63

11 Id.

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

13 SDCP estimated its proportional share based on share of system peak demand in September 2021, adjusted for the SDCP's load growth due to its planned phase in schedule. SDCP's adjusted share is 3.8% of total system peak demand.

14 SDCP 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.

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

SDCP's 46 MMT PCP

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

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

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

- Existing solar (planned procurement) – 398 MW
- Existing wind (planned procurement) – 256 MW
- New solar (future resources) – 1,000 MW
- New wind (future resources) - 300 MW
- New geothermal (future resources) – 100 MW
- New short duration storage (future resources) – 420 MW (includes 120 MW procured by SDG&E)
- New long duration storage (future resources) – 65 MW

Additionally, SDCP's 2030 46 MMT PCP includes capacity-only resources composed primarily of the following resources:

- CAM, Demand Response and Energy Efficiency Allocations – 172 MW
- Existing natural gas and other (planned procurement) – 1,185 MW

SDCP's portfolio includes a mix of existing and new resources. Approximately 1,885 MW of SDCP's 2030 portfolio is composed of new resources, reflecting SDCP's role as an active player in the State's development of new renewable and storage resources.

As demonstrated in the following table, SDCP's 46 MMT PCP is generally consistent with SDCP'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[15]	SDCP Proportional Share of 46 MMT RSP New Resources	SDCP's 46 MMT PCP
Long-Duration Storage	973 MW	37	65
Short Duration Storage (4 hours or less)	8,873 MW	337	420
Renewable Resources	14,460	549	1,400
Hybrid Resources[16]	0 MW	0	0
Other Resources	222 MW	8	0

The differences between SDCP's raw proportional share of the 46 MMT RSP New Resources and the resources amounts in SDCP's 46 MMT PCP reflect SDCP's planned contributions to new resource development during this planning period. In particular, SDCP 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, SDCP'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

15 D.20-03-028 at 41 (Table 5).

16 SDCP 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.

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

- Utility-Scale Solar
- In-State and Out-of-State Wind
- Geothermal
- Large Hydro
- Short-Duration Storage
- Long-Duration Storage
- Natural Gas/Other (capacity only)

As stated above, in accordance with Section 454.51(b)(3), SDCP'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

SDCP'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 SDCP's 38 MMT PCP are lower than SDCP's load-proportional share of the 38 MMT emissions benchmark. SDCP's proportional share of the 38 MMT benchmark is 1.210 MMT. According to the Commission's emissions calculator, SDCP's 38 MMT PCP would account for 1.084 MMT in 2030 emissions, which is below the assigned benchmark.

Renewable Energy

SDCP'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 SDCP's 38 MMT overall PCP portfolio would consist of 75 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

SDCP'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. SDCP'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.

SDCP'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.

SDCP prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. SDCP 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, SDCP'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

SDCP'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. SDCP 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 SDCP'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 SDCP's 38 MMT PCP, and pursuant to Energy Division guidance, SDCP'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 SDCP will be responsible for procuring. Thus, SDCP provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

SDCP'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. SDCP'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. SDCP does not have current plans to administer demand response programs, but SDCP 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

SDCP'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 emissionswith early priority on disadvantaged communities. SDCP's 38 MMT portfolio relies primarily on renewable generation and hydro-electric generation and would have relatively low GHG and localized air pollution emissions. SDCP's 38 MMT portfolio minimizes SDCP'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 SDCP's 38 MMT portfolio in 2030:

- NOx: 92
- PM 2.5: 49
- SO2: 5

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 SDCP portfolio by the CSP tool.

46 MMT PCP

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

- Utility-Scale Solar
- In-State and Out-of-State Wind
- Geothermal
- Large Hydro
- Short-Duration Storage
- Long-Duration Storage
- Natural Gas/Other (capacity only)

As stated above, in accordance with Section 454.51(b)(3), SDCP'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

SDCP's 46 MMT PCP achieves emissions *equal to* SDCP's proportional share of the 46 MMT benchmark. CCA Program's Proportional Share of the 46 MMT benchmark is 1.510 MMT. According to the Commission's emissions calculator, SDCP's 46 MMT portfolio would account for 1.510 MMT in 2030 emissions

Renewable Energy

SDCP'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 SDCP's 46 MMT portfolio would consist of 75 percent eligible renewable generation, well in excess of the 50% target.

Minimizing Bill Impact

SDCP'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. SDCP'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.

SDCP'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.

SDCP prioritizes cost competitiveness, reliability, use of renewable energy and local resource development. SDCP 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, SDCP'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

SDCP'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. SDCP 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 SDCP'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 SDCP's 46 MMT PCP, and pursuant to Energy Division Guidance, SDCP'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 SDCP will be responsible for procuring. Thus, SDCP provides this information with the understanding that its RA positions will be reduced by any future CAM allocations.

Demand-Side Energy Management

SDCP'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. SDCP'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. SDCP does not have current plans to administer demand response programs, but SDCP 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

SDCP'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. SDCP'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 SDCP's 46 MMT portfolio in 2030:

- NOx: 126
- PM 2.5: 67
- SO2: 6

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 SDCP portfolio by the CSP tool.

c. GHG Emissions Results

SDCP 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. SDCP's assigned load-proportional share of the 38 MMT benchmark is 1.210 MMT. Based on the 38 MMT version of the CSP calculator, SDCP's 38 MMT portfolio would result in total 2030 GHG emissions of 1.084

MMT, outperforming SDCP's assigned share of the 38 MMT GHG reduction benchmark by 0.126 MMT.

SDCP's assigned load-proportional share of the 46 MMT benchmark is 1.510 MMT. Based on the 46 MMT version of the CSP calculator, SDCP's 46 MMT portfolio would result in total 2030 GHG emissions of 1.510 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 SDCP's 38 MMT portfolio:

- NOx: 92
- PM 2.5: 49
- SO2: 5

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

- NOx: 126
- PM 2.5: 67
- SO2: 6

ii. Focus on Disadvantaged Communities

SDCP's IRP is fully consistent with the goal of minimizing local air pollutants, with early priority on DACs. As currently identified in CalEnviroScreen 3.0, SDCP serves the following census tracts categorized as Disadvantaged Communities.

Census Tract	City	ZIP Code	Total Population
6073005000	San Diego	92113	2,227

Census Tract	City	ZIP Code	Total Population
6073004900	San Diego	92113	5,028
6073003902	San Diego	92113	4,927
6073003601	San Diego	92113	3,250
6073003901	San Diego	92113	4,241
6073005100	San Diego	92113	7,140
6073003603	San Diego	92113	4,228
6073004000	San Diego	92102	5,160
6073003502	San Diego	92113	4,946
6073012502	Chula Vista	91910	4,466
6073004700	San Diego	92102	1,858
6073003602	San Diego	92113	3,079
6073003501	San Diego	92113	4,255
6073005300	San Diego	92101	6,667
6073005700	San Diego	92101	1,948
6073003301	San Diego	92113	3,337
6073004800	San Diego	92102	4,115
6073013205	Chula Vista	91911	2,381
6073003403	San Diego	92102	4,283
6073012501	Chula Vista	91910	3,858

Census Tract	City	ZIP Code	Total Population
6073004100	San Diego	92102	6,546
6073002502	San Diego	92105	6,264
6073003404	San Diego	92102	4,634
6073003305	San Diego	92113	5,738
6073005200	San Diego	92101	4,563
6073012600	Chula Vista	91910	5,047
6073003303	San Diego	92113	4,193
6073002501	San Diego	92105	5,504
6073003800	San Diego	92136	6,530

In total, SDCP will serve an area with a population of 130,413 located within DACs. This is approximately 8 percent of the total population (1,606,720) SDCP plans to serve.

In developing its IRP, SDCP carefully considered the impact of its resource procurement on DACs. All of the new resources SDCP plans to develop are renewable or storage with no local emissions. Further, SDCP's plan minimizes use of GHG emitting power sources, with an ultimate goal of a 100% carbon free supply portfolio, which will further help to minimize local emissions and impacts to DACs.

Moving forward, SDCP is looking to add more census tracts beyond those identified by CalEnviroScreen 3.0. CalEnviroScreen is a useful tool for a statewide assessment, however a statewide assessment leaves out disadvantaged communities at a local or regional level. The City of San Diego, one of SDCP's members, has developed a citywide assessment of disadvantaged communities, or Communities of Concern. The City of Chula Vista, another member city, is in progress. SDCP will determine how to identify Communities of Concern in its remaining member cities and expand this list of census tracts within SDCP's territory as this analysis is completed.

e. Cost and Rate Analysis

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

In general, SDCP sought to balance the need to procure resources with enough lead time to meet SDCP'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. SDCP also recognizes that future resource costs are highly uncertain, and technological advancement can happen unexpectedly; SDCP's procurement cycle is designed to take advantage of technological and cost improvements by adding new resource commitments incrementally over time.

SDCP's PCPs take advantage of the rapidly falling cost of solar, wind, and battery storage resources. SDCP'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 SDCP more flexibility to time its procurement to take maximum advantage of falling renewable generation prices.

f. System Reliability Analysis

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

The effective capacity of SDCP'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	-	-	-	-	-	-	-	-	-	-	-
online	battery	-	-	-	-	-	-	-	-	-	-	-
online	nuclear	-	-	-	-	-	-	-	-	-	-	-
online	solar	-	-	-	-	-	-	-	-	-	-	-
online	psh	-	-	-	-	-	-	-	-	-	-	-
online	unknown	-	172	172	172	172	172	172	172	172	172	172
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	-	28	86	117	117	117	117	115	113	111	109
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	-	578	1,588	1,247	1,214	1,176	1,091	1,105	1,121	1,138	1,155
planned_new	wind_low_cf	-	-	-	15	17	20	55	54	54	54	54
planned_new	wind_high_cf	-	-	9	9	11	12	14	14	14	14	14
planned_new	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_new	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_new	geothermal	-	-	-	83	83	83	83	83	83	83	83
planned_new	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_new	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	battery	-	-	-	7	7	7	72	72	72	72	72
planned_new	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_new	solar	-	-	-	14	49	41	34	30	26	22	19
planned_new	psh	-	-	-	-	-	-	-	-	-	-	-
planned_new	unknown	-	-	50	250	250	300	300	300	300	300	300
TOTAL supply, NQC MW		-	778	1,905	1,914	1,920	1,928	1,937	1,945	1,955	1,966	1,977

As demonstrated in this Table, SDCP's 38 MMT PCP contributes 1,977 MW of peak monthly net qualifying capacity ("NQC") in 2030. While not shown in the table above, this NQC exceeds SDCP's peak load plus 15% planning reserve margin. Of this total, 585 MW are from new renewable, hybrid, and short duration storage resources, and 65 MW are from new long duration storage. SDCP's 38 MMT PCP includes planned contracts with existing resources, likely to be predominantly resource in the existing natural gas generator fleet, for 1,327 MW of NQC.[18] This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding SDCP's share of any system-wide renewable integration resource requirement.

The effective capacity of SDCP'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:

[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.

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	-	-	-	-	-	-	-	-	-	-	-
online	battery	-	-	-	-	-	-	-	-	-	-	-
online	nuclear	-	-	-	-	-	-	-	-	-	-	-
online	solar	-	-	-	-	-	-	-	-	-	-	-
online	psh	-	-	-	-	-	-	-	-	-	-	-
online	unknown	-	172	172	172	172	172	172	172	172	172	172
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	-	28	86	117	117	115	113	113	113	113	113
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	-	578	1,588	1,247	1,214	1,176	1,091	1,105	1,121	1,138	1,155
planned_new	wind_low_cf	-	-	-	15	17	20	55	55	55	55	55
planned_new	wind_high_cf	-	-	9	9	11	12	14	14	14	14	14
planned_new	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_new	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_new	geothermal	-	-	-	83	83	83	83	83	83	83	83
planned_new	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_new	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	battery	-	-	-	7	7	7	72	72	72	72	72
planned_new	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_new	solar	-	-	-	14	49	42	35	35	35	36	36
planned_new	psh	-	-	-	-	-	-	-	-	-	-	-
planned_new	unknown	-	-	50	250	250	300	300	300	300	300	300
TOTAL supply, NQC MW		-	778	1,905	1,914	1,920	1,927	1,935	1,949	1,965	1,982	1,999

As demonstrated in this Table, SDCP's 46 MMT PCP contributes 1,999 MW of peak monthly net qualifying capacity ("NQC") in 2030. While not shown in the table above, this NQC exceeds SDCP's peak load plus 15% planning reserve margin. Of this total, 607 MW are from new renewable, short duration storage, and hybrid resources, and 65 MW are from new long duration storage. SDCP's 46 MMT PCP includes planned contracts with existing resources, likely to be predominantly resource in the existing natural gas generator fleet, for 1,327 MW of NQC.[19] This balanced portfolio of flexible capacity works to effectively and reliability integrate a renewables-heavy portfolio, thus meeting and exceeding SDCP's share of any systemwide renewable integration resource requirement.

g. Hydro Generation Risk Management

In developing its portfolios, SDCP took several steps to manage the risk of reduced hydro availability due to in-state drought. First, SDCP's portfolios include hydro resources located within California as well as imported hydro power from the Pacific Northwest. Second, SDCP will prioritize hydro contracts with marketers that provide firm delivery volumes, helping to reduce the planning uncertainty associated with drought and variable hydro-electric conditions within California. Third, SDCP's planned use of hydro in its 38 MMT PCP is very similar to the proportions included in the RSP (see table below). However, if drought conditions or other factors restrict available hydro energy, SDCP would plan to substitute renewable energy resources to ensure it meets its assigned GHG benchmark .For its 46 MMT PCP, SDCP's planned use of hydro diminishes to nearly zero by 2030, as planned increases in qualifying renewable energy displaces the need for hydro to meet SDCP's assigned GHG benchmark.

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

Hydro Resource	**38 and 46 MMT RSP MW**	**SDCP Proportionate Share**	**SDCP 46 MMT PCP**	**SDCP 38 MMT PCP**
CAISO Hydro	7,070	269	1	298
Hydro Imports	2,852	108	0	128

[19] 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; geo-mechanical 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.

SDCP 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, SDCP anticipates it will procure at least its proportional share of the CPUC's 1,605 MW target, which for SDCP translates to 61 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. SDCP's recent procurement efforts indicate there may be near term opportunities for use of OOS Wind in limited quantities, and SDCP expects to utilize OOS Wind in its portfolios. SDCP understands that the transmission projects needed to

connect significant quantities of OOS wind to the CAISO grid require significant lead-times. However, given the fact that OOS Wind is not needed until 2030, SDCP believes that a careful and considered approach to potential OOS Wind projects requiring new transmission is best. SDCP 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, SDCP was guided by the following considerations:

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

Unlike the IOUs, SDCP is not a transmission and distribution ("T&D") system operator. SDCP does not enjoy the benefits of a granular knowledge of SDG&E's T&D system, and SDCP is not in the best position to identify optimal resource locations. In practice, SDCP relies on project developers to conduct the research and technical studies necessary for siting potential generation projects. SDCP 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, SDCP 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 SDCP's solicitation processes.

SDCP'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 SDCP's 38 MMT resource data template. The following table provides a list of these resources, their identified locations, and SDCP'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	50	New_Mexico_Wind	Southern_California_Desert_Ex_Wind, Tehachapi_Wind

Wind	250	Southern_California_Desert_Ex_Wind	Tehachapi_Wind, Northern_California_Ex_Wind, New_Mexico_Wind
Hybrid	600	New_Hybrid	N/A
Solar	300	Southern_California_Desert_Ex_Solar	Tehachapi_Solar, Westlands_Ex_Solar
Solar	100	Arizona_Solar	Tehachapi_Solar, Southern_California_Desert_Ex_Solar , Westlands_Ex_Solar
Geo-thermal	100	Greater_Imperial_Geothermal	Riverside_Palm_Springs_Geothermal
Storage, Long Duration*	65	New_Li_Battery	New_Flow_Battery, new_generic_pumped_storage_hydro

*SDCP 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

SDCP’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 SDCP’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 SDCP customers with appropriate risk mitigation
e) Ongoing contract management, including where applicable, careful monitoring of development milestones.

b. Procurement Activities

SDCP 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 SDCP'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 SDCP's supply portfolio to achieve SDCP's policy objectives and ensure compliance with all regulatory requirements

SDCP'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. SDCP's share of incremental capacity is being procured by SDG&E.

c. Potential Barriers

SDCP has identified the following market, regulatory, financial, or other barriers or risks that may impede SDCP'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
- Potential constraints in SDCP's ability to contract new build generation and storage projects at the scale and timeline anticipated in its plan
- The potential for regulatory changes, including centralized procurement and rule changes that create uncertainty and undermine SDCP's willingness or ability to enter into long-term resource commitments
- Uncertainty surrounding 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, or SDG&E's retention of resources
- Factors that may increase SDCP customer costs such as potential regulatory changes relating to the treatment of SDG&E generation costs and the share of costs allocated to SDCP customers through the PCIA

d. Commission Direction or Actions

SDCP believes that a stable regulatory framework is fundamental to its ability to invest in resources needed to achieve the environmental and reliability goals set forth in this plan. SDCP encourages the Commission adopt durable rules and processes to bring greater stability to the regulatory framework within which SDCP and suppliers must plan and operate and to provide ample lead time before regulatory changes impacting the market are made effective.

SDCP would welcome the Commission's assistance is facilitating an efficient transfer of excess resources from SDG&E's supply portfolio so that those resource can continue to serve the customers on whose behalf they were procured as these customers begin taking service from SDCP. The absence of an efficient resource transfer mechanism makes the transition of customers to SDCP service more difficult as much of the available renewable and resource adequacy capacity resources are held by SDG&E.

e. Diablo Canyon Power Plant Replacement

SDCP 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, if needed. SDCP's load ratio share of Diablo Canyon is estimated to be 87 MW, and SDCP has plans to add 1,581 MW of new capacity, including 672 MW of (September) net qualifying capacity by 2030. 534 MW of the planned incremental net qualifying capacity would be available by 2024 when decommissioning of Diablo Canyon commences.

V. Lessons Learned

It is quite challenging for entities like SDCP who are not yet in operations to prepare the detailed resource plans required by this process. SDCP is primarily focused on the critical

activities leading to the successful transition of customers to SDCP service in early 2021. SDCP will have more time to focus on long range planning once it begins retail operations and builds out its organizational plan. SDCP encourages the Commission to consider exempting load serving entities from filing an IRP if they are not yet serving customers.

SDCP believes that more time needs to be allotted between when the final IRP requirements, templates, and guidance are released and when the IRP submission are due. Community Choice Aggregators have internal review and approval processes that should be considered in the IRP timeline. The late receipt of final templates and instructions makes it extremely challenging to 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. SDCP 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 and in mid-August, SDCP was notified to input certain incremental capacity procured by SDG&E into its resource data templates and plan. Such late direction and required changes place a significant burden on respondents, particularly those such as SDCP that are working with limited resources on critical near-term steps to successfully launch its CCA program. 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. This will provide respondents the time needed to complete the IRP planning process and gain the necessary internal and governing board approvals prior to submission to the Commission.

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).*

SDCP 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)		298				298
Hydro (Scheduled Imports)		128				128
Biomass						0
Geothermal					100	100
Hydro (Small)						0
Wind		256			300	556
Out-of-State Wind on New Transmission						0
Solar		398			1000	1398
Customer Solar						0
Battery Storage					300	300
Pumped (long-duration) Storage						0
Shed Demand Response						0
Capacity-Only						
Natural Gas		1155	172			1327
Battery Storage					116	116
Long Duration Storage					65	65

Attachment A

SDCP 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)		1				1
Hydro (Scheduled Imports)		0				0
Biomass						0
Geothermal					100	100
Hydro (Small)						0
Wind		256			300	556
Out-of-State Wind on New Transmission						0
Solar		398			1000	1398
Customer Solar						0
Battery Storage					300	300
Pumped (long-duration) Storage						0
Shed Demand Response						0
Capacity-Only						
Natural Gas		1155	172			1327
Battery Storage					120	120
Long Duration Storage					65	65

Attachment A