Standard LSE Plan

Monterey Bay Community Power Authority (MBCP)

(Becoming Central Coast Community Energy effective September 4, 2020)

2020 INTEGRATED RESOURCE PLAN

SEPTEMBER 1, 2020

I. Introduction and Executive Summary

a. Description of MBCP

Monterey Bay Community Power Authority ("MBCP") is a Community Choice Aggregator established in 2017 pursuant to Public Utilities Code Section 366.2 and operating as a joint powers authority pursuant to Government Code section 6500 et seq. MBCP currently serve residential, commercial and agricultural/industrial customers in communities located within the unincorporated areas of the counties of Monterey, San Benito and Santa Cruz and the Cities of Capitola, Carmel, Gonzales, Greenfield, Hollister, Marina, Monterey, Morro Bay, Pacific Grove, Salinas, San Juan Bautista, San Luis Obispo, Sand City, Santa Cruz, Scotts Valley, Seaside, Soledad and Watsonville. In 2021, MBCP will begin serving the unincorporated areas of the county of Santa Barbara and the Cities of Arroyo Grande, Carpinteria, Del Rey Oaks. Goleta, Grover Beach, Guadalupe, Paso Robles, Pismo Beach, Santa Maria and Solvang.[1,2]

1 To reflect MBCP's expansion, on September 4, 2020 its name will be changed to Central Coast Community Energy, or CCCE.

2 The Policy Board of Directors ("MBCP's Board") for MBCP will consider the City of Buellton's request to join MBCP (soon to be CCCE) at its September 2, 2020 meeting. If approved, MBCP will submit a further revised Implementation Plan for certification to begin serving City of Buellton customers in 2022.

MBCP serves approximately 295,000 accounts expected to consume approximately 3,100 GWH in 2020. Beginning in 2021, MBCP will serve more than 400,000 accounts and an estimated 5,000 GWh per year. MBCP is committed to reducing greenhouse gas (GHG) emissions through long-term contracts for existing and new utility scale renewable electricity generation, charging competitive retail rates, and offering innovative energy programs to facilitate the electrification of the transportation and built environments.

MBCP has established an innovative procurement strategy to accelerate the reduction of GHG emissions. This strategy will commit to achieve a clean and renewable resource mix of long-term renewable portfolio to meet 60% of demand by the year 2025 and 100% by the year 2030.

Figure 1: MBCP Service Area Map

Introduction to MBCP'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, MBCP is providing the Integrated Resource Plan ("IRP") to the California Public Utilities Commission (the "Commission") for certification and use in the Commission's statewide planning process. To comply with CPUC's directive, MBCP developed two plans:

1. The Preferred Resource Plan (PRP) which conforms to MBCP Board's directive of acceleration of renewable resources and storage capacity and complies with the CPUC's limit on GHG emission of MBCP's share of 38 MMT (Million Metric Tons).
2. The Alternative Resource Plan (ARP) which confirms the CPUC's request to develop a second plan that consider higher emission targets (MBCP's share of 46 MMT), submitted for compliance purposes only.

The following provides analysis demonstrating that MBCP's PRP is consistent with the 46 MMT RSP's resource mix and quantities, procurement timing, and other operational attributes, and can be "plugged in" to either a 38 MMT or a 46 MMT statewide portfolio and still contribute MBCP's share of reliability, renewable integration, and other shared resource requirements.

MBCP's Preferred Resource Plan (PRP):

- Serves as MBCP's actual procurement plan
- Achieves economic, reliability, environmental, security, and performance characteristics that are consistent with the goals set forth in Public Utilities Code Section 454.52(a)(1)(A-I).
- Includes a diversified procurement portfolio consisting of both short and long-term power supplies and demand reduction programs.
- Achieves the resource adequacy requirements established pursuant to Public Utilities Code Section 380.
- Consistent with the procurement timing, resource mix, and operational attributes of both the Commission's 38 and 46 MMT RSP.

- Fully compliant with MBCP Board-adopted procurement directives.

MBCP's Alternative Resource Plan (ARP):

- Achieves emissions that are equal to, but not lower than, MBCP's load-proportional share of the 46 MMT GHG reduction targets.
- Achieves economic, reliability, and performance characteristics consistent with the goals set forth in Public Utilities Code Section 454.52(a)(1)(A-I).
- MBCP's 46 MMT ARP is approved for submission to meet the Commission's compliance requirements and for use in the Commission's statewide planning and modeling but does not reflect MBCP's planned procurement.

Request for Certification

The Commission has three primary interests in its review and certification of MBCP's IRP:

- Ensuring that MBCP's IRPs provide the necessary procurement information that the Commission needs to develop its statewide plan.[3]
- Ensuring that MBCP's current and planned procurement is consistent with the resource adequacy ("RA") requirements established pursuant to Public Utilities Code Section 380.[4]

[3] D.19-04-040 at 17-18 ("The Commission's portfolio aggregation and evaluation process, which relies on 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…").

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

- Ensuring that MBCP's current and planned procurement satisfies MBCP's share of renewables integration resource identified in the Commission's Reference System Portfolio ("RSP"), and that MBCP either self-provides or pays for IOU procurement for its share of any renewable integration shortfall.[5]

MBCP has prepared the IRP with these interests in mind and respectfully requests that the Commission certify this IRP.

b. Executive Summary

MBCP's accomplishments since its service launch in 2018 include building a fiscally stable organization, well suited to supporting our communities, and offering of a voluntary 100% RPS product. MBCP successfully executed seven long-term power purchase agreements, demonstrating progress towards meeting SB350 and SB100 long-term RPS procurement mandates and is offering an expansive list of programs to promote electrification and resiliency within MBCP's service area. MBCP is currently seeking a credit rating with S&P and Fitch, with the expectation of being awarded an investment grade rating by the end of 2020, because of MBCP's strong leadership, its sound business judgement toward resource procurement, its understanding and management of risk leading to its strong and financially viable position.

MBCP's current procurement policy pursues an aggressive deployment of new solar PV and wind along with new and existing geothermal resources to reach 100% RPS by 2030. To enhance grid reliability, MBCP has contracted for, and will continue to pursue energy storage, either paired with solar or as stand-alone. Additionally, to show MBCP's commitment to doing its part in maintaining grid reliability, MBCP is currently co-leading a joint solicitation effort

[5] Section 454.51.

with eight other CCAs to secure one or more agreements with developers of long-duration storage technologies, as described in the Long- Duration Storage Development section below (Section III.h).

MBCP used cQuant.io model to simulate reliability, cost, and GHG metrics for each portfolio. In the coming years MBCP's procurement activities will focus on adding new renewable and energy storage projects aimed to diversify the current renewable resource mix and MBCP's renewable supply commitment to customer demand on monthly basis. MBCP is also investing in programs to help its member communities electrify their building and transportation sectors, access to electric vehicle charging infrastructure, evaluate potential benefits of distributed energy resources (e.g., reducing peak demand), and promote resiliency. MBCP reached the following findings regarding its 38 MMT PRP:

MBCP's Preferred Resource Plan (PRP)

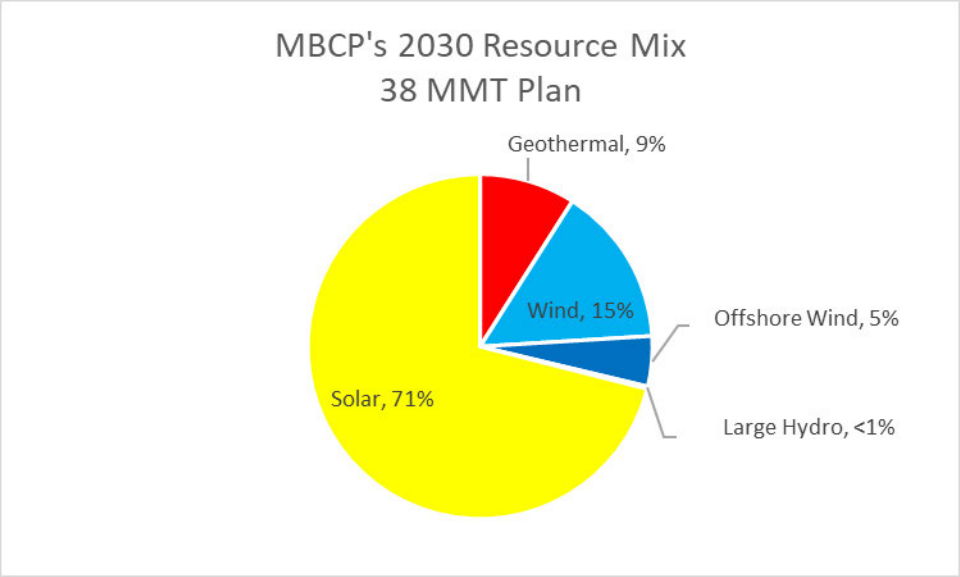
Table 1 and Chart 1 show the portfolio of renewable resources comprising the Preferred Resource Plan. Table 1 also distinguishes between the resources currently under contract and the resources that have yet to be acquired.

Table 1: MBCP's Preferred Resource Plan

Resource Mix 38 MMT Plan	Existing Generation Capacity MW	New Generation Capacity MW	Existing Battery Capacity MW	New Battery Capacity MW	Contract Status
Energy Storage (Cal Flats BESS)				60	Under Contract
Solar PV+Energy Storage		380		133	Under Contract
Geothermal	66	7			Under Contract
Large Hydro (30 year WAPA contract)	4				Planned/Awarded
Solar PV+Energy Storage		805		203	Planned
Wind	54	224			Planned
Offshore Wind		75			Planned
Long Duration Energy Storage				50	Planned

MBCP's 38 MMT PRP provides for the following overall resource mix in 2030:

Chart 1



This plan also include over 400 MW of energy storage of various discharge durations

MBCP's Preferred Resource Plan:

- Is consistent with procurement timing, resource quantities, and general resource attributes identified in the 38 MMT RSP.
- Would have 2030 emissions of 0.550 MMT, lower than MBCP's assigned share of 2030 emissions of 0.665 MMT.
- Meets all relevant reliability metrics.
- Reflects MBCP's policy of only contracting for renewable energy that meets PCC1 (bundled REC/energy from resource located in or interconnected to CAISO) requirements.
- Provides more than MBCP's load-proportional share of renewable integration resources.

- Is consistent with the Commission's 46 MMT RSP and can be used in either a 38 MMT or 46 MMT consolidated statewide portfolio.

MBCP's Alternate Resource Plan (ARP)

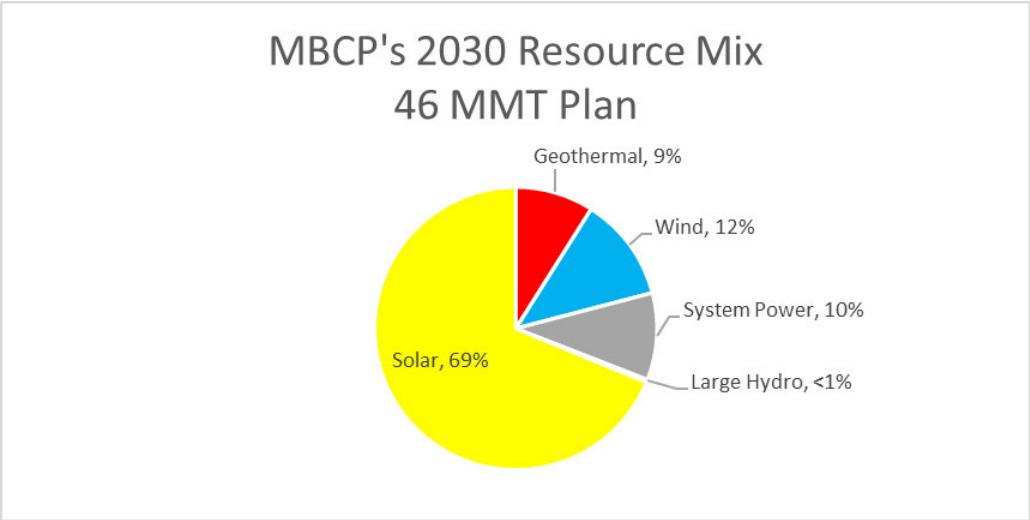
Table 2 and Chart 2 show the portfolio of renewable resources comprising the Alternate Resource Plan. Table 2 also distinguishes between the resources currently under contract and the resources that have yet to be acquired.

Table 2: MBCP's Alternate Resource Plan

Resource Mix 46 MMT Plan	Existing Generation Capacity MW	New Generation Capacity MW	Existing Battery Capacity MW	New Battery Capacity MW	Contract Status
Energy Storage (Cal Flats BESS)				60	Under Contract
Solar PV+Energy Storage		380		133	Under Contract
Geothermal	66	7			Under Contract
Large Hydro (30 year WAPA contract)	4				Planned/Awarded
Solar PV+Energy Storage		586		144	Planned
Wind	54	168			Planned
Long Duration Energy Storage				50	Planned

MBCP's 46 MMT ARP provides for the following overall resource mix in 2030:

Chart 2



MBCP's Alternate Resource Plan:

- Conforms to the procurement timing, resource quantities, and general resource attributes identified in the 46 MMT RSP.
- Provides for the ability to offer a more reliable, cost-effective, renewables-driven portfolio that conforms to the procurement timing, resources quantities, and general resource attributes identified in the 46 MMT RSP
- Reflects MBCP's policy of only contracting for renewable energy that meets PCC1 (bundled REC/energy from resource located in or interconnected to CAISO) requirements.
- Complies with the equal-to requirement by MBCP taking the following actions to increase emissions:
    - Reducing renewable procurement of wind and solar resources by approximately 350 MW
    - Reducing energy storage procurement by approximately 59 MW
- Would have 2030 emissions of 0.834 MMT, as required by the Energy Division.

II. Study Design

a. Objectives

The analytical work performed to determine the portfolios identified in the Preferred and the Alternate Plans had the following objectives:

- Achieve economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Public Utilities Code Section 454.52(a)(1)(A-I).

- Include both short-term and long-term electricity and electricity-related and demand reduction products.
- Achieve the resource adequacy requirements established pursuant to Public Utilities Code Section 380 and fully provide MBCP's share of system reliability and renewable integration resources.
- Fully comply with all MBCP Board-adopted procurement strategies.
- Fully comply with MBCP's obligations under the Renewable Portfolio Standard program.
- Cost-effective and minimize rate impacts on MBCP's customers.

b. Methodology

i. Modeling Tool(s)

For IRP portfolio development, MBCP used cQuant.io (the Model), an energy industry market and portfolio analytical platform. cQuant.io can capture and quantify elements of risk, using both market data and long-term fundamentals to simulate load, renewables, and CAISO spot market prices against which resources are dispatched and valued.

The Model allowed MBCP to capture a meaningful range on uncertainty driven by the factors that create price risk in power markets, including variability in weather, load, renewable output, congestion risk, and forward price volatility. The Model uses industry standard econometric modelling techniques that utilizes up to 30 years of historical weather to model the relationships between weather, load, and renewables. The Model also creates meaningful parameters around weather uncertainty using autoregressive techniques to run multiple simulations.

MBCP compared the results from the Model platform with the CPUC's RESOLVE model results to gain deeper insights and precision in valuations and optimal resource mix relative to sector-wide targets.

ii. Modeling Approach

Load Forecast

MBCP developed the IRP using its assigned load forecast from Attachment A to the May 20, 2020 Administrative Law Judge's Load Forecast Ruling.

MBCP's assigned load forecast is set forth in Table 3 below.

Table 3: MBCP's 2020-2030 Load Forecast within both PG&E and SCE planning areas

Year	Load Forecast (GWh)
2020	3,133
2021	4,828
2022	4,802
2023	4,794
2024	4,801
2025	4,807
2026	4,812
2027	4,811
2028	4,813
2029	4,812
2030	4,814

Load Shape

In developing its portfolio, MBCP used a custom Commercial & Industrial percentage of 64%, instead of the default load shape from the CSP Calculator. Based on in-depth load analyses, MBCP's service area has a larger percentage of agricultural load compared to system averages. Furthermore, MBCP, as a coastal community, enjoys more moderate weather when

compared to statewide system averages which necessitates using a more accurate custom load shape.

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

Load-Proportional GHG Emissions Benchmark

MBCP assessed its modeling against its 2030 load-proportional share of the respective 38 MMT and 46 MMT benchmarks, as assigned in Table 3 of the Load Forecast Ruling. The results are set forth in Table 4 below.[6]

Table 4: MBCP's Assigned Shares of GHG Reduction Benchmarks

2030 Load (GWH)	Proportion of 2030 Load Within IOU Territories	2030 GHG Benchmark (MMT) – 46 MMT Scenario	2030 GHG Benchmark (MMT) – 38 MMT Scenario
4,814	2.33%	0.834	0.665

Compiling New and Existing Resources

To populate its resource data templates, MBCP added new and existing resources from the following sources:

- Energy Contracts, including long-term agreements greater than 10 years as indicated in Table 5 below
- Capacity (Resource Adequacy) Contracts.

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

- MBCP'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.

Table 5. Long-term PPA Resources included in both portfolios.

Resource Type	Resource Name	Nameplate Capacity (MW)	Contract Status	Development Status	Delivery Start Date	Energy & RA?
Solar plus Storage (Solar MW/Storage MW)	Big Beau	57.6/18	Executed	New	12/1/2021	Yes
	Slate	67.4/33.7			6/30/2021	
	Rabbitbrush	60/12			6/30/2022	
	Yellow Pine	75/39			12/1/2022	
	Aratina	120/30			6/30/2023	
Geothermal	Ormat	7	Executed	New	12/31/2021	Yes
	Coso	66.3		Existing	1/1/2022	
Large Hydro	Western Base Resource	4 (MBCP's 0.353% share of Central Valley Project)	Planned/Awarded	Existing	1/1/2025	Yes
Storage	Cal Flats BESS	60	Executed	New	8/1/2021	RA Only

Selecting New Resources

In addition to , MBCP included contracts that are under negotiation through MBCP's 2020 Joint RFO (a joint procurement effort with Silicon Valley Clean Energy), and modeled future planned contracts using the offered prices of the various technologies from this 2020 Joint RFO, assuming a certain amount of declining cost curves associated with energy storage technologies.

To evaluate offers, we apply a robust scoring matrix considering the relative cost and benefits of any offered project including assessment of project and technology viability, fit of the project to meet demand, adherence to regulatory requirements, and cost.

Confirming Reliability

MBCP is committed to ensuring reliability by meeting all resource adequacy requirements and believe strongly in the value that energy storage can contribute. Thus, MBCP has an aggressive policy to secure over 400 MW of energy storage of various discharge durations, and intend to secure a long duration storage project, as described in the Long-Duration Storage Development section of this IRP.

Furthermore, while the CPUC has not called for it, MBCP has entered into two geothermal agreements, one existing and one new, as this renewable resource technology can serve as a baseload and help to alleviate the potential impacts of some intermittent renewable resources.

Calculating GHG Emissions

MBCP calculated the emissions associated with its 38 MMT PRP and its 46 MMT ARP using the Commission's Clean System Power ("CSP") calculator tool.

III. Study Results

a. Conforming and Alternative Portfolios

MBCP's Preferred Resource Plan (PRP)

The table below provides a summary of MBCP's 2030 38 MMT Portfolio, identifying resources by type and distinguishing between the following procurement categories:

- Resources, existing or under construction, with which MBCP has an agreement for energy and capacity.
- Resources, exiting or under construction, that MBCP is actively negotiating for long term agreement.
- Existing resources (capacity) that MBCP partially pays for through CAM.
- Future new resources that MBCP is planning to procure.

Table 6. MBCP PRP Capacity Portfolio

Resource Mix 38 MMT Plan	Existing Generation Capacity MW	New Generation Capacity MW	Existing Battery Capacity MW	New Battery Capacity MW	Contract Status
Energy Storage (Cal Flats BESS)				60	Under Contract
Solar PV+Energy Storage		380		133	Under Contract
Geothermal	66	7			Under Contract
Large Hydro (30 year WAPA contract)	4				Planned/Awarded
Solar PV+Energy Storage		805		203	Planned
Wind	54	224			Planned
Offshore Wind		75			Planned
Long Duration Energy Storage				50	Planned

MBCP's portfolio includes a mix of existing and new resources. Approximately 8% of MBCP's 2030 portfolio is composed of existing resources, while 92% of its 2030 portfolio is composed of new resources. This reflects MBCP's effort to reduce GHG emissions through the

accelerated development of new renewable resources which will result in meeting the State's RPS goals sooner.

MBCP relies on the Commission's and Energy Division's guidance in assessing its 38 MMT PRP and 46 MMT ARP for general consistency with the Commission's RSPs.

MBCP's PRP Is Consistent with the 38 MMT RSP

As demonstrated in the Table 7 below, MBCP's PRP portfolio is generally consistent with MBCP's proportional share of new procurement for each of the five "resource types" identified in D.20-03-028:

Table 7: 38 MMT PRP New Resource Procurement by Resource Type Compared to 38 MMT RSP in 2030

Resource Type	38 MMT RSP New Resources[7]	MBCP Load-Proportional Share of 38 MMT RSP New Resources	MBCP's PRP Portfolio
Long-Duration Storage	1,605 MW	37 MW	50 MW
Short Duration Storage (4 hours or less)	9,714 MW	226 MW	396 MW
Hybrid Resources[8]	0 MW	0 MW	0 MW
Renewable Resources	20,274 MW	472 MW	1,491 MW
Other Resources	222 MW	5 MW	0 MW

MBCP analysis indicates that securing a diverse mix of affordable solar paired with energy storage, geothermal, and wind will not only meet MBCP's approved procurement strategy, but also is consistent with the 38 MMT RSP's new resource procurement timing.

[7] D.20-03-028 at 46 (Table 8).

[8] While "hybrid resources" are one of the five resource categories identified in D.20-03-028; the RSP does not identify hybrid resources. MBCP assumes that the separate energy storage and renewable generation quantities identified in the RSP include both stand-alone resources and resources that would be combined as hybrid resources. Consistent with this approach, MBCP has broken down its planned hybrid resource procurement into separate energy storage and renewable generation quantities.

MBCP's Preferred Resource Plan Portfolio Is Consistent with the 46 MMT RSP

MBCP's PRP is fully consistent with the Commission's 46 MMT RSP as adopted in D.20-03-028.[9] As such, MBCP requests the Commission use MBCP's PRP even if the Commission selects a 46 MMT scenario to guide the State's integrated resource plan.

As demonstrated in Table 8, MBCP's PRP is generally consistent with MBCP's proportional share of 46 MMT RSP new procurement for each of the five "resource types" identified in D.20-03-028.

Table 8: 38 MMT PRP Compared to 46 MMT RSP in 2030

Resource Type	46 MMT RSP New Resources[10]	MBCP Proportional Share of 46 MMT RSP New Resources	MBCP's 38 MMT PRP Portfolio
Long-Duration Storage	973 MW	23 MW	50 MW
Short Duration Storage (4 hours or less)	8,873 MW	207 MW	396 MW
Hybrid Resources[11]	0 MW	0 MW	0 MW
Renewable Resources	14,460 MW	337 MW	1,491 MW
Other Resources	222 MW	5 MW	0 MW

MBCP's 46 MMT ARP

The table below provides a summary of MBCP's 2030 ARP, identifying resources by type and distinguishing between the following procurement categories:

[9] While MBCP's 38 MMT portfolio does not comply with the Energy Division's "equal to" requirement, MBCP notes that this requirement is Energy Division guidance and was not adopted or approved in any Commission Decision or ALJ Ruling. To the contrary, the requirement appears to be inconsistent with the IRP Statute and existing Commission Decisions encouraging LSEs to plan for ambitious GHG reductions.

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

[11] While "hybrid resources" are one of the five resource categories identified in D.20-03-028; the RSP does not identify hybrid resources. MBCP assumes that the separate energy storage and renewable generation quantities identified in the RSP include both stand-alone resources and resources that would be combined as hybrid resources. Consistent with this approach, MBCP has broken down its planned hybrid resource procurement into separate energy storage and renewable generation quantities.

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

In summary, to meet the Commission's equal to requirement and MBCP's Alternate Resource Plan (ARP) portfolio is as follows:

Table 9: MBCP Alternate Resource Plan portfolio

Resource Mix 46 MMT Plan	Existing Generation Capacity MW	New Generation Capacity MW	Existing Battery Capacity MW	New Battery Capacity MW	Contract Status
Energy Storage (Cal Flats BESS)				60	Under Contract
Solar PV+Energy Storage		380		133	Under Contract
Geothermal	66	7			Under Contract
Large Hydro (30 year WAPA contract)	4				Planned/Awarded
Solar PV+Energy Storage		586		144	Planned
Wind	54	168			Planned
Long Duration Energy Storage				50	Planned

MBCP's ARP includes a mix of existing and new resources. MBCP's 2030 ARP is composed of 10% existing resources and 90% new resources.

As demonstrated in Table 10, MBCP's Alternate Resource Plan (ARP) is generally consistent with MBCP's proportional share of new procurement for each of the five "resource types" identified in D.20-03-028.

Table 10: MBCP ARP Portfolio Compared to 46 MMT RSP in 2030

Resource Type	46 MMT RSP New Resources[12]	MBCP Proportional Share of 46 MMT RSP New Resources	MBCP's 46 MMT ARP Portfolio
Long-Duration Storage	973 MW	23 MW	50 MW
Short Duration Storage (4 hours or less)	8,873 MW	207 MW	337 MW
Hybrid Resources[13]	0 MW	0 MW	0 MW
Renewable Resources	14,460 MW	337 MW	1,141 MW
Other Resources	222 MW	5 MW	0 MW

The differences between MBCP's Alternate Resource Plan portfolio and the proportional share of the 46 MMT RSP reflect MBCP analysis that securing a diverse mix of affordable solar paired with energy storage, geothermal, and wind will not only meet MBCP's approved procurement policies, but is also consistent with the 46 RSPs' new resource procurement timings.

b. Preferred Conforming Portfolios

Preferred Resource Plan (PRP)

MBCP's PRP, as reflected in table 6 above [14], achieves "economic, reliability, environmental, security, and performance characteristics that are consistent with the goals set forth in Public Utilities Code Section 454.51(a)(1). These benefits and characteristics are as follows:

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

[13] While "hybrid resources" are one of the five resource categories identified in D.20-03-028; the RSP does not identify hybrid resources. MBCP assumes that the separate energy storage and renewable generation quantities identified in the RSP include both stand-alone resources and resources that would be combined as hybrid resources. Consistent with this approach, MBCP has broken down its planned hybrid resource procurement into separate energy storage and renewable generation quantities.

[14] MBCP's actual procurement may change from its planned procurement based on need, emergence of new technologies, changed assumptions, or MBCP's risk management assessment of particular projects.

GHG Reduction Goals

MBCP's Preferred Resource Plan achieves the Commission's 38 MMT GHG reduction benchmark. The 2030 emissions from MBCP's PRP is forecasted at 0.550 MMT, substantially lower than MBCP's load-proportional share of the 38 MMT emissions benchmark of 0.665 MMT.

Renewable Energy

MBCP's Preferred Resource Plan is comprised of diverse renewable resources sufficient to meet 100% of MBCP demand by 2030, substantially higher than the 60% State target.

Minimizing Bill Impact

Considering the historic low and stable prices of renewable resources such as wind and solar, MBCP's Preferred Resource Plan minimizes the impact of planned procurement on ratepayers' bills.

Ensuring System and Local Reliability

MBCP's PRP ensures grid reliability by aggressively pursuing the addition of new energy storage projects of various discharge durations. In addition, MBCP is participating it an upcoming long-duration RFO as described in Long-Duration Storage Development section of this IRP.

MBCP's PRP portfolio expands storage facilities to allow for resource shifting to evening ramping hour to ensure system reliability and the gradual phasing out of fossil fuel fired generation. While storage facilities, effectively, are an added demand on the grid, it provides the most effective means to address the early evening ramping hours coupled with the rapid drop in solar energy output. The degree to which this portfolio requires additional resources is mostly a function of the resources and the economic signals for storage.

Minimizing Localized Air Pollutants with Emphasis on DACs

MBCP's PRP achieves results and performance characteristics consistent with the Public Utilities Code Section 454.52(a)(1)(H) goal of minimizing localized air pollutants and other GHG emissions. Since the PRP relies primarily on new renewable generation and does not include any energy contracts with gas generators, it is likely that it will have extremely low GHG and localized air pollution emissions. Further, MBCP's PRP minimizes MBCP's reliance on unspecified system power, instead opting for new renewable generation procurement and development whenever feasible.

46 MMT Alternate Resource Plan (ARP)

In accordance to the Energy Division's clear guidance instructing LSEs to submit 46 MMT portfolios that achieve GHG emissions equal to, but not lower than, each LSE's load-proportional share of the 46 MMT benchmark, MBCP's ARP included resources with more GHG emissions than both current and planned portfolios.

GHG Reduction Goals

MBCP's ARP achieves emissions equal to MBCP's proportional share of the 46 MMT benchmark, of 0.834 MMT. According to the Commission's emissions calculator, MBCP's 46 MMT portfolio would account for 0.834 MMT in 2030 emissions. This minimal compliance results in a portfolio with greater GHG emissions than MBCP's PRP.

Renewable Energy

MBCP's ARP ensures that MBCP's resource portfolio contains at least 60% eligible renewable resources by 2030.

Minimizing Bill Impact

MBCP's ARP minimizes the impact of planned procurement on ratepayers' bills. MBCP's portfolio consists primarily of renewable wind and solar with storage projects, which are at historic lows, and projected to drop further for the next 5 years.

Ensuring System and Local Reliability

MBCP's ARP ensures system and local reliability, albeit at higher emission than the optimal PRP.

Minimizing Localized Air Pollutants with Emphasis on DACs

MBCP's ARP minimizes localized air pollutants and other GHG emissions with early priority given to disadvantaged communities.

c. GHG Emissions Results

MBCP used its load-based proportional share of the 38 and 46 MMT benchmark to determine the emissions compliance for its PRP and ARP. MBCP's emissions based on its current strategic path to reaching 100% renewables by 2030 is 0.550 MMT, lower than the assigned load-proportional share of the 38 MMT and 46 MMT benchmarks of 0.665 MMT and 0.834 MMT, respectively.

The following tables show the emissions results of MBCP's PRP and ARP, obtained from the Clean System Power files:

Table 11: PRP Emissions Results

Emissions Total	*Unit*	2020	2022	2026	2030
CO2	*MMt/yr*	0.17	1.37	0.97	0.550
PM2.5	*tonnes/yr*	9.16	54.74	38.03	23.90
SO2	*tonnes/yr*	0.90	5.21	3.64	2.32
NOx	*tonnes/yr*	25.10	92.33	74.91	43.41

Table 12: ARP Emissions Results

Emissions Total	*Unit*	2020	2022	2026	2030
CO2	*MMt/yr*	0.18	1.20	0.97	0.834
PM2.5	*tonnes/yr*	9.23	47.99	37.48	36.26
SO2	*tonnes/yr*	0.90	4.58	3.59	3.48
NOx	*tonnes/yr*	25.10	83.29	73.55	69.84

i. Focus on Disadvantaged Communities

SB 350 requires that the Commission take efforts to improve the air quality and economic conditions in communities identified as "disadvantaged" as defined by Health and Safety Code section 39711. See, Pub. Utilities Code section 400. Disadvantaged communities include areas disproportionately affected by environmental pollution and other hazards that lead to negative public health effects, exposure, or environmental degradation or areas with high concentrations of low income, high unemployment, low levels of homeownership, high rent burdens, sensitive populations, or low levels of education. Health and Safety Code section 39711(a). The Commission identifies "disadvantaged communities" utilizing CalEPA's CalEnviroScreen tool

MBCP serves the most diverse service area of any CCA. MBCP's service area is comprised of diverse communities that reflect the labor force of our member jurisdictions' major employers, such as agriculture, tourism, and hospitality.

Table 13 reflects the MBCP communities, currently being served, designated by CalEnviroScreen 3.0 ("CES3.0") as disadvantaged, although MBCP recognizes that underserved communities expand well beyond CES3.0's limited reach.

Table 13: MBCP's Disadvantaged Communities

Census Tract	County	City	Population (2010)	CCA Customer Accounts Non-Residential	CCA Customer Accounts Residential
6053000900	Monterey	SALINAS	5746	148	1070
6053010101	Monterey	MOSS LANDING	4518	52	129
6053010101	Monterey	WATSONVILLE	4518	242	541
6053014102	Monterey	MARINA	2259	143	666
6053014500	Monterey	SALINAS	4410	1140	1296
6053014500	Monterey	SPRECKELS	4410	14	91
6087110300	Santa Cruz	WATSONVILLE	6710	419	1295
6087110400	Santa Cruz	WATSONVILLE	7976	458	1723
Grand Total				2616	6811

*DAC defined as a census tract with a CES3.0 Score Percentile above 75%

Currently MBCP serves 9,427 customer accounts, 3.2% of total accounts, located within designated DACs. Additional evaluation of the percentage of poverty in MBCP's service area demonstrates the limited effectiveness of CES3.0 to, correctly, designate disadvantaged communities. MBCP's analysis of CES3.0's poverty percentile data shows that at the 75% percentile, MBCP has 45,398 customers who fit this criterion, or 15% of its customer base. Further analysis utilizing CES3.0's poverty percentile at the 50% percentile, MBCP has 124,060

customers (both residential and non-residential) who fit the criteria, or almost 42% of MBCP's customer base.

Recognizing that many underserved and marginalized communities are not represented in the CES3.0 profile, MBCP conducts additional outreach to all underserved customers to ensure they have access to information and resources regarding rate assistance programs. MBCP utilizes both a leveraged digital messaging and direct energy education outreach through MBCP's first-of-its-kind Farmworker Outreach program throughout the Monterey Bay region.

In response to the unprecedented financial impacts of the COVID-19 pandemic, MBCP provided immediate and impactful financial relief for all customers including those in designated disadvantaged communities by cutting electric generation rates by 50% for the months of May and June 2020. In addition to providing direct financial relief, MBCP's rate reduction injected $22 million dollars into the local economies to all MBCP jurisdictions. MBCP also suspended its non-payment policy until further notice.

While the unprecedented COVID-19 pandemic required an extraordinary response, MBCP's approach to Energy Program design and implementation also supports investment in DACs. Some of those Energy Programs supporting DACs are detailed here:

- Multi-Unit Dwelling (MUD) Electrification Grant Program: Provides $1.3 million in 2019 to electrify 395 new affordable housing units and 187 new market-rate housing units. This program promotes GHG emissions reductions, indoor air quality, occupant safety, and energy bill savings for customers by eliminating natural gas or propane equipment/appliances. MBCP provided enhanced incentives for affordable housing developments to encourage all-electric housing for low-income residents. Approximately 75% of total funding reservations will

support sustainable, clean, and affordable housing developments in MBCP's service territory.

- California Electric Vehicle Infrastructure Incentive Project - Central Coast Incentive Project ("CALeVIP – CCIP"): In collaboration with the California Energy Commission, this program reduces air pollution and GHG emissions by providing better charging infrastructure to facilitate and support MBCP customers choosing clean running electric vehicles ("EVs"). The CALeVIP – CCIP provides a total investment of $7 million for public facing EV charging incentives throughout Monterey, San Benito, and Santa Cruz counties. Approximately $1.8 million, or 25% of total funds, have been reserved for projects located in DACs.
- Residential Resiliency Program: Provides $1M to provide backup battery storage for medical baseline and income qualified customers who disproportionately suffer the burdens of the IOU's prolonged Public Safety Power Shutoffs.
- Agriculture Electrification Grant Program: Supports agriculture sector customers to electrify ag operations equipment, such as tractors, forklifts, diesel-powered irrigation pumps, light/heavy duty trucks, coolers/boilers and more. This program sets out to eliminate diesel (and other fossil fuel) powered equipment that operates in and around DACs, which reduces human exposure to harmful petrochemicals and criteria pollutants associated with ag equipment.

As further discussed in Section IV ("Action Plan") below, MBCP is further dedicated to continuing to maximize its Energy Programs to reduce economic, health, and environmental burdens on DACs.

In developing its IRP, MBCP carefully considered the impact of its resource procurement on DACs. Neither MBCP's preferred or alternate portfolio include energy contracts for gas generators, including those gas facilities located within or adjacent to DACs. MBCP's goal of 60% clean and renewable resources by 2035 and 100% by 2030 emphasizes the need to identify baseline renewable resources and to pair intermittent renewable resources with appropriate storage. MBCP's PRP minimizes the use of unspecified system power, reducing its potential indirect reliance on gas generators that have an impact on DACs.

d. Cost and Rate Analysis

MBCP's PRP and ARP portfolios are both reasonable from a cost perspective. MBCP has determined that MBCP's PRP portfolio achieves environmental, reliability, and other benefits in a cost-effective manner. MBCP has conducted a thorough cost and rate impact analysis, using The Model, to determine that procuring the resource mix identified in its PRP will have a minimal rate impact, while providing the GHG reduction, system reliability, and other benefits described in this narrative.

In general, MBCP sought to balance the need to procure resources with enough lead time to meet MBCP'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.

MBCP's PRP takes advantage of the rapidly falling cost of solar, wind, and battery storage resources. MBCP's PRP also takes advantage of the fact that, compared to IOUs, CCAs have significantly shorter generation project development timelines. These shorter timelines result in significant direct savings and give MBCP more flexibility to time its procurement to take maximum advantage of falling renewable generation prices. As a result, while the PRP sets

forth MBCP's planned procurement, MBCP will continue to evaluate customer needs and market shifts to continue providing cost effective procurement to reduce emissions and increase grid reliability.

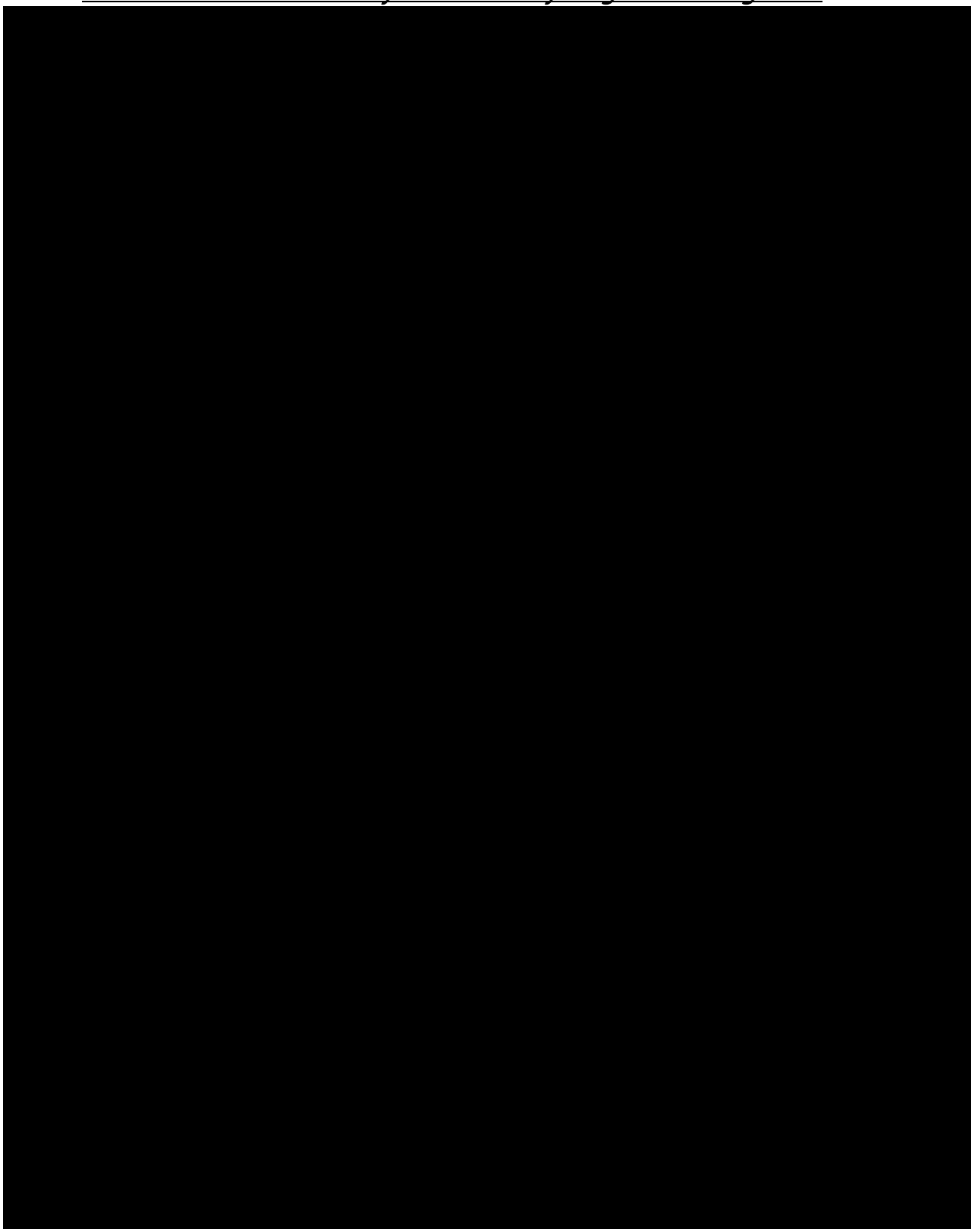
MBCP's ARP also reflects MBCP's preference for low-cost renewable and storage resources but reduced the MW amount and adjusted the planned resource mix of wind and solar from MBCP's PRP in order to increase MBCP's emissions to meet the Energy Division's required emissions threshold.

e. System Reliability Analysis

Both MBCP's PRP and its ARP are reliable and contribute MBCP's fair share to system reliability.

The effective capacity of MBCP's PRP is provided in Table 14, the "System Reliability Progress Tracking Table" from its 38 MMT Resource Data Template dashboard:

Table 14: MBCP's 38 MMT System Reliability Progress Tracking Table



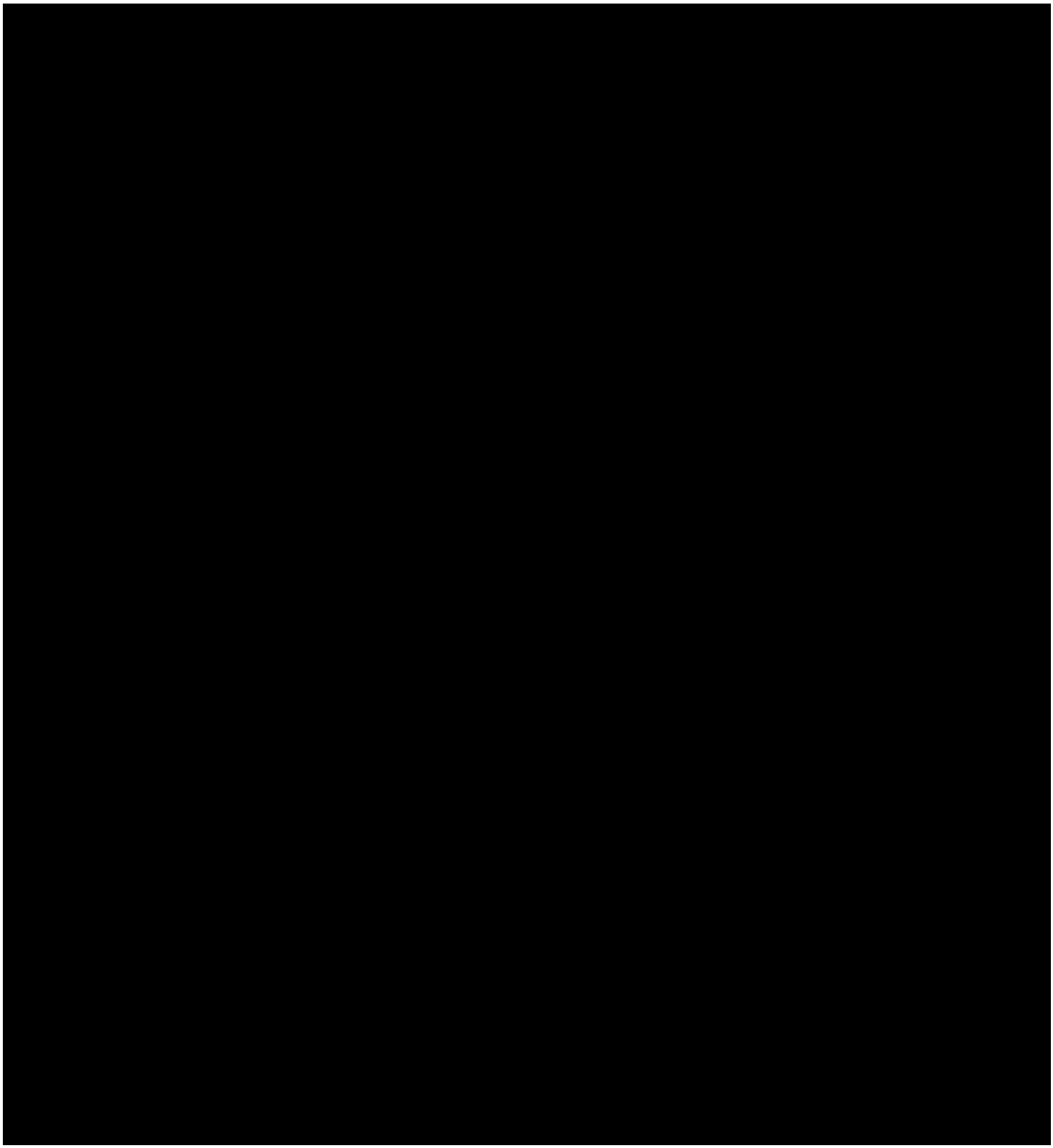
[redacted]

As demonstrated in Table 14, MBCP's 38 MMT PRP meets peak demand obligations. However, given the changing generation landscape, with more storage being added, either paired with solar or as a stand-alone, MBCP believes the existing Resource Adequacy construct is rapidly becoming obsolete for evaluating portfolios as a whole across all hours. MBCP is encouraged that the CPUC is evaluating alternative approaches to better determine if a portfolio is relying too much on system resources.

MBCP support the recent proposal by CalCCA and Southern California Edison in the RA proceeding. This proposal seeks to replace the current RA methodology with an alternative modified net load duration curve that can measure a portfolios' dispatchable generation and storage abilities to meet load not otherwise served by time-dependent renewable generation, as well as the ability of excess energy to charge storage.

MBCP looks forward to being an active partner to the Commission to develop a new set of reliability requirements to improve or reform the current inadequate method, and to provide a revised framework for centralized resource adequacy procurement, with the overall goal of ensuring system reliability.

The effective capacity of MBCP's 46 MMT ARP is provided in Table 15, the "System Reliability Progress Tracking Table" from its 46 MMT Resource Data Template dashboard (note that the row containing peak demand is confidential and has been excluded from this table):



As demonstrated in Table 15, MBCP's 46 MMT ARP meets our peak load obligations.

f. Hydro Generation Risk Management

California's hydro generation system is vulnerable to drought and has experienced lower than average hydro generation during droughts in 2007-2009 and 2012-2016. Electrical generation from hydroelectric facilities depends on the volume of water available to flow through turbine generators. A lack of precipitation in drought years creates low water availability and hence lower hydro generation output. Hydro systems without large reservoirs that can store water for multiple years and that can average out generation over time are at particular risk.

Drought risk can impact generation system reliability. For hydro generation systems with at least some water storage and dispatch flexibility, the risk primarily manifests as an energy constraint as opposed to a capacity constraint. During droughts, such systems can generate up to their maximum capacity for short periods of time but cannot do so for long periods because of a lack of water due to the drought. Hydro systems with no effective water storage will be energy and capacity limited in a drought.

In 2018, MBCP was awarded a small allocation of large hydro from the Central Valley Project (CVP) as provided for under Western Area Power Administration's 2025 Power Marketing Plan. The contract is 30 years in term, structured as a run-of-river for which MBCP will be responsible for its share of project cost. The contract is expected to be executed by the end of 2020 for deliveries starting in 2025.

MBCP previously relied on a significant amount of purchases of GHG-free energy from hydro generators to maintain its prior Board-approved goal of being 100% carbon free on its power content label. MBCP managed its hydrological risk by contracting with both Pacific Northwest (PNW) and California suppliers. In the last few years, the reduced availability of affordable large hydropower from the PNW has contributed to MBCP adopting a new

procurement strategy. That new strategy (to accelerate the procurement of clean and renewable resources) eliminates MBCP's reliance on short-term purchases of GHG-free large hydropower energy from existing in-state and out-of-state suppliers and instead increases the number of long-term contracts for new renewable resources in its portfolio. This approach includes geothermal resources that can deliver baseload generation. Thus, other than its small long-term contract for hydro energy, MBCP will not be reliant on hydro to meet its GHG emissions benchmarks in 2030.

g. Long-Duration Storage Development

CPUC's RSP (38 MMT scenario) identified a need to add 1,605 MW of new long-duration storage (minimum of eight-hour discharge duration, though modeled by the CPUC as twelve-hour duration) by 2026, 37 MW of which is MBCP's assigned share.

Along with 12 other CCAs, MBCP issued a joint request for information (RFI) on long-duration storage on June 3, 2020. The goal of the RFI was two-fold. First to collect information to inform upcoming efforts to issue request for offers for long-duration storage resources. Second, to assess the viability of long-duration storage and inform the CCAs' individual and collective efforts in developing their IRPs specifically as it relates to meeting long-duration storage capacity needs identified in the CPUC's RSP.

The RFI is an attempt to reflect the results from the RSP in that it sought information for resources to be grid charged, have a minimum discharge duration of 8 hours and commercial operation by 2026. The RFI was open to multiple technologies including battery storage, mechanical storage, thermal storage, and chemical storage. RFI responses were due July 1, 2020 and over 30 submissions were received for 25 distinct projects. While MBCP and the group of CCAs are still reviewing results, the general observation is that the amount of capacity identified

in the RSP can be technically developed by 2026. The following is a summary of key information gathered:

- A total of 9,183 MW of 8-hour duration project capacity was submitted;
- Offers varied in tenor, battery discharge duration (8, 12, or 16-hour) and available attributes (e.g., RA only, tolling, A/S);
- 14 types of technologies were submitted including lithium-ion, chemical flow, compressed air, pumped storage hydro, thermal storage, gravity-based, hydrogen, and 2nd life EV batteries;
- Prices ranged from $10 - $51.26 per kW-month; and
- Projects can meet an on-line date of 2026 or earlier.

MBCP along with a sub-set of the CCAs that participated in the RFI, intend to issue a joint RFO later this month. These same CCAs are exploring the formation of a new joint-powers authority to enable the procurement of a long-duration storage resulting from the RFO. Joint procurement for long- duration storage will allow for better economies of scale, while reducing project development, technology, and regulatory risk. While the results from the RFI appear promising from a technical stand point, MBCP and the other CCAs remain concerned about the costs, benefits and regulatory risk (particularly resource adequacy accounting) and will look to the results of its future RFO and discussions with developers and the CPUC to inform future procurement decisions for long-duration storage.

h. Out-of-State Wind Development

The Commission's 38 MMT RSP calls for 3000 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. MBCP understands that the transmission projects needed to connect OOS wind to the CAISO grid require significant lead-times.

MBCP is open to out-of-state wind proposals in response to its requests for offers. Such proposals are evaluated alongside others and are not penalized for being out-of-state if they can deliver to the CAISO. Recently, however, MBCP and a developer mutually agreed to terminate an out-of-state wind PPA. In June 2018, MBCP's Board of Directors approved a 15-year PPA with Duran Mesa LLC for 90 MW of wind power from the Corona Wind Farm in Torrance and Lincoln Counties, New Mexico. The project was to supply Portfolio Content Category one (PCC1) renewable energy credits from a new wind facility and transmitted to California via a new transmission path. Unfortunately, in April 2020 MBCP and Pattern Energy, Duran Mesa LLC's parent company, mutually terminated the PPA due to unanticipated delays in development outside the control of the supplier. The project had a scheduled COD of December 31, 2020 and was expected to meet 8% of MBCP's RPS.

MBCP entered into a Memorandum of Understanding (MOU) with Castle Wind LLC in August 2019 to demonstrate our intention to negotiate a power purchase agreement to take a portion of a planned 1,000 MW floating offshore wind farm, 30 miles off the coast of the City of Morro Bay. As there are many challenges to developing the first utility-scale wind farm off the California coast, MBCP hopes this MOU will support Castle Wind in its efforts, as we strongly believe offshore wind, with its attractive wind generation profiles, will allow California to more easily achieve its 100% zero carbon goal by 2045.

The RSP calls for a large amount of out-of-state wind on new transmission paths for delivery in 2030, which MBCP finds challenging. Through its current RFP for long-term renewables, MBCP received multiple offers for in-state resources but none for out-of-state. Additionally, MBCP has had bilateral discussions with developers for out-of-state wind resources, however transmission and cost continue to be a major barrier. MBCP will continue to seek cost-effective and viable wind resources consistent with its Preferred Portfolio and its desire to achieve a diversification of technologies in its RPS procurement.

i. Transmission Development

Resources for which MBCP has already executed contracts are in all IRP portfolios. Table 16 below summarizes the location information for new resources under long-term contract.

Table 16: New MBCP Resource Location Information. MBCP has executed contracts with these resources.

Project Name	Resource Type	Location	Queue Position	Station or Transmission Line	Interconnection Agreement?	RESOLVE Area	Coordinates
Big Beau	Solar + Storage	Kern County, CA	602 (18MWs solar) 1329 (110MWs solar, 40 MWs storage)	Whirlwind Substation 230kV	Yes	Tehachapi	34.933767 N 118.341933 W
RE Slate	Solar + Storage	Kings County, CA	1158	Mustang Switching Station 230kV	Yes	Westlands	36.24095 N 119.914801 W
Ormat	Geothermal	Mono County, CA	315	115 kV bus at SCE Control Substation	Yes	Northern California	37.65187 N 118.91686W
Rabbitbrush	Solar + Storage	Kern County, CA	1215	Whirlwind Substation 230kV	Yes	Tehachapi	34.8775 N 118.3595 W
Yellow Pine Energy Center	Solar + Storage	Clark County, Nevada	1341	GridLiance Trout Canyon 230 kV substation on the Pahrump Sloan Canyon 230 kV line	Yes	Southern Nevada	36.0514 N 115.7519 W
Aratina	Solar + Storage	Kern County, CA	1604	Kramer Substation 230 kV	Yes	Kern Greater Carrizo	34.987952 N 117.68 W
Cal Flats BESS	Storage	Monterey County, CA	unknown	Morro Bay Gates Substation	Yes	Central Valley North Los Banos	36.3136 N 121.3542 W

Each of the portfolios includes new solar, wind, and storage resources that are modeled as planned backfill PPAs but not yet under contract. MBCP's only location requirement for these resources is that they must qualify as PCC1 resources for RPS compliance purposes, meaning they either have a first point of interconnection with a California balancing authority. For resources with CODs on or before December 31, 2026, the CPUC requires LSEs to indicate which transmission zone the resources will be located in. For planning purposes, MBCP selected

zones based on the preponderance of locations from submitted offers in our latest long-term solicitation to determine the distribution of wind and solar resources. This spreads the resources in many zones throughout California. Ultimately, MBCP will select resources with the best overall characteristics for cost and reliability, including the cost of any new transmission for interconnection. Risk of interconnection delays due to the need for new transmission construction are also considered in reviewing all offers in MBCP's procurement process.

j. Geothermal Resources

In 2019 MBCP signed two long-term geothermal PPAs, one existing and one new. The new resource utilizes an air- cooled binary system that will have no carbon emissions. Both projects are in California and will deliver PCC1 energy meeting about 10% of MBCP's RPS along with resource adequacy and ancillary services. The geothermal resources will help MBCP meet its clean and renewable energy by providing a 24x7 source of renewable energy.

Both resources were selected through a competitive joint solicitation process in collaboration with Silicon Valley Clean Energy, which evaluated offers to assess an expected levelized net benefit value under various market and regulatory conditions.

While the geothermal resources are higher cost on a per MWh basis than solar plus storage and wind projects, the expected value and therefore net benefit was deemed competitive and cost effective. Specifically, the projects demonstrated strong energy, REC and resource adequacy value. And, from a reliability perspective, MBCP finds geothermal to be a good substitute to capacity from natural gas resources and Diablo Canyon. It is a proven technology and is not susceptible to grid integration issues such as those with intermittent resources.

MBCP recognizes that the CPUC's RSP does not include new geothermal capacity, however given MBCP's own experience deems it necessary to include them as part of its Preferred Conforming Portfolio.

IV. Action Plan

a. Proposed Activities

Even among CCAs, MBCP's governing structure is unique, utilizing both a Policy Board of Directors and an Operations Board of Directors.[15] The Policy Board is comprised of elected officials from member jurisdictions and the Operations Board is comprised of City Managers, County Administrative Officers, and other high-level executive staff. MBCP's structure ensures input from public groups, organizations, and member agency staff. jurisdiction is being provided at every level of decision-making.

MBCP further utilizes its Community Advisory Council ("CAC") as an active outreach body to compliment the efforts of MBCP staff to engage all sectors of our community, including DACs. The CAC members are considered from an expansive pool of applicants and selected by a subcommittee of the Policy Board to ensure a diverse subset of our community is represented, including representatives from customer segments, labor, environmental groups, technical expertise, as well as DACs.

Through this interconnected outreach and decision-making matrix, MBCP works with its governing boards to set policy, strategies and directives, and program priorities, design, and deployment.

[15] Each Board allows for Limited Members, which allow even non-voting members of a shared seat to participate in meetings and participate in Board discussions.

While MBCP programs have been largely focused on complementary GHG reductions through electrification and resiliency programs, MBCP intends to expand and improve on its current energy program offerings and implement new programs in FY2020/21. In addition to the energy programs set out above, MBCP's new, or revised, program offerings will include:

- Electrification Education Grant Program: Provides grant funding for educational resources to community members to learn about electrification and battery storage technology.
- Residential Electrification Program: will provide incentives for residential customers to choose energy efficient, all-electric heat pump water heaters, as well as in-home EV chargers.
- Potential Program Offers: MBCP is further evaluating the potential of EV incentive programs targeted at making electric vehicles options accessible to DACs; expanding its Agricultural Electrification Program, and targeting its electric school bus partnership with the Monterey Bay Air Resources District to low-income and DACs.

MBCP is committed to soliciting greater community input for Energy Program design and development, starting with identifying design criteria to ensure program design match community needs and priorities. In FY 2020-2021, MBCP intends to engage its communities and stakeholder groups to collect feedback to shape the energy program selection process for FY 2021-2022 programs. MBCP anticipates its program offers will continue to emphasize GHG reduction efforts through electrification and resiliency, but to expand to include programs focused on reducing peak demand through distributed energy and local renewable generation.

b. Procurement Activities

MBCP takes a multi-pronged approach to meet its annual and long-term clean and renewable energy goals. This includes issuing request for proposals, participating in other entities' RFPs, bilateral negotiations and exploring partnerships to develop clean resources. MBCP ladders its clean and renewable energy procurement to ensure a diversification of counterparties, prices, and term and to meet short-term needs based on actual load.

All long-term RPS procurement to date has been done jointly with Silicon Valley Clean Energy Authority (SVCE). Together the two agencies completed two RFPs and executed eight PPAs. MBCP will continue to collaborate with SVCE, as it has been extremely successful at attracting a larger set of diverse and competitive offers, cost effectively use resources and spread risks related to execution, development, and performance.

MBCP and SVCE issued their latest joint RFP in April 2020 with submittals received in June 2020 for long-term RPS PCC1 resources. A variety of diverse proposals were submitted, meeting the objectives set out by the RFP. MBCP is confident it will be able to execute PPAs in support of its long-term RPS targets and Preferred Resource Plan Portfolio. The specific resources to be procured have not been decided, so MBCP included generic backfill PPA resources including wind and solar with storage in its resource portfolios beginning in 2023 as substitutes for these planned PPAs. MBCP plans to bring three to four new PPAs to its governing board in 2021 for consideration.

MBCP included generic existing RPS resources in its planning portfolios beginning in 2021. These transactions will be carried out consistent with MBCP's accelerated RPS strategy to meet its actual load obligations and exceed state mandated RPS requirements.

MBCP included anticipated offshore wind capacity, beginning in 2028, as we entered into a MOU with Castle Wind LLC in August 2019 to demonstrate our intention to negotiate a power purchase agreement to take a portion of a planned 1,000 MW floating offshore wind farm, 30 miles off the coast of the city of Morro Bay.

MBCP is exploring several short and mid-term bundled clean and renewable energy, RA resources and aggressively working to secure long-term RPS contracts. Some contracts are intended to start as early as 2021.

Regarding its Resource Adequacy procurement, MBCP works with a group of four other CCAs to pool and procure RA. In 2019 this joint-RA group enlisted the support of ACES to administer request for RA offers and manage intra-pool transactions. For the upcoming RA compliance period 2021-23, MBCP has procured a significant portion of its 2021 and 2022 system and flex RA needs and much of its local RA needs through 2022. MBCP anticipates procuring additional RA for the upcoming compliance period through the joint-CCA effort, its own RFPs, and bilateral negotiations and through participation with other load serving entities, including PG&E and SCE solicitations. Consistent with the CPUC's central procurement entity decision, MBCP does not plan to procure local RA products beyond 2023 unless the central procurement decision is revisited to ensure a more permanent decision that provides LSE's with predicable value for any self-procured resources.

c. Potential Barriers

Though MBCP has made significant progress to effectuate its internal clean and renewable energy goals and meet all state requirements, there remain several challenges to achieving our Preferred Resource Plan Portfolio. The most important challenges include the following:

- Challenges procuring wind resources with interconnection. MBCP recently terminated a contract for out of state wind due to delays to a planned transmission corridor. However, MBCP remains committed to procuring wind in the future and is actively negotiating for wind resource PPAs.
- Regulatory Uncertainties. MBCP must do significant procurement through long-term contracts during a time of considerable regulatory uncertainty, especially with regard to the RA market and DA expansion. Although the CPUC recently approved a methodology for calculating the RA contributions by hybrid resources, this methodology may change in the future, and the contributions made by batteries could decline over time. In addition, the Commissions' decision regarding the local RA central procurement entity has created uncertainty over how much of MBCP's own RA needs it will be responsible to procure or how RA attributes tied to energy procurement will be accounted for and valued. It is not known how the changes in the RA market will change future IRP requirements in such a way as may require changes to MBCP's long-term procurement strategy.

d. Commission Direction or Actions

Notwithstanding changes in market conditions, customers' needs, technologies, or other risk assessment considerations, MBCP intends to utilize all reasonable efforts to procure the resources detailed in the PRP, and there are certain actions that the Commission can take that could make that substantially easier.

Specifically, the Commission is set to address the excess resources in the IOUs' portfolios pursuant to the Phase 2 Scoping Memo of CPUC Rulemaking ("R.") 17-06-026, PCIA Working Group Three: Portfolio Optimization and Cost Reduction, and Allocation and Auction

("WG 3"). The Final Report submitted by the Co-Chairs (Southern California Edison, Commercial Energy and CalCCA) addresses the appropriate treatment of excess GHG-free, RA and RPS in the IOU portfolios. The report was developed in a 10- month stakeholder process and outlines the consensus and non-consensus areas. MBCP urges the CPUC to accept the proposal in the final report and issue a proposed decision as soon as possible so that all eligible LSEs can claim the attributes that they are already paying for through the PCIA. Delays by the CPUC in making a decision could result in over procurement of RPS and RA and prevent MBCP from taking advantage of allocated carbon-free attributes to lower MBCP's overall cost of energy.

e. Diablo Canyon Power Plant Replacement

All MBCP's IRP portfolios contribute new reliable resources to meet system needs after Diablo Canyon's planned retirement in 2025, including a new geothermal resource. As a low-carbon, baseload resource, scaled geothermal power is an excellent replacement for nuclear power.

The table below compares the planned energy storage resources in MBCP's portfolio compared to its load ratio share of the reference system portfolios in 2026 the year after DCPP retires. Though MBCP's portfolios currently do not include long- duration storage, MBCP is pursuing such resources through a planned RFO as described in the Long- Duration Storage Development section of the IRP. This combined with MBCP exceeding its share of required new renewable resources with ensure an orderly transition after retirement of DCPP.

Table 17: MBCP portfolios compared to MBCP's load ratio share of RSPs in 2026.

	Load Ratio Share of Reference System Portfolios		MBCP Portfolios	
	38 MMT	**46 MMT**	**38 MMT**	**46 MMT**
Short-Duration Storage (MW Capacity)	226	207	283	283
Long-Duration Storage (MW Capacity)	37	23	50	50
Total Storage (MW Capacity)	265	230	333	333

f. D.19-11-016 Incremental Procurement

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. As part of MBCP's contribution to system reliability and renewable integration needs, MBCP is committed to self-providing its assigned share of the identified system capacity need.

MBCP's assigned share of the system capacity need is 57.4MW,[16] 50% of which must be online by August 1, 2021, 75% of which must be online by August 1, 2022, and 100% of which must be online by August 1, 2023.

On February 18, 2020, MBCP notified the Commission of its intent to self-provide its share of this requirement. In IRP-filing years, D.19-11-016 further requires LSEs to include an update on incremental procurement activities in their biennial IRPs, including an attestation of compliance by a senior executive. As instructed by the Commission, this attestation is being provided as part of MBCP's IRP submission. Detailed information regarding MBCP's

[16] D.19-11-016, Ordering Paragraph 3.

procurement towards the D.19-11-016 requirement is provided in MBCP's resource data templates.

MBCP Has Procured All Needed Capacity to Meet Its 2021 Requirement

MBCP is required to have 50% of its capacity procurement, or 28.7 MW, online by August 1, 2021. MBCP has procured adequate incremental capacity to meet this requirement.

On February 14, 2020, MBCP executed a contract to procure 67.5 MW of solar PV generation capacity and 33.75 MW of energy storage capacity from RE Slate 1, LLC. The incremental capacity is 33.75 MW, as MBCP adopted the more conservative "greater of" methodology regarding RA counting rules for this filing, and acknowledges the recently adopted Effective QC methodology would only add to amount of NQC this project could provide. The period for this agreement runs from June 30, 2021 to June 29, 2038.

On May 29, 2020, MBCP executed a contract to procure 60 MW of capacity from an energy storage system, Cal Flats BESS LLC. For a 10 years term, August 1, 2021 to July 31, 2031. This capacity is incremental, as it is energy storage system to be installed on an existing solar farm, California Flats Solar in Monterey County.

Together, these contracts will provide MBCP with approximately 94 MW of incremental net qualifying capacity by August 1, 2021, satisfying MBCP's 2021 procurement requirement.

MBCP Has Procured All Needed Capacity to Meet Its 2022 Requirement

MBCP is required to have 75% of its capacity procurement requirement, or 43 MW, online by August 1, 2022. MBCP's contracts with RE Slate 1 and Cal Flats BESS listed above, provide 94 MW of this capacity. Additional capacity is to be provided through an October 25, 2018 contract to procure 57.6 MW of solar PV generation capacity and 18 MW of energy storage capacity from Big Beau Solar LLC. The incremental capacity is 18 MW, based on MBCP's

adoption of the "greater of" methodology regarding RA counting rules, as mentioned above. The period for this agreement runs from December 1, 2021 to November 30, 2041. This new renewable solar PV plus energy storage resource's capacity is incremental.

Together, these contracts will provide a total of 112 MW of capacity by August 1, 2022, fully satisfying MBCP's 2022 requirement.

V. Lessons Learned

MBCP has learned much through the past year it has worked on long-term resource planning activities and expects its long-term strategy will continue to evolve. For the next IRP cycle, MBCP recommends the CPUC consider some changes.

First, MBCP is concerned by the CPUC directive to include portfolios with a minimum amount of GHG emissions. MBCP believes this is not in accordance with the primary objective of the IRP, which is to reduce GHG emissions. In its decision setting the requirements for this IRP (D.20-03-028), the CPUC states that "we note the comments of the Joint CCAs that request the ability to file portfolios containing 100 percent GHG-free resources. While we applaud these LSEs for their forward thinking, they will still need to address how such portfolios will be reliable without further technological or fuel development. It is not sufficient for LSEs to assume that the reliability, renewable integration, and ramping needs associated with their portfolios will be met by resources in the portfolios of other LSEs." However, the CPUC failed to provide any standards by which LSEs could show such 100% carbon free portfolios adequately (supply reliability, renewable integration, and ramping needs), and instead required LSEs to just include a fixed amount of emissions in their portfolios. That conflates emissions with reliability, renewable integration, and ramping. In the next IRP cycle, the CPUC should define these standards more clearly so 100% carbon free portfolios can be conforming for all scenarios.

Second, it is difficult to value the contributions of resources that are not included in the RSP. This was a problem for MBCP as it has signed a PPA for a new geothermal resource, and there were no geothermal resources selected in the RSPs in this IRP cycle. It also includes out-of-state wind, which was not in either RSP. In its decision setting the requirements for this IRP (D.20-03-028), the CPUC discusses certain resources acting as proxies for other resources, including geothermal as a proxy for baseload renewables, but the term "baseload renewables" was not specifically defined or listed in the broad categories of resources the LSEs are expected to procure. It would be much more useful for the CPUC to define a set of objectively identifiable standards required to create a reliable portfolio. LSEs can then compare the contributions of such resources to such a set of standards and procure the set that best meets CPUC requirements and internal Board directives.

Lastly, new standards beyond a planning reserve margin must be defined, since traditional resource planning standards of total capacity plus a reserve margin in peak load hours are insufficient with renewable resources for which energy availability varies significantly year-to-year (hydro), hour-to-hour (wind and solar), and/or season-to-season (hydro, wind, and solar). The CPUC's own RESOLVE modeling showed this to be the case when portfolios selected to meet planning reserve margin standards could not meet loss of load expectation standards in SERVM.

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).*