MCE Empowering Our Clean Energy Future

CONTRA COSTA | MARIN | NAPA | SOLANO

MARIN COUNTY | NAPA COUNTY | UNINCORPORATED CONTRA COSTA COUNTY | UNINCORPORATED SOLANO COUNTY
BENICIA | CONCORD | DANVILLE | EL CERRITO | FAIRFIELD | LAFAYETTE | MARTINEZ | MORAGA | OAKLEY
PINOLE | PITTSBURG | PLEASANT HILL | RICHMOND | SAN PABLO | SAN RAMON | VALLEJO | WALNUT CREEK

Board of Directors Meeting
Thursday, October 20, 2022
7:00 P.M.

This Meeting will be conducted via teleconference pursuant to the requirements of Assembly Bill No. 361. By using teleconference for this meeting, MCE continues to promote social distancing measures recommended by local officials.

Members of the public who wish to observe the Meeting and/or offer public comment may do so telephonically via the following teleconference call-in number and meeting ID:

For Viewing Access Join Zoom Meeting:
https://us02web.zoom.us/j/82085254745?pwd=dWs0b1NTbWNYbjRJbVZLMVZzZjZrUT09

Dial: (669) 900-9128
Webinar ID: 820 8525 4745
Meeting Passcode: 205749

Agenda Page 1 of 2

1. Roll Call/Quorum

2. Board Announcements (Discussion)

3. Public Open Time (Discussion)

4. Resolution No. 2022-12 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code 54953(e) (Action)

5. Report from Chief Executive Officer (Discussion)

6. Consent Calendar (Discussion/Action)
   - C.1 Approval of 8.18.22 Board Meeting Minutes
   - C.2 Approval of 9.29.22 Board Retreat Minutes
   - C.3 Approved Contracts for Energy Update

7. Addition of Board Members to Committees (Discussion/Action)

8. Approval of CPUC Integrated Resource Plan (Discussion/Action)

9. Approval of Power Purchase Agreement with Mayacma Geothermal, LLC (Discussion/Action)

10. Implementation of Electrification Rate Schedule E-ELEC (Discussion/Action)

11. Proposed Amendments to MCE Policy 014: Investment Policy (Discussion/Action)

12. Budget Update and Possible Rate Increase in FY 2022/23 (Discussion)

13. Board Matters & Staff Matters (Discussion)

14. Adjourn

The Board may discuss and/or take action on any or all of the items listed on the agenda irrespective of how the items are described.

DISABLED ACCOMMODATION: If you are a person with a disability which requires an accommodation, or an alternative format, please contact the Clerk of the Board at (925) 378-6732 as soon as possible to ensure arrangements for accommodation.

October 20, 2022

TO: MCE Board of Directors

FROM: Catalina Murphy, Associate General Counsel

RE: Resolution No. 2022-12 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e) (Agenda Item #04)

ATTACHMENT: Proposed Resolution No. 2022-12 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e)

Dear MCE Board of Directors:

Summary:

Assembly Bill (AB) No. 361 (Rivas), signed by Governor Gavin Newsom on September 16, 2021, amends the Brown Act[1] to allow a local agency to continue using teleconferencing during a state-proclaimed state of emergency without meeting certain Brown Act teleconference requirements.

On September 29, 2022, the MCE Board of Directors, by Resolution 2022-11, made a finding that the Governor designated a state of emergency and that the state of emergency continued to directly impact the ability of board members to meet safely in person. This finding allowed for meetings to be held via teleconference. This finding should be reconsidered every 30 days, pursuant to AB 361.

To continue holding teleconference meetings for the next 30 days, the MCE Board of Directors must make the following findings by majority vote:

1. The Board of Directors has reconsidered the circumstances of the state of emergency, as designated by the Governor.

[1] Gov. Code, §§ 54950 et seq.

2. The Board of Directors finds that one or both of the following circumstances still exists:
    a. The state of emergency continues to directly impact the ability of members to meet safely in person; or
    b. State or local officials continue to impose or recommend measures to promote social distancing.

Staff recommends adopting proposed Resolution No. 2022-12 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e), which makes the required AB 361 findings for continuing remote teleconference meetings for the next 30 days.

Fiscal Impacts: None.

Recommendation:
Adopt proposed Resolution No. 2022-12 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e).

RESOLUTION NO. 2022-12

A RESOLUTION OF THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY AUTHORIZING CONTINUED REMOTE TELECONFERENCE MEETINGS FOR THE BOARD OF DIRECTORS AND EVERY COMMITTEE OF THE BOARD OF DIRECTORS PURSUANT TO GOVERNMENT CODE SECTION 54953(e)

WHEREAS, Marin Clean Energy (MCE) is a joint powers authority established on December 19, 2008, and organized under the Joint Exercise of Powers Act (Government Code Section 6500 et seq.); and

WHEREAS, MCE members include the following communities: the County of Marin, the County of Contra Costa, the County of Napa, the County of Solano, the City of American Canyon, the City of Belvedere, the City of Benicia, the City of Calistoga, the City of Concord, the Town of Corte Madera, the Town of Danville, the City of El Cerrito, the Town of Fairfax, the City of Fairfield, the City of Lafayette, the City of Larkspur, the City of Martinez, the City of Mill Valley, the Town of Moraga, the City of Napa, the City of Novato, the City of Oakley, the City of Pinole, the City of Pittsburg, the City of Pleasant Hill, the City of San Ramon, the City of Richmond, the Town of Ross, the Town of San Anselmo, the City of San Pablo, the City of San Rafael, the City of Sausalito, the City of St. Helena, the Town of Tiburon, the City of Vallejo, the City of Walnut Creek, and the Town of Yountville; and

WHEREAS, MCE is subject to various provisions of the California Government Code; and

WHEREAS, Government Code section 54953, as amended by Assembly Bill No. 361, allows legislative bodies to hold open meetings by teleconference without reference to otherwise applicable requirements in Government Code section 54953(b)(3), so long as the legislative body complies with certain requirements set forth in Government Code section 54953(e), finding there exists a declared state of emergency, and one of the following circumstances is met:

1. State or local officials have imposed or recommended measures to promote social distancing.

2. The legislative body is holding the meeting for the purpose of determining, by majority vote, whether as a result of the emergency, meeting in person would present imminent risks to the health or safety of attendees.

3. The legislative body has determined, by majority vote, pursuant to option 2, that, as a result of the emergency, meeting in person would present imminent risks to the health or safety of attendees.

WHEREAS, the Governor of California proclaimed a state of emergency pursuant to Government Code section 8625 on March 4, 2020; and

WHEREAS, the MCE Board of Directors previously adopted Resolution No. 2022-11 finding that the requisite conditions continue to exist for the MCE Board of Directors, MCE Executive Committee, and MCE Technical Committee to conduct teleconference meetings under California Government Code section 54953(e); and

WHEREAS, Government Code section 54953(e)(3) requires the legislative body adopt certain findings every 30 days by majority vote to continue holding open meetings by teleconference without reference to otherwise applicable requirements in Government Code section 54953(b)(3); and

WHEREAS, the MCE Board of Directors desires to continue to hold the MCE Board of Directors, MCE Executive Committee, and MCE Technical Committee public meetings by teleconference consistent with Government Code section 54953(e).

NOW, THEREFORE, BE IT RESOLVED, by the MCE Board of Directors:

A. The Recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

B. The MCE Board of Directors hereby finds and declares the following, as required by Government Code section 54953(e)(3):

1. The Governor of California proclaimed a state of emergency on March 4, 2020, pursuant to Government Code section 8625, which remains in effect.

2. State or local officials have imposed or recommended measures to promote social distancing.

3. The legislative body has determined that, as a result of the emergency, meeting in person would present imminent risks to the health or safety of attendees.

PASSED AND ADOPTED at a regular meeting of the MCE Board of Directors on this 20th day of October 2022, by the following vote:

	AYES	**NOES**	**ABSTAIN**	**ABSENT**
County of Marin				
Contra Costa County				
County of Napa				
County of Solano				
City of American Canyon				
City of Belvedere				
City of Benicia				
City of Calistoga				

City of Concord				
Town of Corte Madera				
Town of Danville				
City of El Cerrito				
Town of Fairfax				
City of Fairfield				
City of Lafayette				
City of Larkspur				
City of Martinez				
City of Mill Valley				
Town of Moraga				
City of Napa				
City of Novato				
City of Oakley				
City of Pinole				
City of Pittsburg				
City of Pleasant Hill				
City of Richmond				
Town of Ross				
City of St. Helena				
Town of San Anselmo				
City of San Pablo				
City of San Rafael				
City of San Ramon				
City of Sausalito				
Town of Tiburon				
City of Vallejo				
City of Walnut Creek				
Town of Yountville				

_____

CHAIR, MCE

Attest:

_____

SECRETARY, MCE

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MCE BOARD MEETING MINUTES
Thursday, August 18, 2022
7:00 P.M.

This Meeting was conducted pursuant to the requirements of Assembly Bill No. 361 (September 16, 2021) which allows a public agency to use teleconferencing during a Governor-proclaimed state of emergency without meeting usual Ralph M. Brown Act teleconference requirements. Committee Members, staff and members of the public were able to participate in the Committee Meeting via teleconference.

Present:
Denise Athas, City of Novato
Eli Beckman, Town of Corte Madera
Tom Butt, City of Richmond
Barbara Coler, Town of Fairfax
Gina Dawson, City of Lafayette
David Fong, Town of Danville
Ford Greene, Town of San Anselmo
Maika Llorens Gulati, City of San Rafael
Kevin Haroff, City of Larkspur
C. William Kircher, Town of Ross
Aaron Meadows, City of Oakley
Katy Miessner, City of Vallejo
Teresa Onoda, Town of Moraga
Doris Panduro, City of Fairfield
Max Perrey, City of Mill Valley
Patricia Ponce, City of San Pablo
Gabriel Quinto, City of El Cerrito
Katie Rice, County of Marin
Matt Rinn, City of Pleasant Hill
Christine Strawbridge, City of Benicia
Holli Thier, Town of Tiburon
Brad Wagenknecht, County of Napa and All Five Napa Cities
Sally Wilkinson, City of Belvedere
Brianne Zorn, City of Martinez

Absent:
Edi Birsan, City of Concord
Cindy Darling, City of Walnut Creek
John Gioia, Contra Costa County
Janelle Kellman, City of Sausalito
Devin Murphy, City of Pinole
Scott Perkins, City of San Ramon
Shanelle Scales-Preston, City of Pittsburg
John Vasquez, County of Solano

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Staff & Others:

Jesica Brooks, Assistant Board Clerk
Michael Callahan, Associate General Counsel
Stephanie Chen, Senior Policy Counsel
Alice Havenar-Daughton, Director of Customer Programs
Darlene Jackson, Board Clerk
Vicken Kasarjian, Chief Operating Officer
David Potovsky, Principal Power Procurement Manager
Enyonam Senyo-Mensah, Office Manager
Daniel Settlemyer, Internal Operations Coordinator
Sabrinna Soldavini, Policy Analyst
Jamie Tuckey, Chief of Staff
Dawn Weisz, Chief Executive Officer

1. Roll Call

   Chair Butt called the regular meeting to order at 7:01 p.m. with quorum established by roll call.

2. Board Announcements (Discussion)

   Comments were made by Directors: Haroff, Quinto, and Rice.

3. Public Open Time (Discussion)

   Chair Butt opened the public comment period and there were no comments.

4. Resolution No. 2022-10 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code 54953(e) (Discussion/Action)

   Chair Butt opened the public comment period and there were no comments.

Action: It was M/S/C (Greene/Thier) to **adopt proposed Resolution No. 2022-10 Authorizing Continued Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code 54953(e).** Motion carried by unanimous roll call vote. (Absent: Directors, Birsan, Darling, Gioia, Kellman, Meadows, Murphy, Perkins, Scales-Preston, Vasquez, and Wagenknecht).

5. Report from Chief Executive Officer (Discussion)

   CEO, Dawn Weisz, reported the following:

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- Welcomed MCE's two new board members, Max Perrey, from the City of Mill Valley, and Eli Beckman (former MCE Alternate) from the Town of Corte Madera. Directors Perrey and Beckman were sworn in just prior to the board meeting.
- Shared the bittersweet news that Shalini Swaroop, departed MCE in early August. Catalina Murphy and Mike Callahan have taken on General Counsel functions. Shalini will be continuing her education with courses at Stanford's business school, volunteering with non-profits, and campaigning for candidates in the upcoming mid-term elections.
- MCE has distributed Portable Batteries to Medically Vulnerable Residents for the summer season. More information is on our website, and if you are aware of customers in need, please let us know.
- MCE will be pausing membership in the Community Choice Power Authority because we have not had a need to participate in joint procurement efforts to-date, and we have been successful in contracting directly on our own. However, this pause is likely to be temporary, and we expect to rejoin in the future subject to market and technology needs.
- MCE is beginning to develop some structural elements in the Virtual Power Plant, and we would like to set up an informal working group with a few interested Board members. This working group cannot contain a quorum of the Board or any Board Committee, but otherwise, is open to any Board member. If you are interested, please let me, Darlene or Jesica know.
- MCE is signing a 4-year contract for 110 MW of Resource Adequacy.
- Governor Newsom announced a proposal to transition California to clean energy along with other climate change measures. Yesterday, he signed an Executive Order to combat the biodiversity and climate change crises in California using nature-based solutions.
- The MCE Board retreat will be virtual again this year, and is set for Thursday, September 29th 9am-3pm.

6. Consent Calendar (Discussion/Action)

C.1 Approval of 7.21.22 Meeting Minutes
C.2 Approved Contracts For Energy Update
C.3 2021 Power Source Disclosure

Chair Butt opened the public comment period and there were no comments.

Action: It was M/S/C (Greene/Thier) to **approve Consent Calendar items C.1 through C.3**. Motion carried by unanimous roll call vote. (Absent: Directors, Birsan, Darling, Gioia, Gulati, Kircher, Mongan, Scales-Preston, and Thier).

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7. Proposal to Default New Accounts to Deep Green Service (Discussion/Action)

Jamie Tuckey, Chief of Staff, introduced this item and addressed questions from Board members.

Chair Butt opened the public comment period and comments were made by member of the public Howdy Goudey.

Action: It was M/S/C (Thier/Haroff) to:

1. Authorize staff to implement the Proposal, as defined herein, by defaulting New Accounts to Deep Green service as long as the incremental procurement targets can be achieved, and financial parameters are met; and
2. Direct staff to bring flexible procurement options for Deep Green to the Board if needed for evaluation at a future meeting.

Motion carried by roll call vote. (Yea: 19, Nay: 4 Directors, Wilkinson, Fong, Greene and Meadows; Absent: Directors, Birsan, Darling, Gioia, Gulati, Kellman, Murphy, Perkins, Scales-Preston, and Vasquez).

8. Public Affairs Update (Discussion)

Jamie Tucky, Chief of Staff, introduced this item and addressed questions from Board members.

Chair Butt opened the public comment period and there were no comments.

Action: No action required.

9. Programs Update (Discussion)

Alice Havenar-Daughton, Director of Customer Programs, introduced this item and addressed questions from Board members.

Chair Butt opened the public comment period and there were no comments.

Action: No action required.

10. Policy Update (Discussion)

Michael Callahan, Associate General Counsel, Stephanie Chen, Senior Policy Counsel, and Sabrinna Soldavini, Policy Analyst introduced this item and addressed questions from Board members.

Chair Butt opened the public comment period and there were no comments.

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Action: No action required.

11. Board Matters & Staff Matters (Discussion)

There were no comments.

12. Adjournment

Chair Butt adjourned the meeting at 10:00 p.m. to the next scheduled Board Meeting on September 15, 2022.

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Tom Butt, Chair

Attest:

_____

Dawn Weisz, Secretary

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MCE SPECIAL MEETING MINUTES
Thursday September 29, 2022
9:00 A.M.

This Meeting was conducted pursuant to the requirements of Assembly Bill No. 361 (September 16, 2021) which allows a public agency to use teleconferencing during a Governor-proclaimed state of emergency without meeting usual Ralph M. Brown Act teleconference requirements. Committee Members, staff and members of the public were able to participate in the Committee Meeting via teleconference.

Call to Order: Chair Butt called the Special Meeting to order at 9:01 a.m.

Present:
Denise Athas, City of Novato
Eli Beckman, Town of Corte Madera
Edi Birsan, City of Concord
Tom Butt, City of Richmond, Board Chair
Christina Strawbridge, City of Benicia
Barbara Coler, Town of Fairfax
Cindy Darling, City of Walnut Creek
David Fong, Town of Danville
John Gioia, Contra Costa County
Ford Greene, Town of San Anselmo
Maika Llorens Gulati, City of San Rafael
Kevin Haroff, City of Larkspur
Wei-Tai Kwok, Alternate, City of Lafayette
Katy Miessner, City of Vallejo
Devin Murphy, City of Pinole
Teresa Onoda, Town of Moraga
Gabriel Quinto, City of El Cerrito
Katie Rice, County of Marin
Matt Rinn, City of Pleasant Hill
Shanelle Scales-Preston, City of Pittsburg
Holli Thier, Town of Tiburon
Brad Wagenknecht, County of Napa
Brianne Zorn, City of Martinez

Absent:
Janelle Kellman, City of Sausalito
C. William Kircher, Town of Ross
Aaron Meadows, City of Oakley
Doriss Panduro, City of Fairfield
Scott Perkins, City of San Ramon
Max Perrey, City of Mill Valley
Patricia Ponce, City of San Pablo
John Vasquez, County of Solano
Sally Wilkinson, City of Belvedere

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Staff & Others: Tyla Brown, Community Development Manager
Kirby Dusel, Pacific Energy Advisors Consultant
Darlene Jackson, Lead Board Clerk
Vicken Kasarjian, Chief Operating Officer
Ami Kundaria, Internal Operations Assistant
Joey Lande, Manager of Customer Programs
Nathaniel Malcolm, Senior Policy Counsel
Garth Salisbury, Chief Financial Officer and Treasurer
Lindsay Saxby, Director of Power Resources
Enyonam Senyo-Mensah, Office Manager
Daniel Settlemyer, Internal Operations Coordinator
Jenna Tenney, Senior Communications Manager
Jamie Tuckey, Chief of Staff
Dawn Weisz, Chief Executive Officer

1. Roll Call
   Chair Tom Butt called the meeting to order at 9:01 a.m. Quorum was established by roll call.

2. Public Open Time (Discussion)
   There were no comments.

3. Assembly Bill No. 361: New Teleconferencing Legislation Resolution No. 2022-11 Authorizing Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e); and Resolution No. 2021-08 Delegating Authority to MCE Executive Committee to Adopt Findings Pursuant to Government Code Section 54953(e) (Discussion/Action)

   Action: It was M/S/C (Quinto/Gulati) to **adopt Proposed Resolution No. 2022-11 Authorizing Remote Teleconference Meetings for the Board of Directors and Every Committee of the Board of Directors Pursuant to Government Code Section 54953(e).** Motion carried by unanimous roll call vote. (Absent: Directors Kellman, Kircher, Meadows, Panduro, Perkins, Perrey, Ponce, Vasquez, and Wilkinson)

4. Opening Remarks and State of MCE (Discussion)
   CEO Dawn Weisz and Chief of Staff Jamie Tuckey, both provided opening remarks.
   - CEO Weisz began by offering a huge thank you and appreciation to the MCE Board of Directors for their many contributions and continued support during the pandemic.

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- Chief of Staff Jamie Tuckey, reported on Public Affairs, EV Usage, MCE Sync Program, and Portable Battery Giveaway.
- CEO Weisz reported on Policy successes, Media Coverage, and On the Horizon.
- CEO Weisz also welcomed the City of Fairfield as the 37th community to join MCE. MCE began service to customers in Fairfield in April 2022.

Chair Butt opened the public comment period and there were no comments.

5. MCE Power Statistics Update (Discussion)

Kirby Dusel, Pacific Energy Advisors, presented this item and addressed questions from the Board.

Chair Butt opened the public comment period and there were comments from member of the public Carol Weed.

6. Board Discussion on Member Community Needs & Priorities (Discussion)

Senior Communications Manager Jenna Tenney and Community Development Manager Tyla Brown, both facilitated this discussion.

Chair Butt opened the public comment period and there were comments from member of the public Howdy Goudey.

7. Report on MCE FY2021/22 Financial Audit (Discussion)

Director Kevin Haroff, presented this item and addressed questions from Board members.

Chair Butt opened the public comment period and there were no comments.

8. State of the Market (Discussion)

COO Vicken Kasarjian, introduced this item and the individual presenters.

a. The New Normal in Contracting – Lindsay Saxby, Director of Power Resources
b. Challenges in the Resource Adequacy Market – Brian Goldstein, Pacific Energy Advisors, and MCE Senior Policy Counsel, Nathanial Malcolm
c. Fiscal Year Effects – CFO and Treasurer Garth Salisbury

Chair Butt opened the public comment period and there were no comments.

9. MCE Load-Shifting Programs: Past, Present and Future (Discussion)

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Manager of Customer Programs, Joey Lande and Chief of Staff Jamie Tuckey, presented this item and addressed questions from Board members.

Chair Butt opened the public comment period and there were no comments.

10. Board and Staff Matters (Discussion)

There were none.

11. Adjournment

The Board Chair adjourned the Special Meeting at 2:20 p.m. to the next regularly scheduled Board Meeting on October 20, 2022.

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Tom Butt, Chair

Attest:

_____

Dawn Weisz, Secretary

October 20, 2022

TO: MCE Board of Directors

FROM: Bill Pascoe, Senior Power Procurement Manager

RE: Approved Contracts for Energy Update (Agenda Item #06 C.3)

Dear Board Members:

SUMMARY: This report summarizes contracts for energy procurement entered into by the Chief Executive Officer and if applicable, the Chair of the Technical Committee since the last regular Board meeting in August. This summary is provided to your Board for information purposes only, and no action is needed.

Review of Procurement Authorities

In March 2018, your Board adopted Resolution 2018-03 which included the following provisions:

> *The CEO and Technical Committee Chair, jointly, are hereby authorized, after consultation with the appropriate Committee of the Board of Directors, to approve and execute contracts for Energy Procurement for terms of less than or equal to five years. The CEO shall timely report to the Board of Directors all such executed contracts.*
>
> *The CEO is authorized to approve and execute contracts for Energy Procurement for terms of less than or equal to 12 months, which the CEO shall timely report to the Board of Directors.*

The Chief Executive Officer is required to report all such contracts and agreements to the MCE Board of Directors on a regular basis.

Item Number	*Month of Execution*	*Purpose*	*Average Annual Contract Amount*	*Contract Term*
1	August, 2022	Purchase of Resource Adequacy	$2,726,400	1-5 Years
2	August, 2022	Purchase of Resource Adequacy	$3,236,168	1-5 Years
3	August, 2022	Sale of Resource Adequacy	$3,131,775	1-5 Years
4	August, 2022	Purchase of Resource Adequacy	$8,250,000	1-5 Years
5	August, 2022	Purchase of Resource Adequacy	$3,000,000	Under 1 Year
6	August, 2022	Sale of Resource Adequacy	$14,700	Under 1 Year
7	August, 2022	Purchase of Resource Adequacy	$1,512,000	Over 5 Years
8	September, 2022	Purchase of Resource Adequacy	$11,820,424	1-5 Years
9	September, 2022	Purchase of Resource Adequacy	$5,627,300	Under 1 Year
10	September, 2022	Sale of Resource Adequacy	$5,696,000	Under 1 Year
11	September, 2022	Sale of Resource Adequacy	$1,474,286	1-5 Years
12	September, 2022	Sale of Resource Adequacy	$22,000	Under 1 Year
13	September, 2022	Amendment of Agreement to Purchase Additional Resource Adequacy	$938,182	1-5 Years
14	September, 2022	Purchase of Resource Adequacy	$130,000	Under 1 Year

Contract Approval Process: Energy procurement is governed by MCE's Energy Risk Management Policy as well as Board Resolutions 2018-03, 2018-04, and 2018-08. The Energy Risk Management Policy (Policy) has been developed to help ensure that MCE achieves its mission and adheres to its procurement policies established by the MCE Board of Directors (Board), power supply and related contract commitments, good utility practice, and all applicable laws and regulations. The Board Resolutions direct the CEO to sign energy contracts up to and including 12 months in length.

The evaluation of every new energy contract is based upon how to best fill MCE's open position. Factors such as volume, notional value, type of product, price, term, collateral threshold and posting, and payment are all considered before execution of the agreement.

After evaluation and prior to finalizing any energy contract for execution, an approval matrix is implemented whereby the draft contract is routed to key support staff and consultants for review, input, and approval. Typically, contracts are routed for commercial, technical, legal and financial approval, and are then typically routed through the Chief Operating Officer for approval prior to execution. The table below is an

example of MCE staff and consultants who may be assigned to review and consider approval prior to the execution of a new energy contract or agreement.

Review Owner	*Review Category*
Lindsay Saxby (MCE Director of Power Resources)	Procurement / Commercial
John Dalessi (Pacific Energy Advisors)	Technical Review
Steve Hall (Hall Energy Law)	Legal
Nathaniel Malcolm	Legal / CPUC Compliance
Garth Salisbury (Chief Financial Officer & Treasurer)	Credit/Financial
Vicken Kasarjian (MCE, Chief Operating Officer)	Executive

Fiscal Impacts: Expenses and revenue associated with these Contracts and Agreements that are expected to occur during FY 2022/23 are within the FY 2022/23 Operating Fund Budget. Expenses and revenue associated with future years will be incorporated into budget planning as appropriate.

Recommendation: Information only. No action required.

MCE | My community. My choice.

MCE Board Offices and Committees

Board Offices:
Tom Butt, Chair
Shanelle Scales-Preston, Vice Chair
Garth Salisbury, Treasurer
Vicken Kasarjian, Deputy Treasurer
Dawn Weisz, Secretary

Executive Committee
1. Kevin Haroff, *Chair*
2. Denise Athas
3. Edi Birsan
4. Tom Butt
5. Barbara Coler
6. Cindy Darling
7. Ford Greene
8. Devin Murphy
9. Gabriel Quinto
10. Shanelle Scales-Preston
11. Holli Thier
12. Brad Wagenknecht
13. Sally Wilkinson

Ad Hoc Committee for CEO Compensation Structures – 2022
1. Barbara Coler
2. Cindy Darling
3. Gabe Quinto
4. Shanelle Scales-Preston
5. Brad Wagenknecht
6. Sally Wilkinson

Ad Hoc Contracts Committee – 2022
1. Ford Greene
2. Kevin Haroff
3. Doriss Panduro
4. Holli Thier
5. Sally Wilkinson

Ad Hoc Committee for VPPT -2022
1. Tom Butt -Interested
2. Gina Dawson - Interested
3. Devin Murphy - Interested
4. Katie Rice - Interested

Technical Committee
1. Ford Greene, *Chair*
2. Gina Dawson
3. John Gioia
4. Kevin Haroff
5. Katy Miessner
6. Devin Murphy
7. Teresa Onoda
8. Scott Perkins
9. Katie Rice

Ad Hoc Audit Committee – 2022
1. Cindy Darling
2. Kevin Haroff
3. Katie Rice

October 20, 2022

TO: MCE Board of Directors

FROM: Jonnie Kipyator, Power Resources Manager; Sabrinna Soldavini, Policy Analyst II; Nathaniel Malcolm, Senior Policy Counsel

RE: Approval of CPUC Integrated Resource Plan (Agenda Item #08)

ATTACHMENT: MCE 2022 CPUC Compliance Integrated Resource Plan

Dear Board Members:

Summary:

In accordance with this Board's authority granted in Public Utilities Code ("Code") Sections 366.2(a)(5) and 454.52(b)(3), staff requests approval of MCE's 2022 California Public Utilities Commission (CPUC or Commission) Compliance Integrated Resource Plan (IRP).

Background:

Code Section 454.52 requires all CPUC jurisdictional load serving entities (LSE), including Community Choice Aggregator (CCA) programs, to file an IRP with the CPUC every two years. The IRP encompasses a long-term planning horizon and details the procurement plan each LSE has adopted for meeting the state's goals of reducing greenhouse gas (GHG) emissions by 40% from 1990 levels by 2030 and increasing to a resource mix of 60% renewable energy resources by December 31, 2030.

To reinforce a CCA's procurement autonomy, Section 454.52(b)(3) requires that the IRP of a CCA be submitted to its governing board for approval and requires the IRP meets the following:

> *(A) Economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals of achieving*

40% reduction in GHG emissions from 1990 levels by 2030 and procure 50% renewable energy resources by December 31, 2030.

(B) A diversified procurement portfolio consisting of both short-term and long-term electricity and electricity-related and demand reduction products.

(C) Resource Adequacy requirements.

Since 2014, MCE has prepared an annual IRP to address MCE's GHG reduction targets and various other agency matters related to resource planning and procurement, including complementary energy programs administered and funded by MCE. This annual IRP is referred to as the "MCE Operational IRP" to distinguish it from the CPUC-required biennial IRP ("Compliance IRP"), described above. In even years, these two IRPs are developed concurrently and reflect consistent long-term procurement planning strategies and goals.

To meet the Compliance IRP's November 1, 2022 CPUC filing deadline, MCE is submitting this Compliance IRP for approval. MCE will submit the MCE Operational IRP to the Board for approval in November.

Compliance IRP Requirements:

MCE prepared its 2022 Compliance IRP using three CPUC-required templates: (1) Narrative Template,[1] (2) Resource Data Template (RDT),[2] and (3) the Clean System Power (CSP) calculator.[3] As required by the Commission, MCE used its assigned load forecast and other Commission-adopted planning assumptions as it developed its 2022 Compliance IRP.

In this IRP cycle, the Commission directed all LSEs to develop two IRP portfolios: one that is consistent with a statewide GHG emission limit for the electric sector of 38 million metric tons (MMT) of emissions by 2030 and 30 MMT by 2035 (30 MMT portfolio); and a second more aggressive portfolio that meets or goes below the limit of 30 MMT by 2030 and 25 MMT by 2035 (25 MMT portfolio). The Commission allowed LSEs to provide a single portfolio that achieved both targets if the LSE prefers a lower-emissions portfolio. MCE's portfolio achieved this more aggressive target, and thus MCE's Compliance IRP includes a single, lower-emissions portfolio referred to as the Preferred Conforming Portfolio (PCP).

As a basis for the IRP, the Commission performed system modeling for the 30 MMT

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[1] The Narrative Template is attached as part of this Staff Report. It summarizes and synthesizes MCE's IRP, including MCE's planned resources, long-term procurement goals, and programmatic offerings.

[2] The RDT is a tool developed by the CPUC's Energy Division Staff that is used to catalogue an LSE's portfolio of resources and assess the portfolio's level of reliability over the planning horizon.

[3] The CSP calculator is a tool developed by the CPUC's Energy Division Staff that is used to calculate the emissions associated with an LSE's portfolio of resources to determine whether a given portfolio achieves the emissions requirements adopted by the CPUC.

and 25 MMT electric sector emissions scenarios and identified two "Preferred System Plans", which represent the Commission's assumptions for an optimal portfolio that achieves the GHG benchmarks at least cost, while maintaining reliability.

According to the Commission's modeling, the Preferred System Plans anticipate the majority of new generation capacity over the next ten years to be comprised of solar; short- and long-duration storage; geothermal; and in-state, out-of-state, and off-shore wind resources.

Compliance IRP Goals and Emissions Content:

MCE developed its Compliance IRP consistent with the renewable energy and GHG-free goals in MCE's Operational IRP, which runs through 2032. These goals are summarized in the following table:

10-Year Portfolio Targets (%)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
PCC[4] 1 Renewable	60%	60%	65%	70%	75%	80%	85%	85%	85%	85%
Large Hydro + ACS[5]	37%	37%	32%	27%	22%	17%	12%	12%	12%	12%
Total Renewable	60%	60%	65%	70%	75%	80%	85%	85%	85%	85%
Total Renewable + Large Hydro + ACS	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%
GHG-Free Equivalent	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%

As stated, above, MCE is providing one PCP for its Compliance IRP. MCE's PCP achieves both the 2030 MMT and 25 MMT targets. This portfolio achieves all CPUC-assigned benchmarks, energy requirements, and reliability metrics throughout the planning period.

[4] Portfolio Content Category (PCC) 1 represents electricity from renewable facilities with a first point of interconnection within a California Balancing Authority (CBA), or Renewable Energy Credits (REC) from facilities that schedule electricity into a CBA, without substitute energy.

[5] Asset Controlling Supplier (ACS) refers to a specific type of power supplier registered with the California Air Resources Board that owns or operates interconnected electricity generating facilities. These facilities are primarily large hydro-electric energy from the Pacific Northwest, but it also contains relatively small amounts of nuclear energy and unspecified system energy.

MCE's assigned 2030 and 2035 load forecast, GHG emissions benchmarks, and forecast GHG emissions for the **30 MMT portfolio** are as follows:

2030 Load (GWH)	2035 Load (GWh)	2030 GHG Benchmark (MMT) – 30 MMT Scenario	2035 GHG Benchmark (MMT) – 30 MMT Scenario	MCE PCP Emissions in 2030	MCE PCP Emissions in 2035
5,955	6,099	0.848	0.630	0.500	0.514

MCE's assigned 2030 and 2035 load forecast, GHG emissions benchmarks, and forecast GHG emissions for the **25 MMT portfolio** are as follow:

2030 Load (GWH)	2035 Load (GWh)	2030 GHG Benchmark (MMT) – 25 MMT Scenario	2035 GHG Benchmark (MMT) – 25 MMT Scenario	MCE PCP Emissions in 2030	MCE PCP Emissions in 2035
5,955	6,099	0.640	0.504	0.493	0.492

The emissions reflected in the above tables are estimated using the Commission's CSP calculator and are primarily the result of MCE's reliance on system energy during hours when its supply portfolio does not match its load and curtailments assigned by the CSP calculator.

Compliance IRP Mix of Resources:

MCE's PCP includes plans for significant capacity additions of new renewable and storage resources by 2035 to support achievement of MCE's renewable and GHG-free energy goals, while contributing to system reliability in a responsible manner.

The PCP includes the following planned new capacity:

- New wind resources totaling 265 MW (consisting of in-state, out-of-state, and off-shore wind);
- New geothermal resources totaling 109 MW;
- New hybrid resources totaling 212 MW of solar generation and 153 MW of storage;
- New grid connected battery storage of 400 MW;
- New Demand Response resources of 15 MW; and
- New long-duration storage of 90 MW.

MCE's PCP provides for the following overall resource mix in 2035:

- Large hydro-electric of 525 GWh;
- Imported hydro-electric of 120 GWh;

- Small hydro-electric of 69 GWh;
- Biogas/biomass of 46 GWh;
- Geothermal of 1,785 GWh;
- California wind of 1,014 GWh;
- Out-of-state wind of 250 GWh;
- Offshore wind of 400 GWh;
- California solar of 1,155 GWh;
- Distributed solar of 13 GWh;
- Hybrid solar and storage of 596 GWh; and
- Standalone battery storage of approximately 2 GWh (capacity x duration).

MCE's portfolio includes a mix of existing and new resources strategically integrated to adhere to MCE's policy to achieve at least 85% renewable energy by 2035. In fact, MCE's PCP results in approximately 87% renewable energy in 2035, the vast majority of which will be secured under long-term contracts. Approximately 1,100 MW of MCE's PCP is composed of new resources, reflecting MCE's active role in the State's development of new renewable and storage resources. Additionally, MCE's short- and long- duration storage, renewable baseload procurement, and its capacity-only resources will help maintain MCE's critical role in supporting the State's need for reliability and renewable integration.

Fiscal Impacts:

The 2022 Compliance IRP is consistent with assumptions underlying MCE's financial pro forma projections. There are no direct fiscal impacts of adopting the 2022 Compliance IRP, and future resource commitments that may be made in effectuating the plan will be subject to separate approval in accordance with MCE's adopted delegation of authorities.

Recommendation:

Approve MCE's 2022 CPUC Compliance IRP.

Standard LSE Plan

MARIN CLEAN ENERGY
2022 INTEGRATED RESOURCE PLAN
NOVEMBER 1, 2022

Table of Contents

I. Executive Summary

a. Introduction

Description of MCE

Marin Clean Energy ("MCE") is California's first Community Choice Aggregation ("CCA") Program, a not-for-profit Joint Powers Authority ("JPA") that began service in 2010. MCE's mission is to confront the climate crisis by eliminating fossil fuel greenhouse gas ("GHG") emissions, producing renewable energy, and creating equitable community benefits. MCE's vision is to lead California to an equitable, clean, affordable, and reliable energy economy by serving as a model for community-based renewable energy, energy efficiency, and cutting-edge clean-tech products and programs.

As a load-serving entity ("LSE"), MCE provides electricity generation service to approximately 580,000 customer accounts. These accounts represent more than one million residents and businesses across four Bay Area counties.[1] MCE procures for annual retail sales of approximately 5,729 GWh and a peak load of more than 1,240 MW.

MCE provides service to approximately 87% of eligible customers within its service area, which is depicted in Figure 1, below. MCE is also the default generation provider for any new or relocated customers therein.[2]

[1] MCE serves communities across Contra Costa, Marin, Napa, and Solano counties. Those communities currently receiving service include: Unincorporated Contra Costa, Marin, Napa, and Solano counties and the Cities and Towns of Concord, Danville, El Cerrito, Lafayette, Martinez, Moraga, Oakley, Pinole, Pittsburg, Pleasant Hill, Richmond, San Pablo, San Ramon, Walnut Creek, Belvedere, Corte Madera, Fairfax, Larkspur, Mill Valley, Novato, Ross, San Anselmo, San Rafael, Sausalito, Tiburon, American Canyon, Calistoga, Napa, St. Helena, Yountville, Benicia, Vallejo, and Fairfield.

[2] MCE expanded service to the city of Fairfield in April 2022. This expansion is reflected in MCE's Commission-assigned load forecast. Expansion to additional communities may occur during the planning period.

Figure 1: Service Area Map

As a JPA and local government agency, MCE is governed by a 31-member Board of Directors ("Board" or "Governing Board") composed of elected representatives from MCE's member communities. MCE's Board sets policy for the agency and oversees MCE's operations, including MCE's procurement planning. Through these representatives, MCE is controlled by and accountable to the communities MCE serves.

MCE's Mission

MCE was formed to empower its member communities to choose the generation resources that reflect their specific values and needs. As a mission-driven local government agency, MCE works toward the following:

- Reducing GHG emissions and accelerating the supply of clean energy being delivered to and used on the grid;
- Developing community programs and local energy projects to expand access to competitively priced renewable energy and energy efficiency programs for all customers;
- Creating economic and workforce benefits associated with renewable energy and energy conservations programs; and
- Leveraging energy and conservation spending to promote more equity throughout MCE's communities and California.

Member community values and needs are reflected in a number of procurement principles, goals, targets, and directives reviewed and adopted by MCE's Board via MCE's annual Operational Integrated Resource Plan ("Operational IRP").[3] Since 2014, MCE has prepared an annual Operational IRP as an internal planning and policy document to address MCE's GHG reduction targets and various other agency matters related to resource planning and procurement, including complementary energy programs administered and funded by MCE. The Operational IRP is well-aligned with the biennial Compliance IRP submitted to the California Public Utilities Commission ("Commission" or "CPUC") for certification pursuant to Cal. Pub. Util. Code Section 454.52(b)(3).[4] These two IRPs are developed concurrently in even years and describe consistent long-term procurement planning strategies and goals.

Consistent with Sections 366.2(a)(5) and 454.52 (b)(3), MCE's procurement is governed by MCE's Board and must be consistent with the Board-adopted mandates in MCE's Operational IRP.

Introduction to MCE's Compliance IRP

In accordance with the requirements of Sections 454.51 and 454.52, Commission Decisions ("D.") 22-02-004, D.21-06-035, D.19-11-016, D.18-02-018, and formal guidance provided by the Commission's Energy Division,[5] MCE is filing its Compliance IRP for certification review and use in the Commission's statewide planning process. In addition to this narrative, MCE's Compliance IRP includes the following documents:

- MCE's 30 MMT Resource Data Template;
- MCE's 25 MMT Resource Data Template;
- MCE's 30 MMT Clean System Power Calculator; and
- MCE's 25 MMT Clean System Power Calculator.

As provided for in D.22-02-004 and described in Commission Guidance documents, MCE is submitting a single conforming portfolio ("Preferred Conforming Portfolio") as part of its

[3] The current *MCE 2022 Operational Integrated Resource Plan* was approved by MCE's Technical Committee in November 2021 and is available on MCE's website: https://www.mcecleanenergy.org/energy-procurement/. MCE is developing its 2023 Operational Integrated Resource Plan concurrently with this Compliance IRP. The 2023 OIRP is scheduled to be reviewed and approved by MCE's Technical Committee in November 2022.

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

[5] Over the course of the IRP planning cycle, Energy Division has issued a number of guidance documents to be used as LSEs develop their IRPs. These documents include *LSE Filing Requirements RESOLVE Results* (issued June 15, 2022); *Filing Requirements Overview* (updated July 15, 2022); *Filing Requirements Questions and Answers* (updated September 23, 2022); *Clean System Power Calculator Documentation* (updated July 15, 2022); *Resource Data Template v3 User Guide* (updated September 23, 2022); and *Aggregated CAM Resources for LSEs Plan Development* (issued September 29. 2022).

Compliance IRP, which meets the following GHG emissions limits:

1. A portfolio that achieves emissions that are equal to or less than MCE's proportional share of the 38 MMT by 2030 and 30 MMT by 2035 GHG targets ("30 MMT Conforming Portfolio); and
2. A portfolio that achieves emissions that are equal to or less than MCE's proportional share of the 30 MMT by 2030 and 25 MMT by 2035 GHG targets ("25 MMT Conforming Portfolio").

Projecting resource needs over the planning horizon covered by the IRP is an inexact exercise and is inevitably and appropriately subject to change in terms of both amounts procured and types of resources needed. MCE's portfolio of resources generally includes (a) existing and operating resources that are under contract with MCE; (b) resources that MCE has contracted for, but that have not achieved commercial operation; and (c) future resources that MCE will need to procure to meet its agency targets and goals over both the mid- and long-term. The future resources identified in MCE's Compliance IRP represent MCE's best, good-faith projection of the resource mix it will procure over the IRP planning horizon based on currently available information. The resources identified in future iterations of MCE's Compliance IRP may change due to new information and changed circumstances. As such, the ultimate resource mix MCE procures may differ from what is reflected in this Compliance IRP due to a number of variables including regulatory changes, availability of supply, price of supply, and/or other market or regulatory considerations. What MCE expects to remain constant, however, is its aggressive trajectory towards procuring a diverse resource mix that meets MCE's reliability and customer needs and minimizes reliance on GHG-emitting resources for both energy and capacity.

MCE's Preferred Conforming Portfolio

MCE's Preferred Conforming Portfolio ("PCP") is described in detail below and is represented in MCE's Resource Data Template, version 3 ("RDT") for both the 30 MMT Conforming Portfolio and the 25 MMT Conforming Portfolio, respectively. The PCP has been approved by MCE's Chief Executive Officer and Governing Board as: (a) reflective of MCE's actual planned procurement as of the filing of this Compliance IRP; (b) consistent with MCE's statutory obligations; (c) consistent with the Commission's IRP framework and guidelines, including the Preferred System Plan ("PSP"); (d) consistent with the Commission's reliability requirements; and (c) consistent with MCE's internal short-, mid-, and long-term procurement plans and internal procurement policies. MCE's PCP comes in under its assigned portion of the 25 MMT and 30MMT system emissions targets. MCE's PCP was approved by MCE's governing Board on October 20, 2022 and is being provided to the Commission for certification consistent with

Section 454.52(b)(3).

Request for Certification

MCE respectfully requests that the Commission certify this Compliance 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."[6] The Commission has likewise recognized that the Legislature has granted CCAs autonomy in setting their own rates and managing interactions with their customers.[7] As such, the Commission has three primary interests in the CCA IRP process:

- Ensuring that CCA IRPs provide the CCA procurement information that the Commission needs to develop its statewide plan;[8]
- Ensuring that CCAs' current and planned procurement is consistent with the resource adequacy ("RA") requirements established pursuant to Section 380;[9] and
- Ensuring that each CCA contributes to grid reliability and GHG emissions reductions through the procurement of long-term renewable integration resources.[10]

MCE has prepared its Compliance IRP with these interests in mind, and MCE 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 MCE's Compliance IRP.

b. Summary of Findings

This narrative provides a detailed description of: (a) the development and content of MCE's PCP; (b) the PCP's compliance with applicable requirements; and (c) an Action Plan detailing

[6] Section 366.2(a)(5).

[7] 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.").

[8] 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.

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

[10] Section 454.51.

MCE's planned next steps to implement its plan.

MCE developed its Compliance IRP through the following steps:

- MCE compiled data for its existing energy-only contracts, bundled energy and capacity contracts, RA capacity contracts, and its share of capacity for allocated Cost Allocation Mechanism ("CAM") and Demand Response resources;
- For each IRP planning year, MCE identified its short positions relative to MCE's planning targets in relation to its assigned load forecast;
- MCE populated the RDTs with all current contracts;
- [redacted][11]
- MCE identified future contracts it expects for new geothermal, storage, and wind generation. MCE prioritized the selection of future resources that best fit MCE's portfolio and that meet or exceed MCE's proportional share of planned new procurement;
- MCE added generic future contracts with existing resources to help fill its remaining open positions;
- MCE used the Commission's Clean System Power ("CSP") calculator to check the GHG emissions associated with the resulting portfolio to ensure that these emissions are lower than MCE's assigned share of the 30 MMT and 25 MMT benchmarks;
- MCE identified the resulting portfolio as its Preferred Conforming Portfolio or PCP; and
- MCE checked its PCP for reliability by comparing the total portfolio Net Qualifying Capacity ("NQC") against MCE's forecast RA requirements for the month of September in each year of the planning period.

MCE reached the following findings regarding its PCP:

- MCE's PCP includes the procurement of the following new resources and nameplate capacities over the course of the planning horizon:
  - New wind resources totaling 265 MW;[12]
  - New geothermal resources totaling 109 MW;
  - New hybrid resources totaling 212 MW of solar generation and 153 MW of

[redacted]

[12] This 265 MW of new wind resources consists of in-state, out-of-state, and off-shore wind in the following amounts: 100 MW of in-state wind; 70 MW of out-of-state wind; and 95 MW of off-shore wind.

storage;
    - New grid connected battery storage of 400 MW;
    - New Demand Response resources of 15 MW; and
    - New long-duration storage[13] of 90 MW;
- MCE's PCP provides for the following overall resource mix in 2035:
    - Large hydro-electric of 525 GWh;
    - Imported hydro-electric of 120 GWh;
    - Small hydro-electric of 69 GWh;
    - Biogas/biomass of 46 GWh;
    - Geothermal of 1,785 GWh;
    - California wind of 1,014 GWh;
    - Out-of-state wind of 250 GWh;
    - Offshore wind of 400 GWh;
    - California solar of 1,155 GWh;
    - Distributed solar of 13 GWh;
    - Hybrid solar and storage of 596 GWh; and
    - Standalone battery storage of 2,117 MWh (capacity x duration).
- Using the 30 MMT scenario CSP calculator, MCE's PCP would have 2030 emissions of 0.500 MMT and 0.514 MMT in 2035.[14] This is lower than MCE's assigned share of 2030 and 2035 emissions (0.848 MMT and 0.630 MMT, respectively).
- Using the 25 MMT scenario CSP calculator, MCE's PCP would have 2030 emissions of 0.493 MMT and 0.492 MMT in 2035. This is lower than MCE's assigned share of 2030 and 2035 emissions (0.640 MMT and 0.504 MMT, respectively).
- MCE's PCP meets all Commission-provided reliability metrics.
- MCE's PCP provides more than MCE's load-proportional share of renewable integration resources.

MCE has selected its PCP because it appropriately balances Board directives, MCE's program goals, cost constraints, reliability, and customer rate impacts. Specifically, the PCP adheres to MCE Board Policy to achieve an 85% renewable energy content by 2035[15] and minimize GHG

[13] MCE is currently interested in long-duration storage resources with at least 8 hours of duration at full capacity.

[14] MCE notes that the increase in emissions from 2030 to 2035 results from an increase in use of system power attributable to a decrease in allocated generation from Combined Heat and Power resources, as well as increases in the volume of curtailments and exports modeled.

[15] This assumes a certain amount of curtailment as dictated by the CSP. Without the curtailments assigned by the CSP calculator, MCE's renewable generation would be approximately 87%. To account for curtailment, MCE uses short-term contracts to balance its portfolio and meet its goals and obligations. This ensures that unrealized or curtailed generation is accounted for.

emissions through use of a combination of renewable energy and other low carbon energy sources.[16]

To implement its PCP, MCE is adopting the Action Plan described in Section IV, below. This Action Plan includes the following steps:

- MCE will conduct an annual "open season" Request for Offers ("RFO") process to solicit offers for new renewable generation and storage projects. These resources are typically secured through long-term PPAs. MCE expects to secure PPAs for new projects in each open season conducted over the next several years;
- Periodically throughout the year, MCE will solicit offers for (i) short-term renewable energy, (ii) large hydro-electric and Asset Controlling Supply ("ACS"), (iii) RA, and (iv) load-hedging products needed to balance the portfolio and adhere to position limits established through MCE's risk management policy and practices. These solicitations can take the form of formal RFO processes, bilateral discussions, and transactions arranged through broker markets; and
- Continuing to develop and offer customer programs that shed load, including aggregated load shift from business and residential customers.

II. Study Design

a. Objectives

MCE had the following objectives in performing the analytical work to develop its PCP and larger Compliance IRP:

1. Identify a portfolio that meets MCE's goals for renewable energy utilization and GHG emission minimization and that has GHG emissions no greater than MCE's proportional share of the 38 MMT 2030 GHG Emissions Benchmark and 25 MMT 2035 GHG Emissions Benchmark, as determined using the CSP calculator;
2. Identify a portfolio that 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);
3. Identify a diverse and balanced portfolio that includes both short-term and long-term electricity, electricity-related, and demand reduction and management products;
4. Identify a portfolio that achieves the RA requirements established pursuant to Section

[16] *See MCE's 2022 Operational Integrated Resource Plan* available here: https://www.mcecleanenergy.org/energy-procurement/.

380 and fully provides MCE's share of system reliability and renewable integration resources;
5. Identify a portfolio that fully complies with all MCE Board-adopted procurement directives;
6. Identify portfolios that are fully compliant with MCE's obligations under the Renewable Portfolio Standard ("RPS") program; and
7. Identify portfolios that are cost-effective and minimize rate impacts on MCE's customers.

b. Methodology

i. Modeling Tool(s)

In developing its PCP, MCE used 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 MCE's risk management policies and business practices. MCE uses proprietary models to assess annual, monthly, and hourly open positions taking into account forecasted hourly electric loads and expected deliveries from MCE's resource portfolio. MCE 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. MCE also utilizes a commercially available energy trading and risk management system to monitor positions, market exposure, credit exposure, value-at-risk, and other risk management metrics.[17]

Portfolio reliability was evaluated using forward-looking Effective Load Carrying Capacity ("ELCC") values for each resource type to assess total NQC of the portfolio relative to MCE's reliability requirements. This approach ensures MCE contributes to grid reliability commensurate with its share of system reliability needs.

For new resource selection where specific projects have not yet been identified in MCE's procurement process, MCE relied upon the modeling and assumptions in RESOLVE as well as MCE's recent procurement experience. Both provide insight into resource availability and cost. MCE considered resource cost as well as portfolio fit (*i.e.*, how new resources would complement existing portfolio resources to reliably serve MCE's load shape, while minimizing GHG emissions).

[17] Hitachi Energy TRMTracker.

GHG emissions were assessed using the Commission's CSP calculator for the 30 MMT and 25 MMT variations.

ii. Modeling Approach

Load Forecast

MCE developed its Compliance IRP using its assigned load forecast pursuant to the June 15, 2022, *Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Benchmarks for 2022 Integrated Resource Plan Filings* ("Load Forecast Ruling"). MCE's assigned load forecast used in this Compliance IRP is as follows:

Table 1: MCE's 2023-2035 Load Forecast

Year	Load Forecast (GWh)
2023	5,729
2024	5,759
2025	5,756
2026	5,759
2027	5,767
2028	5,795
2029	5,827
2030	5,955
2031	5,983
2032	6,040
2033	6,040
2034	6,067
2035	6,099

Load Shape

In developing its portfolio MCE used the default load shape from the CSP calculator. The use of this load shape does not change MCE's total annual energy volumes for both load and load modifiers, and these energy volumes remain consistent with MCE's assigned load forecast.

Compiling Existing Resources

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

- Existing and planned energy contracts, including MCE's election of renewable

resources through the Voluntary Allocation and Market Offer ("VAMO") process;
- Existing and planned capacity RA contracts;
- MCE's assigned share of capacity for CAM and Demand Response resources, taken from the most recent year-ahead CAM resource allocations provided to MCE on September 29, 2022;[18] and
- Expected allocations of GHG-free energy from the Pacific Gas & Electric Company ("PG&E") portfolio.

Selecting New Resources

To identify its new resource procurement, MCE first determined the new resource capacity it intends to add each year. To make this determination, MCE considered (i) resource need (*i.e.,* open positions), (ii) long-term renewable contracting requirements, (iii) RPS requirements, (iv) RA requirements, (v) the need for incremental RA capacity to contribute to system reliability and renewable integration needs, (vi) the potential for technological improvements, (vii) financial considerations, and (viii) a desire to transition its portfolio toward greater use of renewable energy and storage capacity in lieu of reliance on fossil resources. MCE 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 PSP portfolio.

Confirming Reliability

MCE's portfolios were evaluated to ensure that sufficient dependable NQC is available to meet peak load requirements plus the required planning reserve margin. MCE used forward looking technology specific ELCC factors provided by the Commission to assess the contribution of each resource to system reliability. As such, MCE's portfolio addresses the expected changes to ELCC factors and NQC of its planned resources. MCE's PCP was designed to ensure that current incremental RA capacity obligations are met, and that MCE contributes to new resource development to address fossil fuel retirements, the decommissioning of the Diablo Canyon Power Plant ("DCPP"),[19] and integration of renewable resources.

[18] MCE's CAM and Demand Response allocations reflect the information provided in the *Aggregated CAM Resources for LSEs Plan Development* ("Aggregated CAM Guidance"), issued September 29, 2022, available at https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials.

[19] Pursuant to Senate Bill 846, MCE's planning for purposes of this Compliance IRP assumes the current retirement and decommissioning schedule for DCPP.

Calculating GHG Emissions

MCE calculated the emissions associated with its PCP using the Commission's CSP calculators. The assigned load forecast, default load shapes, and behind-the-meter adjustments were used for this assessment, along with the planned supply portfolio. MCE's PCP results in 2030 emissions of 0.500 MMT and 0.514 MMT in 2035[20] under the 30 MMT scenario, and 2030 emissions of 0.493 MMT and 0.492 MMT in 2035 under the 25 MMT scenario.

III. Study Results

a. Conforming and Alternative Portfolios

Pursuant to Commission direction,[21] MCE is submitting one PCP because this portfolio meets the requirements of both the 30 MMT and 25 MMT system plans. As required, MCE presents this singular PCP separately in both the 30 MMT and 25 MMT RDTs and CSP calculators, respectively. MCE is not presenting Alternative Portfolios.

To meet MCE's projected 2035 electricity demand of 6,099 GWh, MCE has selected a 2035 PCP composed primarily of the resource types and energy volumes detailed below.[22]

Table 2: MCE's 2035 PCP Resources

Resource Category	Under Development	Owned or Contracted	Planned Existing	Planned New	Under Review	Total
Battery Storage (GWh Energy Capacity)	24	-	-	2	-	

[20] MCE notes that the increase in emissions from 2030 to 2035 results from an increase in use of system power attributable to a decrease in allocated generation from Combined Heat and Power resources, as well as increases in the volume of curtailments and exports modeled.

[21] Load Forecast Ruling issued June 15, 2022.

[22] Residual energy needs are assumed to come from unspecified system energy purchases.

Biogas (GWh)	-	30	-	-	-	30
Biomass (GWh)	-	-	16	-	-	16
Geothermal (GWh)	-	-	149	580	1,056	1,785
Hybrid or Paired Solar and Battery (GWh)	596	-	-	-	-	596
Imported Hydro (GWh)	-	-	120	-	-	120
Large Hydro (GWh)	-	25	500	-	-	525
Small Hydro (GWh)	-	37	32	-	-	69
Solar Distributed (GWh)	13	-	-	-	-	13
Solar Existing California (GWh)	18	1,058	79	-	-	1,155
Wind Existing California (GWh)	-	-	374	-	87	461
Wind New Mexico (GWh)	-	-	-	250	-	250
Wind New PG&E (GWh)	290	-	-	-	-	290
Wind Offshore Morro Bay (GWh)	-	-	-	400	-	400

Wind New SCE SDG&E (GWh)	-	-	-	-	263	263

Additionally, MCE's 2035 PCP includes capacity-only resources composed primarily of the following:

- CAM, and Demand Response allocations – 48 MW[23]
- Existing natural gas and other (planned procurement) – 549 MW

MCE's portfolio includes a mix of existing and new resources. MCE's 2035 portfolio is composed of approximately 1,383 MW of new nameplate capacity, reflecting MCE's role as an active participant in the State's development of new renewable and storage resources. Additionally, MCE's short- and long-duration storage, along with its capacity-only resources will help maintain MCE's commitment to supporting the State's need for reliability and renewable integration.

MCE's PCP Is Consistent with the 2021 PSP

The new resources included in MCE's PCP are generally consistent with the 2021 PSP's 2035 new resource mix as adopted in D.22-02-004, as updated,[24] for both the 38 MMT and 30 MMT scenarios. There are, however, certain notable differences that reflect portfolio needs and resource selection that are unique to MCE.

As demonstrated in Table 3, below, MCE's PCP includes proportionately more new resources than would be indicated by MCE's proportional share of *new procurement* for each of the resource types identified in the adopted 2021 PSP.[25] Under this scenario, MCE's portfolio includes considerably more wind, geothermal and storage resources, and less utility-scale solar resources than does the 38 MMT PSP scenario.

[23] MCE's CAM and Demand Response allocations reflect the information provided in the Aggregated CAM Guidance issued September 29, 2022.

[24] *LSE Plan Filing Requirements RESOLVE Modeling Results* at 16, issued June 15, 2022, available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/lse-filing-requirement-resolve-results.pdf.

[25] D.22-02-004 adopts the 38 MMT GHG target as the 2021 PSP. However, the Decision also requires LSEs to submit plans for how they would reach the 30 MMT GHG target or lower. Further, as clarified in the *Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings*, issued June 15, 2022, LSEs whose portfolios go below the 30 MMT GHG target are only required to submit one PCP.

Importantly, Table 3 also demonstrates the PCP's general consistency with procurement types and amounts in the 30 MMT PSP scenario. Notably, however, MCE's PCP consists of fewer MW of procurement and different resource proportions relative to the 30 MMT PSP scenario. Despite these deviations, MCE's PCP: (a) meets the lower emissions targets in the 30 MMT PSP scenario as demonstrated in MCE's CSP tool, (b) meets MCE's projected load and energy needs as reflected in Table 2, and (c) meets the reliability requirements as demonstrated in the Reliability tabs in MCE's RDTs and Section III.f, below. This is due to MCE's PCP being weighted more heavily towards procurement of resources with high-capacity factors and being substantially less reliant on utility scale solar, which is assigned a significantly lower capacity factor. The PCP reflects MCE's plans to invest in clean baseload, wind, and storage resources over the course of the planning horizon that complement the existing level of solar resources in MCE's portfolio. MCE sees this portfolio as being the most efficient and cost-effective means of meeting MCE's emissions and reliability needs.

Table 3: MCE's PCP New Resource Procurement by Type Compared to 2021 PSP

Resource Type	38 MMT PSP Scenario New Resources (MW)[26]	MCE Load-Proportional Share of 38 MMT PSP New Resources (MW)	30 MMT PSP Scenario New Resources (MW)[27]	MCE Load-Proportional Share of 30 MMT PSP New Resources (MW)	MCE's PCP (MW)
Natural Gas	0	0	0	0	0
Biomass	134	4	134	4	0
Geothermal	1,135	30	1,135	30	109
Wind	3,562	95	4,270	114	191
Wind on New Out-of State Transmission	4,636	124	4,828	129	70

[26] As described in the filing requirements provided by the Commission, this PSP portfolio is referred to in other contexts as the 30 MMT Conforming Portfolio.

[27] As described in the filing requirements provided by the Commission, this PSP portfolio is referenced in other contexts as the 25 MMT Conforming Portfolio.

Offshore Wind	4,707	126	4,707	126	95
Utility-Scale Solar	17,418	465	21,794	582	222
Battery Storage	17,350	463	17,742	474	591
Pumped (Long-Duration) Storage	1,000	27	1,000	27	90
Shed Demand Response	977	26	767	20	15
Total	50,919	1,360	56,377	1,505	1,383

The differences between MCE's share of the 2021 PSP New Build Resources and the resources in MCE's PCP, under either the 38 MMT or 30 MMT scenarios, reflect MCE's planned contributions to new resource development during the planning period. MCE 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 using the most cost-effective and efficient portfolio of resources.

b. Preferred Conforming Portfolio

MCE's PCP consists of a combination of:

- Utility-scale solar;
- In-state wind;
- Out-of-state wind;
- Off-shore wind;
- Short-duration storage;
- Long-duration storage;
- Small and large hydro-electric;
- Geothermal;
- Biomass/biogas;
- Shed Demand Response; and
- Natural gas/other (capacity only).

MCE's PCP consists of the following specifical compilation of resources:

- MCE's PCP includes the procurement of the following new resources and nameplate capacities over the course of the planning horizon:
  - New wind resources totaling 265 MW (consisting of in-state, out-of-state, and off-shore wind);
  - New geothermal resources totaling 109 MW;
  - New hybrid resources totaling 212 MW of solar generation and 153 MW of storage;
  - New grid connected battery storage of 400 MW;
  - New Demand Response resources of 15 MW; and
  - New long-duration storage[28] of 90 MW;
- MCE's PCP provides for the following overall resource mix in 2035:
  - Large hydro-electric of 525 GWh;
  - Imported hydro-electric of 120 GWh;
  - Small hydro-electric of 69 GWh;
  - Biogas/biomass of 46 GWh;
  - Geothermal of 1,785 GWh;
  - California wind of 1,014 GWh;
  - Out-of-state wind of 250 GWh;
  - Offshore wind of 400 GWh;
  - California solar of 1,155 GWh;
  - Distributed solar of 13 GWh;
  - Hybrid solar and storage of 596 GWh; and
  - Standalone battery storage of 2,117 MWh (capacity x duration).

As stated above, in accordance with Section 454.51(b)(3), the resource mix in MCE's 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 below.

Meeting GHG Reduction Goals

MCE's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(A) goal of meeting the Commission's 30 MMT or 25 MMT GHG reduction benchmark. MCE's proportional share of the 30 MMT benchmark is 0.848 MMT in 2030 and 0.630 MMT in 2035. According to the Commission's emissions calculator for the 30 MMT

[28] MCE is currently interested in long-duration storage resources with at least 8 hours of duration at full capacity.

scenario, MCE's PCP would account for 0.500 MMT of emissions in 2030 and 0.514 MMT of emissions in 2035.[29] MCE's proportional share of the 25MMT benchmark is 0.640 MMT in 2030 and 0.504 MMT in 2035. According to the Commission's CSP calculator for the 25 MMT scenario, MCE's PCP would account for 0.493 MMT of emissions in 2030 and 0.492 MMT of emissions in 2035.

Procuring Eligible Renewable Energy

MCE's PCP achieves results and performance characteristics consistent with the goals of Sections 454.52(a)(1)(B) & (F) of ensuring that portfolios are composed of at least 50% eligible renewable resources and displacing fossil fuels within the state. In 2035 MCE's PCP portfolio would consist of 87% eligible renewable generation. To this end, MCE has executed a number of long-term PPAs with new, California-based generating facilities that will produce Portfolio Content Category ("PCC") 1-eligible renewable energy in excess of the 2030 requirement. Of the targeted 87% eligible renewable generation in 2035, 44.5% is under long-term contracts in 2030, and 33.6% in 2035. The remaining 42.5% and 53.4%, respectively, will be filled with long-term contracts that are currently under negotiations and/or planned as shown in both the CSPs and RDTs.[30]

To supplement its core procurement of PCC 1 resources under long-term contracts for its PCP, MCE engages, and will continue to engage, in short-term contracts for renewable energy supplies to balance and optimize its PCP. As of this filing, MCE has secured contracts for renewable energy volumes in excess of applicable California RPS procurement requirements through 2025, and long-term contracting requirements through 2030.

Minimizing Bill Impact

MCE's 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. MCE prioritizes use of renewable energy and low carbon emitting resources, reliability, and cost competitiveness.

[29] MCE notes that the increase in emissions from 2030 to 2035 results from an increase in use of system power attributable to a decrease in allocated generation from Combined Heat and Power resources, as well as increases in the volume of curtailments and exports modeled.

[30] Historically, MCE has contracted with PCC 1 resources located in California. However, some resources located outside California are eligible for PCC 1, typically through direct interconnection or firm transmission rights to the CAISO. Although MCE has an established preference for in-state resources, contracting with out-of-state PCC 1-qualified resources is likely to the extent that they offer increased value or other desirable portfolio attributes during the planning period.

Energy and RA costs have risen sharply in recent years, and rising wholesale energy costs have placed upward pressure on customer rates. New build renewable development and storage costs have also seen substantial increases since the last IRP cycle due to a confluence of unprecedented amounts of mandated procurement on strict timelines, limited transmission capacity to support new projects, supply chain constraints, and inflationary pressures. At the same time, prices in the short-term markets for renewable energy and RA have also increased significantly resulting from increasing incidents of resource scarcity during peak hours and more numerous and extensive extreme weather events. MCE will take steps to minimize bill impacts, but near-term rate increases may be necessary to accommodate increased procurement costs.

Despite recent cost increases for new generation and storage associated with its resource plan, bill impacts can be at least partially mitigated by the fact that new renewable generation projects can have lower net costs than the prices paid in the short-term renewable energy and resource adequacy markets. In evaluating new resource commitments, MCE seeks generation and/or storage projects that meet portfolio fit considerations and that have positive net present value in consideration of expected contract costs and the value of the energy, reliability, and environmental attributes provided by the project. Such projects help reduce costumer costs relative to alternative sources of energy and capacity. Further, MCE's PCP minimizes exposure to volatile natural gas prices and the bill impacts that can result from periodic spikes in fossil fuel prices.

Specific estimates of MCE's average portfolio costs through 2035 are provided in Section III.e., below.

Ensuring System and Local Reliability

MCE's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability on both a near- and long-term basis. The PCP meets system RA requirements as detailed in Section III.f. MCE's PCP is reliable from both an MCE-specific and systemwide perspective under the 30 MMT and 25 MMT Scenarios. The PCP would provide adequate energy storage and RA capacity to meet MCE's generation needs during non-solar generating hours.

As a practical matter, the ability of MCE's portfolio to meet MCE's own load requirements will not be materially impacted by whether other parties procure consistent with the 30 MMT or 25 MMT target. As discussed in Section III.f., MCE's PCP includes sufficient NQC to meet peak loads and reserve margins regardless of whether other load serving entities procure to the 25 MMT or 30 MMT benchmark targets. If other LSEs procure in accordance with a 25 MMT GHG target, the NQC and contribution to reliability of MCE's PCP would increase by an average of 10 MW.

Based on results from the CSP calculator, MCE should expect more hours of curtailment for its renewable resources, greater use of system power, and higher emissions of GHG and local pollutants in the 30 MMT scenario as compared to the 25 MMT scenario; however, these differences are small relative to the size of MCE's planned portfolios and would have no meaningful impact on reliability.

For the periods during which MCE's load exceeds the sum of its contracted energy resources and planned storage capacity and Demand Response resources, MCE intends to ensure sufficient system capacity is available through use of firm short- and long-term RA contracts. MCE is planning that approximately half of its RA capacity (ELCC adjusted) will be provided by new renewable and storage resources, while the other half will be provided by existing resources, most of which are likely to be dispatchable natural gas fueled generators.

MCE is proud of its role supporting reliability and renewable integration needs to date and is eager to continue supporting these important state objectives going forward. While MCE has built-in plans for traditional reliability resources (*i.e.,* from natural gas), MCE aspires to gradually layer in reliability supply that better aligns with the State's ultimate GHG reduction goals.

Strengthening the Bulk Transmission and Distribution Systems

MCE's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(G) goal of strengthening the diversity, sustainability, and resilience of the bulk transmission and distribution systems. MCE does not own, operate, or maintain the bulk transmission or distribution systems. However, MCE's procurement of strategically located renewable generation, prioritization of local renewable generation, demand-side management efforts, and investment in distribution-side resources all serve to enhance the sustainability and resiliency of the bulk transmission and distribution systems.

Enhancing Demand-Side Energy Management

MCE's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(H) goal of enhancing demand-side energy management. MCE's PCP includes MCE's allocation of capacity through the demand-side management programs operated by PG&E. MCE operates a variety of energy efficiency and demand response programs, including MCE's PeakFlex Market.[31]

Additionally, MCE is working to develop a pilot Virtual Power Plant ("VPP") within the City of

[31] *See* https://www.mcecleanenergy.org/market/ .

Richmond. This effort will install a suite of privately-owned distributed energy resources ("DERs") to be dispatched into the VPP, such as rooftop solar, heat pump water heaters, smart thermostats, smart plugs, electric vehicles, and energy storage. These will send data directly to MCE and can be remotely controlled and operated together to pull power to and from the grid at strategic times, creating pockets of power to support and decarbonize the grid.

The goal of Richmond Advanced Energy Community is to connect 120 sites to the VPP including 10 rehabilitated homes, 90 homes occupied by low-to-middle income residents (which have already received solar systems from GRID Alternatives), 18 commercial sites, and 2 industrial sites. Combined, the 120 sites are expected to contribute 1 MW of solar, 2 MWh of energy storage, and 1.5 MW of flexible load by December 2024.

The VPP will allow MCE to aggregate and dispatch DERs to manage critical peak loads, minimize procurement costs, and - as market opportunities evolve - generate value in wholesale markets. Participants may not be enrolled in other DER aggregation or demand response programs. Participants will receive modern appliances, bill savings, and bill credits.

MCE plans to expand this program to monitor and control other customer owned DERs.

Minimizing Localized Air Pollutants with Emphasis on Disadvantaged Communities

MCE's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(I) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities ("DACs"). MCE's PCP relies primarily on renewable generation and would have low GHG and localized air pollution emissions. Further, MCE's PCP minimizes MCE's reliance on unspecified system power, instead opting for renewable generation, hydro generation, local energy storage, and local demand side reduction programs.

Results from the 30 MMT CSP calculator indicate the following localized air pollutants associated with MCE's PCP in 2035:

- NOx: 68 tonnes/yr
- PM 2.5: 32 tonnes/yr
- SO2: 7 tonnes/yr

Results from the 25 MMT CSP tool indicate the following localized air pollutants associated with MCE's PCP in 2035:

- NOx: 64 tonnes/yr
- PM 2.5: 28 tonnes/yr

- SO2: 7 tonnes/yr

These emissions derive primarily from system energy and CHP resources assigned to the MCE portfolio by the CSP calculator, as well as from relatively small amounts of biogas/biomass resources included in the PCP. MCE's four existing biogas energy sources are not located in DACs as identified in CalEnviroScreen 4.0. MCE plans to include emissions impacts on DACs as one of the criteria used for selecting specific projects for any procurement that may be assigned emissions.

c. GHG Emissions Results

GHG emissions associated with MCE's PCP are shown below for the 30 MMT and 25 MMT Scenarios. As stated above, the emissions associated with MCE's PCP are lower than MCE's proportional share for both the 30 MMT and 25 MMT benchmarks.

Table 4: MCE's PCP GHG Emissions

Scenario	Emissions Total	Unit	2024	2026	2030	2035
30 MMT	CO2	MMt/yr	0.277	0.380	0.500	0.514
25 MMT	CO2	MMt/yr	0.265	0.390	0.493	0.492

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

Local pollutant emissions associated with MCE's PCP are shown below for the 30 MMT and 25 MMT Scenarios:

30 MMT Scenario

Table 5: MCE's PCP Local Pollutant Emissions (30 MMT Scenario)

Emissions Total	Unit	2024	2026	2030	2035
PM2.5	tonnes/yr	39	35	34	31
SO2	tonnes/yr	18	15	12	7
NOx	tonnes/yr	137	116	97	68

25 MMT Scenario

Table 6: MCE's PCP Local Pollutant Emissions (25 MMT Scenario)

Emissions Total	Unit	2024	2026	2030	2035
PM2.5	tonnes/yr	38	34	33	28
SO2	tonnes/yr	18	15	12	7
NOx	tonnes/yr	137	114	95	64

In each scenario, local air pollutants associated with MCE's electricity mix are projected to decrease. As described in MCE's Action Plan, below, MCE intends to reduce its reliance on system power by procuring the renewable and other low GHG-emitting resources identified in its PCP. MCE actively seeks out power supply technologies that minimize air pollutants including fully renewable technologies as well as hydro-electric and natural gas/battery hybrid technologies.

ii. Focus on Disadvantaged Communities

MCE's PCP is fully consistent with the goal of minimizing local air pollutants, with early priority on DACs.

MCE's programs illustrate that MCE takes an expansive view of its responsibilities in this area and takes efforts to minimize disadvantaged community air pollution impacts, not only in its own service area, but also in the state as a whole.

As identified by CalEPA's designation,[32] MCE serves the following DACs:

Table 7: DACs Served by MCE

Census Tract	Nearby City	California County	ZIP Code	Total Population	MCE Residential Accounts in Census Tract	MCE Non-Residential Accounts in Census Tract	MCE Accounts in Census Tract
6013305000	Antioch	Contra Costa	94509	6561	1	104	105
6013307202	Antioch	Contra Costa	94509	4299	0	2	2

[32] SB 535 Disadvantaged Communities | OEHHA (ca.gov).

6013314103	Bay Point	Contra Costa	94565	5629	1,552	61	1,613
6013314104	Bay Point	Contra Costa	94565	9278	2,217	121	2,338
6013336201	Concord	Contra Costa	94520	4056	1,161	21	1,182
6013320001	Martinez	Contra Costa	94553	3671	1,092	262	1,354
6013365002	North Richmond	Contra Costa	94801	5590	1,213	126	1,339
6013302005	Oakley	Contra Costa	94561	7290	2,051	184	2,235
6013309000	Pittsburg	Contra Costa	94565	3546	1,275	175	1,450
6013310000	Pittsburg	Contra Costa	94565	6257	1,646	135	1,781
6013311000	Pittsburg	Contra Costa	94565	5329	1,473	67	1,540
6013312000	Pittsburg	Contra Costa	94565	2243	626	82	708
6013313101	Pittsburg	Contra Costa	94565	7178	2,580	491	3,071
6013313102	Pittsburg	Contra Costa	94565	4595	1,341	123	1,464
6013314102	Pittsburg	Contra Costa	94565	6561	1,184	33	1,217
6013373000	Richmond	Contra Costa	94801	4468	897	90	987
6013375000	Richmond	Contra Costa	94801	4897	1,050	96	1,146
6013376000	Richmond	Contra Costa	94801	6245	1,557	78	1,635
6013377000	Richmond	Contra Costa	94801	7323	2,123	168	2,291
6013379000	Richmond	Contra Costa	94804	7003	1,508	203	1,711
6013380000	Richmond	Contra Costa	94804	5931	2,860	380	3,240
6013381000	Richmond	Contra Costa	94804	6521	1,708	191	1,899
6013382000	Richmond	Contra Costa	94804	8159	1,540	114	1,654
6013392200	Richmond	Contra Costa	94806	11304	2,829	172	3,001
6013358000	Rodeo	Contra Costa	94572	6285	1,609	151	1,760
6013364002	San Pablo	Contra Costa	94806	5531	1,693	36	1,729

6013366001	San Pablo	Contra Costa	94806	4514	1,117	34	1,151
6013366002	San Pablo	Contra Costa	94806	6627	1,584	71	1,655
6013368001	San Pablo	Contra Costa	94806	4817	1,236	85	1,321
6013368002	San Pablo	Contra Costa	94806	3782	956	125	1,081
6013369001	San Pablo	Contra Costa	94806	7254	2,026	240	2,266
6013314200	Unincorporated Contra Costa County Area	Contra Costa	94565	7748	1,473	50	1,523
6013315000	Unincorporated Contra Costa County Area	Contra Costa	94520	3862	1,077	811	1,888
6013327000	Unincorporated Contra Costa County Area	Contra Costa	94520	7430	1,627	1,001	2,628
6095252502	Fairfield	Solano	94533	2106	596	281	877
6095250801	Unincorporated Solano County Area	Solano	94592	4135	1,079	45	1,124
6095252402	Unincorporated Solano County Area	Solano	94534	5549	1,470	361	1,831
6095253500	Unincorporated Solano County Area	Solano	94571	10676	308	323	631
6095250701	Vallejo	Solano	94590	3529	767	196	963
6095250900	Vallejo	Solano	94590	2654	1,133	344	1,477
6095251000	Vallejo	Solano	94590	2654	1,122	69	1,191
6095251200	Vallejo	Solano	94590	3663	1,068	222	1,290
6095251500	Vallejo	Solano	94590	4326	1,362	348	1,710
6095251600	Vallejo	Solano	94590	2580	1,086	123	1,209
6095251802	Vallejo	Solano	94589	2770	927	406	1,333

6095251901	Vallejo	Solano	94589	5119	1,626	73	1,699
6095251902	Vallejo	Solano	94589	6173	1,508	59	1,567

In total, MCE serves 54,897 customer accounts located within DACs. This represents approximately 9.5% of MCE's total customer accounts (approximately 580,000).

MCE is dedicated to reducing pollution impacts and encouraging the development, health, and prosperity of DAC within and outside our service area. Our commitment is reflected in the practices, programs, and policies described below.

Green Access and Community Solar Connection Programs

MCE is collaborating with the Commission, Investor-owned Utilities ("IOU"), and other CCAs to develop community solar programs for customers in DACs. These programs will be supported by the development of an additional 5.92 MW of new, local, clean energy capacity.

The Green Access program will supply 100% renewable power to customers located in a DAC with an accompanying 20% bill discount. The program currently serves 3,000 customers, and MCE prioritizes customers who live in the highest scoring DACs and are currently participating in either the California Alternate Rates for Energy ("CARE") or Family Electric Rate Assistance ("FERA") discount program and need additional support to get caught up on their energy bills. Eligible customers will be served by this 4.64 MW solar resource once it comes online, currently expected by December 2023.

The Community Solar Connection program will offer 100% solar energy and provide a 20% discount on the electricity portion of participating customers' energy bills. This program also involves developing a solar project within 5 miles of a DAC to serve participating customers. At least 50% of the program's participation capacity will be reserved for customers who are enrolled in CARE or FERA discount programs. Efforts to procure the 1.28 MW solar resource for this program are currently ongoing.

MCE estimates that it will be able to provide approximately 3,500 customers in DACs with bill discounts after both programs are up and running.

Sustainable Workforce and Diversity Policy

In 2017, MCE's Board approved a Sustainable Workforce and Diversity Policy[33] to facilitate and encourage diversity and a sustainable workforce through its support for the following:

1. Fair compensation in direct hiring, renewable development projects, customer programs, and procurement services;
2. Development of locally generated renewable energy within the MCE service area;
3. Direct use of union members from multiple trades;
4. Quality training, apprenticeship, and pre-apprenticeship programs;
5. Direct use of local businesses in MCE's service area;
6. Development of California-based job opportunities;
7. Business and workforce initiatives located in low-income and disadvantaged communities;
8. Direct use of Disabled Veteran-owned Business Enterprises ("DVBE") and LGBT-owned Business Enterprises ("LGBTBE");
9. Direct use of green and sustainable businesses; and
10. Direct hiring practices that promote diversity in the workplace.

More recently, in 2022 MCE adopted Sustainable Workforce Guidelines[34] to create a more detailed plan for implementing its Sustainable Workforce and Diversity Policy, further demonstrating our commitment to procuring resources that benefit our customers, our planet, and our future. These guidelines outline how MCE integrates these priorities into PPAs with third parties, MCE-owned or MCE-led power generation projects, and MCE customer programs, services, supplies, and direct hiring. For example:

- When possible, MCE shall give preference to projects within MCE's service area and to CBOs and local associations serving disadvantaged and low-income communities.
- MCE has three tiers of requirements for union labor depending on the location of proposed projects. Projects located in Contra Costa County and over 1 MW in size must adhere to the terms of the Project Labor Agreement ("PLA") between MCE and International Brotherhood of Electrical Workers ("IBEW") Local 302 ("MCE/IBEW PLA"). Projects within Napa, Marin, or Solano County must participate in a PLA of similar

[33] *See* MCE November 16, 2017, Board of Directors Meeting Packet, Agenda Item No. 7 Attachment A https://www.mcecleanenergy.org/wp-content/uploads/2020/05/MCE-Board-Meeting-Packet-November_2017.pdf.

[34] *See* https://www.mcecleanenergy.org/wp-content/uploads/2022/05/MCE-Sustainable-Workforce-Guidelines_05122022.pdf.

scope and requirements with participating unions for workforce hired as described in the MCE/IBEW PLA. Projects outside of MCE's service area are encouraged to enter into project labor agreements of similar scope and requirements with participating unions for workforce as described in the MCE/IBEW PLA.

- For projects located in MCE's service area, 50% of work hours are required to come from permanent residents who reside within the same county as the project.
- MCE will not accept any proposals for projects that rely on equipment or resources built with forced labor. MCE adopted this prohibition two years ahead of federal law, signed by President Biden in June 2022.
- Any renewable development project that is developed or owned by MCE qualifies as a public works project and requires prevailing wages to be paid.

These efforts have resulted in significant local developments. To date, MCE has helped build almost 48 MW of new renewable projects in our service area. All local projects over 1 MW were built with union labor. Additionally, in 2021 MCE launched two new community solar programs, Community Solar Connection and Green Access, both described above.

These programs offer qualifying customers living in a CalEnviroScreen-designated DAC access to 100% renewable energy and a 20% discount on their electricity bills for up to 20 years. Both programs will be supported by the development of additional new clean energy resources.

In developing its Compliance IRP, MCE carefully considered the impact of its resource procurement on DACs. MCE's PCP minimizes the use of fossil-based resources and unspecified system power, reducing reliance on natural gas generators that have an impact on DACs.

Ad Hoc Workforce Development

Growing the green economy, supporting local contractors, and providing access to workforce development opportunities are core to MCE's mission. One avenue for job creation is through energy efficiency, which lowers energy consumption and can save customers money while reducing greenhouse gas pollution and producing more equitable communities. Importantly, improving the built environment through energy efficiency also creates strong job opportunities, including among populations facing additional barriers to workforce entry. Encouraging the creation of local green job opportunities is rooted in the history of MCE's efforts to create more equitable communities, while also reducing GHG emissions through renewable energy projects and electrification of the built environment and the transportation sector. For example, MCE has:

- Partnered with the Marin City Community Development Corporation from 2012–2016

to train 59 community members and connect them to solar installation and energy efficiency jobs.

- Partnered with RichmondBUILD in 2013, 2015, and later in 2021 to help 44 job seekers develop construction, numeracy, and literacy skills, and later connect them with related jobs for MCE Solar One and an LED retrofit project for city streetlights.
- Partnered with Rising Sun Center for Opportunity in 2012 and 2016 to train youth to provide no-cost energy and water-saving assessments in the cities of Richmond, El Cerrito, and San Pablo. More recently in 2021–22, helped customize a Rising Sun training construction curriculum to train five cohorts on green construction basics and give them an intro to electrification and energy storage systems.
- Coordinated the installation of a new call center in the City of Pittsburg through its contract with Calpine in 2017, and then partnered with Future Build in Pittsburg (a county workforce development program) to train students on call center basics, call handling, energy data, and more. Graduates of the training were offered positions at the new call center.
- Partnered with GRID Alternatives in 2021 to train six job seekers from Marin City and the Canal District on solar installation skills and provided them a paid stipend for their participation, to increase access and minimize barriers.
- Sponsored a collaboration with Puertas Abiertas Community Resource Center to develop a direct connection between local hard-to-reach communities and the opportunity to inform and engage with these communities on MCE programs and services, especially those programs developed specifically for underserved populations. This program sponsorship was a workforce development opportunity for organization staff to learn more about renewable energy, energy efficiency, and environmental sustainability.

To deepen MCE's commitment to creating equitable green jobs, MCE has been an active participant in the regional High Road Training Partnership ("HRTP") led by the Rising Sun Center for Opportunity since 2021. The joint project aims to understand regional decarbonization labor market demands, workforce issues, and training needs; establish industry labor standards; and develop clear, accessible training pathways to building decarbonization jobs in the Bay Area, especially for entry-level and disadvantaged workers.

Together with other key partners — including the Association for Energy Affordability, Electrify My Home, Inclusive Economics, Eco Performance Builders, Building Electrification Institute, Bay Area Metro, GENTEC Services, Emerald Cities Collaborative, StopWaste, the Greenlining Institute, Construction Trades Workforce Initiative, the Cities of Berkeley and Oakland and the Association of Bay Area Governments — MCE staff collaborate and hear from leaders in the

industry to address important equity and access aspects of a renewable economy. As a member of the Equity and Public Agencies Working Groups, MCE staff work to lay the groundwork for this industry while improving agency programming.

Creating Energy Efficiency Jobs

In 2018, the CPUC awarded MCE $2.24 million through 2025 to offer a broad spectrum of opportunities to prepare the local workforce for careers in energy efficiency. This funding allows MCE to streamline workforce investments into a sustainable pipeline of long-term green job opportunities for community members, while strengthening the local economy and contributing to a just transition to a clean energy economy. This path is especially important in communities where the fossil fuel industry has long been a primary employer for generations of families. To ensure that a decarbonized energy future provides economic opportunities for all, workforce programs like these are a necessary link to train for the skills needed to enter the green economy.

As a result, in 2020 MCE launched the Workforce, Education, and Training ("WE&T") Program to create a geographically diverse pool of training partners able to provide job seekers with the skills necessary to be competitive in the energy efficiency and electrification sector. This program funds on-the-job training and up to 12 months of wrap-around services to support their transition to a new career in energy efficiency and electrification. While providing an onramp for job seekers, the WE&T Program concurrently allows vetted contractors working in MCE's service area to be matched with these prequalified job seekers for 160 hours of no-cost project assistance and labor. By influencing both the supply side and demand side of this industry, MCE hopes to increase the number of skilled workers and strengthen the local labor market.

With engagement from local partners, community colleges, and the existing contractor workforce, MCE has developed an internship program to achieve the following goals:

- Upgrade the existing contractor workforce's technical expertise on energy efficiency and electrification technology;
- Fund the training of job seekers;
- Match qualified job-seeker trainees with trained contractors and pay for a local internship in a "learn and earn" model; and
- Provide project site opportunities where the intern can install efficiency and electrification measures while helping MCE customers increase the efficiency, health, and safety of their homes and businesses.

Long term, MCE hopes to solidify this trainee-to-employee pipeline so that it can continue investing in technical training, creating onramps to career pathways, providing job security, and building the economic health of member communities.

Equity in Power Purchasing

As of 2021, MCE's Open Season solicitation encourages suppliers to consider community benefits and equity metrics when submitting offers. Some of the optional elements that MCE solicits in offers include:

- Support for educational programs, environmental justice initiatives, and workforce development and training initiatives;
- Participation of contractors, subcontractors, or businesses owned by disabled veterans;
- Projects located in a designated DAC or employing workers living in a designated DAC; and
- Use of components and materials manufactured or assembled in the United States.

In late 2020, when issues related to the use of forced labor for solar equipment production in Xinjiang, China, were reported, MCE incorporated new language into its PPA term sheets and contracts that prohibit MCE from contracting with facilities that rely on equipment or resources built with forced labor. This language was incorporated into MCE's 2021 and 2022 Open Season, Green Access, and Community Solar Connection PPAs, and will continue to be an MCE procurement requirement.

Strategic Recruiting and Hiring Practices

Practices include targeted job postings, partnerships with community-based organizations ("CBOs"), education and employment organizations, physical attendance at job recruitment fairs, blind resume reviews, and the creation of diverse hiring panels. Some MCE jobs may substitute experience for education requirements. MCE has also tailored employee benefit packages to be more inclusive and to apply to a broad range of people.

Community Power Coalition

To facilitate direct community collaboration in the development, progress, and evolution of its mission MCE engages its Community Power Coalition ("CPC"). Formed in 2014, the CPC seeks to represent the interests of underrepresented and historically marginalized communities through collaboration and open dialogue with MCE. The CPC currently has over 40 members and meets every two months. MCE's recruitment for the CPC prioritizes organizations that:

- Expand awareness and access to affordable renewable services;
- Accelerate the transition to a clean energy future through workforce development training opportunities;
- Develop inclusive programs and policies at MCE; and
- Identify just and equitable community collaboration opportunities aligned with MCE's environmental justice values.

Adding these voices and their questions to the CPC working group deepens MCE's understanding about the groups' challenges and the measures or types of support that are needed. MCE's CPC strengthens its connection to the community and offers expert advice on the needs of their constituents and how MCE can best support underserved customers and environmental equity through its programs, policies, and procurement.

Building Community Resiliency

To mitigate the impact of grid outages and Public Safety Power Shutoff ("PSPS") events, and improve overall grid reliability, MCE's Board of Directors approved a Resiliency Fund in 2019.

In 2020, MCE launched its Energy Storage Program to deploy up to 15 MWh of customer-sited battery storage systems that can provide backup power during grid outages and reduce GHG emissions and costs. This program prioritizes vulnerable customers and populations that are disproportionately affected by grid outages. The program leverages incentives from the CPUC's Self-Generation Incentive Program ("SGIP"), coupled with gap funding and performance-based payments provided through MCE's Resiliency Fund.

To extend the impact of this program, MCE is working with the Marin Community Foundation. Through a three-year grant of $750,000 from the Buck Family Fund, this partnership is stretching MCE's contributions to secure local resilience in Marin. These funds will be used to cover the costs for select critical facilities operated by nonprofits throughout Marin County to provide backup power to vulnerable communities during planned or unplanned outages.

As described above, on May 26th, 2022, MCE was approved to join the implementation of a $5 EPIC grant from the CEC to develop an Advanced Energy Community ("AEC"). The grant will be used to develop a pilot VPP within the City of Richmond. The goal of Richmond Advanced Energy Community is to connect 120 sites to the VPP including 10 rehabilitated homes, 90 homes occupied by low-to-middle income residents (which have already received solar systems from GRID Alternatives), 18 commercial sites, and 2 industrial sites. Combined, the 120 sites are expected to contribute 1 MW of solar, 2 MWh of energy storage, and 1.5 MW of flexible load by December 2024.

The VPP will allow MCE to aggregate and dispatch DERs to manage critical peak loads, minimize procurement costs, and - as market opportunities evolve - generate value in wholesale markets. Participants may not be enrolled in other DER aggregation or demand response programs. Participants will receive modern appliances, bill savings, and bill credits. During later phases, this program may help MCE expand its role as a California Independent System Operator ("CAISO") market participant by aggregating resources that can be dispatched into the CAISO market.

COVID-19 Customer Support

In response to the COVID-19 pandemic, MCE launched additional programs and services to support its customers. The $10 million MCE Cares Credit Program offers qualifying customers bill relief in the form of a $10 monthly bill credit for residential customers and a 20% monthly bill credit for small businesses. This program pairs with state discount programs and the Arrearage Management Program ("AMP"), in which MCE was an early participant.

MCE's ongoing COVID relief efforts include suspension of collections; direct outreach to customers to encourage enrollment in existing discount and utility bill assistance programs; an education and awareness program to spread the word about community resources and programs for financial assistance; and free EV charging at MCE's San Rafael office. The relief efforts were promoted online, via social media, with signage, and through local business and residents groups from early 2020 through the summer of 2022. MCE also launched two webpages providing a comprehensive list of COVID support resources for residential and small business customers, by county. In 2021, MCE partnered with local CBOs to distribute bill-savings program flyers in English and Spanish.

e. Cost and Rate Analysis

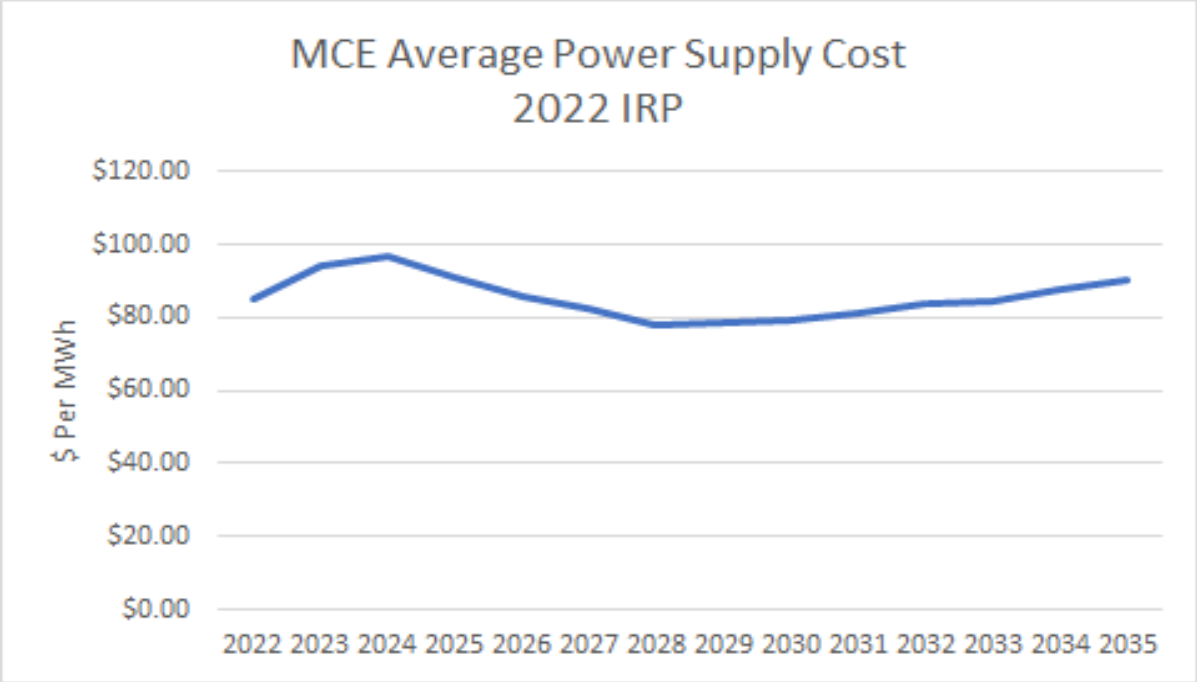
MCE strives to minimize carbon emissions associated with the electricity it supplies to customers while maintaining competitive rates and minimizing customer bill impacts. MCE also prioritizes reliability and seeks a supply portfolio that minimizes risks related to transmission congestion, curtailments, project development risks, and other uncertainties that impose the potential for unanticipated costs. MCE's PCP was developed with these goals in mind. Resources were selected for least cost and best portfolio fit based on associated emissions, delivery profile, risk, commercial viability, and reliability. MCE considers both the direct resource costs (*e.g.*, contract price) as well as the value of each resource in its portfolio, taking into account the different resource characteristics of the various portfolio options.

MCE modeled the expected portfolio costs of its PCP to evaluate cost and rate impacts on customers. The results of this cost analysis are illustrated in the figure below. System average portfolio costs are projected to increase through 2024, decline from 2025 through 2028, and slowly increase from 2029 through 2035. The compounded annual rate of growth (nominal dollars) between 2022 and 2035 is 0.5%, which is below the expected rate of inflation. The near-term cost increases are primarily driven by high prevailing CAISO energy costs, which are influenced by the significant increase in natural gas prices since the beginning of 2022. Exceptionally high resource adequacy costs are also driving increases in MCE's average portfolio costs. These cost pressures are expected to moderate as new resources are developed and displace more expensive purchases from the short-term markets. It must be noted that the projected portfolio costs are dependent on assumed costs for new resources, and these are subject to considerable uncertainty. MCE engages in competitive solicitations for resource selection and makes resource decisions based on prices offered to it during these solicitations. MCE has observed very little stability in offered resource prices over time as market conditions and external events such as procurement orders, trade tariffs, tax policy and supply chain conditions impact resource costs that are available at any point in time. If these events persist, or additional external events (*e.g.*, new procurement orders) occur, the average portfolio costs may instead continue to increase in excess of MCE's current projections. While MCE's PCP provides a helpful framework for procurement decisions going forward, MCE must remain flexible to respond to market conditions or technological changes as circumstances change. MCE will take steps to minimize bill impacts, but near-term rate increases may be necessary to accommodate increased procurement costs.

In evaluating new resource commitments, MCE seeks generation and/or storage projects that meet portfolio fit considerations and that have positive net present value in consideration of expected contract costs and the value of the energy, reliability, and environmental attributes provided by the project. Such projects help reduce consumer costs relative to alternative sources of energy and capacity.

New resources were selected for the PCP with the goal of minimizing ratepayer impacts, while meeting reliability and environmental policy goals. MCE's plan diversifies across different renewable and low-carbon generation technologies with the goal of reducing use of system energy, thereby reducing market risk and emissions. MCE selected new resources that provide reliability and low emissions (*e.g.*, geothermal) and other carbon-free technologies that have low expected costs (*e.g.*, wind), which in conjunction with resources already under contract provide a least-cost, best-fit portfolio solution. In modeling expected ratepayer costs, MCE generally used cost assumptions consistent with RESOLVE modeling and the PSP. While not the lowest cost resource option, geothermal resources were included in the PCP to provide

reliability benefits from additional clean, firm resources. These resources have relatively low GHG emissions, and their ability to reliably produce energy on a near 24X7 basis warrants a role despite somewhat higher costs. Technological diversification in use of resources capable of providing firm energy reduces ratepayer risk that could arise from overdependence on new technologies such as long duration storage. The PCP includes lower cost wind resources to help minimize ratepayer impacts while meeting environmental and reliability objectives. MCE's PCP also minimizes exposure to volatile natural gas and system power prices and the bill impacts that can result from periodic spikes in fossil fuel prices.



f. System Reliability Analysis

[redacted]

g. High Electrification Planning

Under a high electrification scenario, MCE's energy and peak demand requirements would increase, with most of the increase occurring toward the latter end of the planning period. MCE projected the load impacts of a high electrification scenario based on the 2022-2023 TPP High Electrification Load Sensitivity RESOLVE Modeling Results available on the 2019-2020 IRP Page.[35]

Assuming similar impacts within the MCE service territory, MCE's adjusted load forecast is shown below:

[35] https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2019-2020-irp-events-and-materials/2022-2023-tpp-high-electrification-sensitivity-resolve-results.pdf.

Table 8: MCE's 2024-2035 Load Forecast - High Electrification Scenario

Year	Retail Sales (MWh), Base Case	Retail Sales (MWh), High Electrification	Impact of High Electrification (MWh)
2024	5,759	5,759	-
2025	5,756	5,756	-
2026	5,759	5,759	-
2027	5,767	5,767	-
2028	5,795	5,843	48
2029	5,827	5,959	132
2030	5,955	6,176	221
2031	5,983	6,325	342
2032	6,040	6,507	467
2033	6,040	6,637	597
2034	6,067	6,802	735
2035	6,099	6,974	875

Table 9: MCE's 2024-2035 Peak Demand Forecast - High Electrification Scenario

Year	Annual Coincident Peak Demand (MW), Base Case	Annual Coincident Peak Demand (MW), High Electrification Case	Impact of High Electrification (MW)
2024	1,273	1,273	-
2025	1,275	1,275	-
2026	1,282	1,282	-
2027	1,289	1,289	-
2028	1,306	1,310	4
2029	1,313	1,325	12

2030	1,346	1,366	20
2031	1,357	1,388	31
2032	1,376	1,418	43
2033	1,375	1,429	54
2034	1,379	1,505	126
2035	1,378	1,576	198

The high electrification scenario changes load profiles and shifts peak load to later in the evening, primarily due to expected increases in electric vehicle charging. This shift in load profiles explains why the volumetric energy (MWh) forecast is impacted by a greater percentage than the coincident peak demand (MW) forecast. In 2035, for example, MCE projected annual retail sales are 14% higher under the high electrification scenario, while coincident peak demand is only 6% higher.

In order to maintain GHG emissions below the assigned limits, MCE would expect to increase its proportionate use of renewable and other low GHG emitting resources. While MCE can not specify the exact resources or resource type it would utilize, this would most likely come from additional out-of-state and/or offshore resources. MCE does not have sufficient information at this time to specify Transmission Zone and Substation/Bus locations for these hypothetical resource additions; however, a hypothetical example of a generic wind resource is provided in the table below.

Table 10: MCE's Planned Out-of-State and Off-Shore Wind Resources

Resource Type	MWs	Annual GWh	2035 GHG target	Transmission Zone	Substation/ Bus	Alternative Location	Note
Wind	250	900	0.504	Wyoming/ Idaho	TBD	Morro Bay	See subsections l. and m. for discussion

h. Existing Resource Planning

Since MCE's launch in 2010, MCE has been committed to building and expanding access to in-state renewable generation resources. This is reflected by approximately 700 MWs of new build

renewable generation MCE has added to the grid and the additional approximately 500 MW[36] of new build that MCE currently has under contract and that will be coming online by mid-decade. Further, as demonstrated in MCE's PCP, which covers the full planning horizon, MCE will continue to drive significant new resource development, which will have a corresponding decrease in MCE's planned use of existing resources.

As compared to MCE's 2020 IRP, planned reliance on existing resources in 2030 has declined from 754 MW to 503 MW. Under MCE's PCP, existing resources are planned to make up less than half of MCE's total portfolio NQC in 2035. These existing resources include renewable resources that are already online and under contract, expected allocations of CAM resources from the PG&E portfolio, and expected resource adequacy contracts with existing generators.

Particularly during this energy transition and the need for renewables integration, it is reasonable and necessary to assume continued use of existing resources in light of studies indicating the importance of retaining existing resources to ensure grid reliability. The 2021 PSP, for example, shows retention of much of the existing natural gas fleet. MCE's planned reduction in use of existing resources from 100% today to less than 50% in 2035, however, accommodates planned generator retirements and provides a reasonable transition away from fossil fueled capacity toward storage and other non-GHG-emitting technologies. MCE utilizes various procurement strategies to ensure access to resources in the market, including multi-year forward contracting with new and existing resources.

i. Hydro Generation Risk Management

In developing its PCP, MCE took the following three key steps to manage the risk of reduced hydro-electric availability due to in-state drought:

- First, MCE reduced its overall reliance on large hydro-electric generation by adopting ambitious 2035 targets for renewable energy (which excludes large hydro-electric). More specifically, MCE's PCP in 2035 consists of 87% eligible renewable generation, which will limit its large hydro-electric procurement to 13% or less. This compares to MCE's current use of large hydro for up to 40% of its electricity supply. MCE's 87% renewable energy target significantly exceeds its current 60% level, and it also exceeds the 85% target that MCE submitted to the Commission in its 2021 Compliance IRP.
- Second, to the extent hydro-electric fits into the portfolio, MCE has an established network of Pacific Northwest hydro suppliers, including entities that have substantial

[36] This number does not include incremental Shed Demand Response that MCE recently secured under contract (*i.e.,* 15 MW of September NQC that is eligible incremental capacity under D.19-11-016).

ACS energy volumes. As a result of these substantial ACS volumes, suppliers are able to sell MCE reliable, firm volumes.

- Third, MCE has the ability to take deliveries of hydropower outside of the CAISO and schedule/import such volumes into the CAISO on its own, as a purchasing-selling entity registered with the North American Electric Reliability Corporation ("NERC")-affiliated North American Energy Standards Board ("NAESB"). This substantially increases MCE's flexibility as a counterparty and therefore provides MCE increased access to greater volumes of non-California hydro-electric resources from suppliers that may not be willing, themselves, to be the importer of record.

To the extent that hydro supply is unavailable, MCE would plan to use other sources of low carbon or carbon-free energy, which may include additional qualifying renewable energy. Considering the relatively small volume of planned large hydro, the cost impacts of supply unavailability is limited. At the extreme, if MCE needed to replace its entire planned large hydro-electric energy with a renewable energy source such as wind, the cost impact to the portfolio is estimated to be less than 10%. A more realistic drought scenario would have cost impacts in the range of 0% to 5%. Moreover, the PSP's hydro-electric energy resources are planned as energy-only. As such, there would be no direct reliability impacts to MCE's PSP in the event of drought, although there may be system-wide reliability impacts to the extent that other LSEs utilize large hydro-electric resources for capacity purposes.

One technique MCE uses to manage variable hydro conditions is to include planned margins of over procurement in its hydro-electric purchasing strategy. These reserve margins apply to forward procurement and are gradually released as better information about hydro-electric availability becomes known.

j. Long-Duration Storage Planning

MCE is planning significant new battery storage capacity to help balance load and supply as it integrates a greater percentage of renewable energy into its supply mix and continues to reduce reliance on natural gas generation capacity. MCE sees a greater need and role for long-duration storage as the grid continues to evolve. To address this need, MCE is procuring to meet its long-duration storage requirement under D.21-06-035 (*i.e.,* 29 MW of NQC) and anticipates procuring an additional 50 MW NQC of long-duration storage resources in the 2030 to 2035 timeframe.

In MCE's view, battery storage technology is currently the most commercially viable technology to qualify for this long-duration attribute. However, MCE is also evaluating other technologies that have long-duration storage capability as well. Technology performance risk is the biggest

unknown at present because, with the exception of pumped hydro storage, there is no track record for utility scale, long-duration storage. MCE expects rapid technological improvement in battery storage as the industry continues to scale-up and anticipates declining costs in the longer-term. In the short-term, however, costs are increasing, and project opportunities are limited, particularly when the procurement is on accelerated procurement timelines. These factors may impact the pace at which MCE adds storage to its resource portfolio.

k. Clean Firm Power Planning

MCE has prioritized acquisition of clean firm resources beyond what is required under existing Commission procurement orders. Despite higher costs, clean firm resources provide reliable capacity and a higher-value energy delivery profile as compared to solar and other intermittent resources. MCE is planning for greater use of geothermal resources over time due to its low carbon emissions and high resource value. Unfortunately, supply of geothermal, and clean firm resources generally, is very limited in California, and the cost of new-build resources is significantly higher. Clean firm energy imported from other balancing areas is complicated by transmission availability and the need to obtain equivalent Maximum Import Capability ("MIC") through the CAISO in order to utilize the capacity under the resource adequacy program. Despite these challenges to their expanded use, clean firm resources are important contributors to reliability and offer operational attributes that cannot be replicated by current-technology storage or other resource types. To develop these resources cost-effectively and efficiently, California LSEs will need the commitment of regulatory agencies and CAISO to facilitate this resource development by ensuring regulatory procedures and requirements align with market realities and that the transmission infrastructure necessary for this development is available and accessible to California LSEs.

l. Out-of-State Wind Planning

MCE's PCP includes 70 MW of new, out-of-state wind, assumed to be located in New Mexico, with deliveries commencing in 2030. The choice of New Mexico wind is not intended to reflect a definitive plan for procurement from this area, and other locations for future wind projects are possible. New Mexico was selected as a likely source based on MCE's review of wind projects that have been offered in recent solicitations. These opportunities utilize existing firm transmission routes into the CAISO. However, MCE observes the significant potential in the PSP for wind located in Wyoming and Idaho, as well as transmission projects being planned that would allow for delivery of this resource to California, which would indicate opportunities to contract for new wind from these areas should be prevalent in the 2030 timeframe provided the planning and construction of the Southwest Intertie Project-North ("SWIP-North") transmission line proceeds expeditiously. Absent certainty that the SWIP-North transmission

line will be available with the appropriate level of import allocations and deliverability assurances for California LSEs, it will be difficult, or impossible to invest in this region's renewable generation potential.

m. Offshore Wind Planning

MCE's PCP includes 95 MW of offshore wind, assumed to be located at Morro Bay, with deliveries commencing in 2033. MCE has not yet seen any proposed opportunities to contract for offshore wind and is basing its planning assumption on the significant potential indicated in the PSP. Offshore wind appears to be a high potential resource with relatively high-capacity factors and resource adequacy values. At this time, costs of offshore wind development and maintenance infrastructure are largely unknown. As such, cost and development timelines pose the greatest risk to utilization of this resource. Despite these near-and possible near-term barriers to progress on this front, MCE is monitoring the issue as it evolves, and procurement of offshore wind becomes feasible.

n. Transmission Planning

i. New Projects

This section describes new generation projects that are under development and planned projects that have been specifically identified through MCE's procurement processes where there is sufficient locational specificity that could be useful to the transmission planning process.

ii. Projects Under Development

Strauss Wind, LLC

This is a new-build [redacted] wind project. The expected commercial operation date ("COD") is in 2023, and MCE intends to apply this resource towards its procurement requirements under D.19-11-016. The project is located in Santa Barbara County. The interconnection queue position is WDT-1320. All transmission upgrades needed for this project have been completed. The Strauss Wind project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. Please refer to row 41 of the unique_contracts tab in MCE's RDTs.

Golden Fields Solar IV, LLC

This is a new-build hybrid project located in Kern County that pairs 100 MW of solar with 92 MW four-hour battery storage. The project has an expected COD of March 2025 and is intended to apply towards MCE's mid-term reliability ("MTR") requirements under D.21-06-035. The interconnection queue position for this resource is Q-1211, and the project will connect at the Southern California Edison ("SCE") Whirlwind 230 kV substation. Transmission upgrades needed for this project are expected to be completed in October 2024. These transmission upgrades are described in Appendix A to the Large Generator Interconnection Agreement ("LGIA") and include participating transmission owner (*i.e.,* SCE) reliability network upgrades. The Golden Fields Solar project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. Please refer to row 51 of the unique_ contracts tab in MCE's RDTs.

Daggett Solar Power 3, LLC

This is a new-build hybrid project located in San Bernardino County that pairs 110 MW of solar with 60 MW of four-hour battery. The project has an expected COD of August 2023, and MCE intends to apply this capacity towards its MTR requirements under D.21-06-035. The interconnection queue position is Q-1314, and the project will connect at Kramer Substation 220kV switchrack. Transmission upgrades needed for this project are expected to be completed in December 2022. These transmission upgrades are described in Appendix A to the LGIA and include participating transmission owner (*i.e.,* SCE) reliability network upgrades. The Daggett Solar Power project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. Please refer to row 55 of the unique_ contracts tab in MCE's RDTs.

Hecate Grid Humidor Storage 185, LLC

This new 185 MW four-hour battery storage project has an expected COD of April 2024 and will be located in Los Angeles County. MCE intends to apply this capacity towards its MTR requirements under D.21-06-035. The interconnection queue position is Q-1629, and the project will connect at SCE Vincent Substation, 220kV Bus. Transmission upgrades needed for this project are expected to be completed in Q4 2023. These transmission upgrades include extending the existing 230kV bay within the substation and installing an intermediate structure to connect to the Point of Interconnection ("POI") riser outside of the substation. The Hecate Grid Humidor Storage project is represented in both the 30MMT and 25MMT RDTs,

respectively, as incremental capacity. Please refer to row 64 of the unique_ contracts tab in MCE's RDTs.

RPCA Solar 3 - Byron Highway Solar

This is a new-build 5 MW solar project located in Contra Costa County. The project has an expected COD of November 2022. The interconnection queue position is 2296-WD, and the project will connect at Brentwood distribution substation. All transmission upgrades needed for this project have been completed. The RPCA Solar 3-Byron Highway Solar project is represented in both the 30MMT and 25MMT RDTs, respectively. Please refer to row 40 of the unique_contracts tab in MCE's RDTs.

Ranch Sereno Clean Power, LLC

This is a new build 2MW solar project with 0.8 MW of four-hour battery storage. The project is located in Contra Costa County and has an expected COD of February 2024. The interconnection queue position is 2597-WD, and the project will connect at PG&E's Brentwood distribution substation. No transmission upgrades are required for this project. The Ranch Sereno Clean Power project is represented in both the 30MMT and 25MMT RDTs, respectively. Please refer to row 52 of the unique_contracts tab in MCE's RDTs.

CES Electron One Farm, LLC

This new-build project consists of two solar projects sized at 4.4 MW and 0.24 MW. The projects are located within specified Disadvantaged Community areas in Fresno County and have an expected COD of December 2023. The interconnection queue position is 2226-WD, and the project will connect at PG&E's Panoche distribution substation. No transmission upgrades are required for this project. The CES Electron One Farm project is represented in both the 30MMT and 25MMT RDTs, respectively. Please refer to rows 53 and 54 of the unique_contracts tab in MCE's RDTs.

iii. Projects Under Review

[redacted]

iv. Planned New (Generic) Projects

The following projects included in the PCP are generic in nature. Locations and technology resource types are subject to change as MCE advances in its procurement.

OS22 New Wind 2026

This generic 100 MW wind project with initial deliveries commencing in 2026 is assumed to be located in the Tehachapi area.

Generic LT Wind NM 2030

This generic 70 MW wind project with initial deliveries commencing in 2030 is assumed to be located in New Mexico. Please see subsections iv. and v., below, for additional details on planning assumptions for this project.

Generic LT Wind 2033

This generic 95 MW wind project with initial deliveries commencing in 2033 is assumed to be located offshore of Morro Bay. Please see subsections iv and v, below, for additional details on planning assumptions for this project.

Generic LT Geothermal 2030

This generic 75 MW geothermal project with initial deliveries commencing in 2030 is assumed to be located in the Imperial Valley.

MTR LDS 2026

This generic eight-hour battery storage project with initial operation commencing in 2026 is assumed to be located in Contra Costa.

Generic LDS 2030

This generic eight-hour battery storage project with initial operation commencing in 2030 is assumed to be located in Contra Costa County.

Generic 4 Hour Storage 2028

This generic four-hour battery storage project with initial operation commencing in 2028 is assumed to be located in Solano County.

Generic 4 Hour Storage 2034

This generic four-hour battery storage project with initial operation commencing in 2034 is assumed to be located in Napa County.

IV. Action Plan

a. Proposed Procurement Activities and Potential Barriers

To achieve its PCP over the planning horizon, MCE plans to steadily procure volumes at regular intervals to allow MCE to keep within its established position limits and avoid concentrated procurement during any particular market environment. This is consistent with MCE's risk management approach to spread out the potential cost risks that may be at play in the market at any given year, while maximizing the potential for MCE to optimally procure. At a high level, MCE plans to procure renewables and storage, large hydro-electric and ACS, RA (including incremental capacity required by the Commission) and load-hedging products.

MCE's goal is to procure such products in a manner that is cost effective, achieves emissions and reliability objectives, and supports a well-balanced and optimal resource portfolio.

To support this goal, MCE also considers the following strategies:

Joint Solicitations

Joint solicitations can expand the procurement opportunities available to a CCA, as well as provide procedural efficiencies, economies of scale, and overall cost savings for participating organizations. MCE is closely networked with other CCAs through its membership in the California Community Choice Association ("CalCCA"), the trade organization representing California's CCA sector, and regularly coordinates with other CCAs regarding prospective

procurement opportunities and portfolio balancing activities.

Optimizing Existing Procurement

As MCE considers its long-term resource needs, it will evaluate options in its future PPAs to increase output through either facility upgrades or adding new capacity to the generating facility. Expanding existing facilities may provide additional generation at reduced costs with a lower risk of project failure because the need for distribution system upgrades and permitting may be reduced. However, MCE has experienced some challenges as it pertains to transmission upgrades and deliverability of new capacity on to the grid. MCE continues to engage with relevant stakeholders and developers to evaluate the feasibility of such expansions for implementation.

Annual Energy Solicitations

In addition to periodic joint solicitations, MCE will also run targeted solicitations in the upcoming years to further optimize its current portfolio needs. Such solicitations may provide MCE with flexibility and potential to meet specific portfolio needs and obligations unique to MCE.

MCE also considers the deliverability characteristics of its resources (including the expected delivery profile, available capacity and dispatchability attributes, if any, associated with each of its generating resource and/or supply agreements) and reviews the respective risks associated with short- and long-term purchases as part of its forecasting and procurement processes. These risk evaluations include, but are not limited to, transmission availability, MIC allocation, and exposure to global supply and market forces.

These efforts lead to a more diverse resource mix, help to address grid integration issues, improve the probability of project delivery, and provide value to MCE's member communities through reduced costs and support in achieving planned procurement objectives.

MCE has a well-established procurement process that it will use to steadily achieve its PCP over the next twelve years (*i.e.*, by 2035). This process is used by MCE in executing all its planned new resources. MCE's procurement process includes the following ten key activities:

1. Load forecasting based on the number and types of customers, potential service territory expansions, opt-out rates, electrification trends, demand-side resources and weather;
2. Integrated resource planning based on load forecasts, renewables and emissions targets, agency-wide budgetary considerations and customer rate implications,

long- term contracting requirements and goals for new steel in the ground, grid reliability needs and capacity requirements, market price hedging needs and goals for local resources, local resiliency and local workforce development;

3. Calculating open positions and interim volumetric needs based on MCE's risk management policies;
4. Soliciting volumetric needs through RFOs, bilateral discussions or brokers;
5. Evaluating offers using a combination of proprietary and public models;
6. Negotiating (and ultimately executing) power purchase agreements, enabling agreements and confirms – including credit provisions and collateral requirements;
7. Managing pre-COD executed contracts and monitoring progress towards key development milestones (such as interconnection status, deliverability studies, siting, zoning, permitting, financing, construction, commercial operation, etc.)
8. Managing post-COD executed contracts: obtaining generation forecasts, bidding/scheduling resources into the CAISO markets, validating and paying invoices, etc.;
9. Bidding/scheduling MCE's load into the CAISO markets; and
10. Regulatory compliance reporting.

With respect to activity number four listed directly above, MCE plans to conduct an annual "open season" RFO in the first half of each year for new renewable generation and storage projects. MCE anticipates that the majority of its open seasons over the next several years will result in executed long-term PPAs for new renewables and/or storage, and MCE anticipates that such projects will achieve commercial operation within 3 years of contract execution. In these solicitations for long-term renewable energy and storage, MCE imposes numerous bid requirements on interested respondents. These requirements address a variety of considerations and are intended to identify the best qualified suppliers of MCE's long-term renewable energy needs. Such requirements include:

1. Overall quality of response, inclusive of completeness, timeliness, and conformity;
2. Price and relative value within MCE's supply portfolio;
3. Project location and local benefits, including local hiring and prevailing wage considerations;
4. Project development status, including but not limited to progress toward interconnection, deliverability, siting, zoning, permitting, and financing requirements;
5. Qualifications, experience, financial stability, and structure of the prospective project team (including its ownership);
6. Environmental impacts and related mitigation requirements, including impacts to air pollution within communities that have been disproportionately impacted by the

existing generating fleet;
7. Potential impacts to grid reliability;
8. Acceptance of MCE's standard contract terms; and
9. Development milestone schedule, if applicable.

In addition, MCE is planning to solicit offers periodically throughout each year for short term renewable energy, large hydro-electric and ACS, resource adequacy and load-hedging products needed to balance the portfolio and adhere to position limits established through MCE's risk management policy and practices.

MCE uses a portfolio risk management approach in its power purchasing program, seeking low-cost supply, based on then-current market conditions, as well as diversity among technologies, production profiles, project sizes and locations, counterparties, lengths of contract, and timing of market purchases.

A key component of this process relates to the analysis and consideration of MCE's forward load obligations and existing supply commitments with the objectives of closely balancing supply and demand, cost/rate stability and overall budgetary impacts, while leaving some flexibility to take advantage of market opportunities and technological improvements that may arise over time. MCE monitors its open positions separately for each renewable generating technology, GHG-free resources, conventional resources, and its aggregate supply portfolio. MCE maintains portfolio coverage targets of up to 100% of expected customer energy requirements in the near-term (0 to 2 years). Typically, MCE has gradually larger open positions in the mid- to long-term, consistent with generally accepted industry practices.

In addition to the planned and proposed procurement activities, MCE also takes into consideration the various barriers that may impact the success of its planned renewable projects. Some of the potential barriers for each of the new resources identified in MCE's PCP include:

1. New Wind: The current market conditions have made new in-state wind resources scarce, which has led to a price premium and escalated cost risks on any available in-state wind resources. In addition, the transmission constraints and limited MIC allocation for out of state wind has made it difficult to negotiate and plan for new resources due to the uncertainty of deliverability.
2. New Geothermal: Due to the scarcity of new geothermal projects in-state and the uncertainty of deliverability and transmission of out of state geothermal projects, there has been an unprecedented competition on available geothermal, causing an ever-increasing upwards pressure in price. If this trend continues it may impact MCE's ability

to procure new geothermal resources in the near-term.

3. Hybrid Resources: Currently, most hybrid resources primarily consist of intermittent resources like solar. As solar is highly affected by global supply chain issues, most planned projects are facing upward pressures in cost and are consequently facing further delays.
4. Storage: Similarly, to hybrid resources, global supply chain issues and the scarcity of the raw materials required for battery production, there is risk and uncertainty in prices and expected delivery dates that may negatively impact MCE's planned portfolio and budgeted costs.

MCE continuously monitors the developments in the market and engages with various market stakeholders including the Commission, CAISO, and other CCAs, to strategize and find solutions to the various barriers and the risks associated with new clean energy procurement. Throughout the planning period MCE will continue to proactively evaluate its planned procurement and make necessary adjustments to meet its portfolio needs as determined by MCE's Board and its operational and compliance needs.

i. Resources to meet D.19-11-016 procurement requirements

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 MCE's contribution to system reliability and renewable integration needs, MCE is committed to self-providing its share of the identified system capacity need.[37] MCE's assigned share is 87.5 MW,[38] 50% of which was online by August 1, 2021, 75% of which was online by August 1, 2022, and 100% of which is expected to be online by August 1, 2023.

D.19-11-016 Procurement Progress Report

MCE has executed agreements that will satisfy MCE's 2021, 2022 and 2023 incremental capacity requirements under D.19-11-016. As of the date of this filing, MCE has 108.77 MW[39] of

[37] *Marin Clean Energy's February 15, 2020, Integrated Procurement Planning Progress Report Pursuant to Decision 19-11-016 Adopted in Rulemaking 16-02-007* filed February 18, 2020.

[38] D.19-11-016 at Ordering Paragraph 3.

[39] For consistency purposes, MCE is calculating September NQC based on the most recent ELCC factors adopted in D.22-08-039 and the September NQC assigned to MCE's resources in the RDTs. However, using the more conservative NQC values, MCE has 101.9 MW of NQC either online or under contract to meet its D.19-11-016 requirement. This capacity includes a recently executed agreement for incremental capacity. However, due to the Commission's August 1, 2022, cutoff for contracts, MCE includes this contact in its RDTs as a resource under review (*see* unique_contracts tab of the RDT Row 115) but includes this capacity in this progress report to provide the Commission the most up-to-date information on its D.19-11-016 procurement. MCE will reflect this resource as in

September NQC under contract; this is NQC not included on the baseline resource list adopted in Rulemaking 16-02-007[40] and exceeds MCE's 87.5 MW incremental capacity requirement. The projects reflected in these contracts are either already online or expected to be online in advance of August 1, 2023.

MCE also provides a narrative description of specific incremental procurement efforts below, which is consistent with the information MCE provides the CPUC in its bi-annual D.19-11-016 compliance filings.

Sutter Energy Center

The Sutter Energy Center project has been online since January 1, 2021 under a 3-year Purchase & Sale Agreement between MCE and Calpine Energy Services, L.P.. The period for this agreement began on January 1, 2021 and will continue through December 31, 2023, which is consistent with D.19-11-016's requirement that commitments based on existing resources must "stay in place at least through the end of the resource adequacy summer months of 2023."[41] Additionally, D.19-11-016 defines the Sutter Energy Center as an incremental capacity resource.[42] Although physically located outside of the CAISO balancing authority, D.19-11-016 also indicates that Sutter Energy Center is not an import for purposes of the capacity procurement ordered by the decision and thus not subject to the D.19-11-016's 20% limitation on import resources.[43]

Sutter Energy Center adds 69.55 MW of incremental capacity to the system from January 2021 through 2023. As such, this project satisfied both MCE's 2021 and 2022 requirements.

The Sutter Energy Center is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. For this resource, please refer to row 59 of the unique_contracts tab in MCE's RDTs.

Strauss Wind, LCC

In 2018 MCE executed an Amended and Restated Renewable Power Purchase Agreement with

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Development in its next D.19-11-016 RDT compliance filing. Under either NQC methodology, MCE has more than its share of incremental capacity under contract for purposes of D.19-11-016.

[40] *See Administrative Law Judge's Ruling Finalizing Baseline for Purposes of Procurement Required by Decision 19-11-016* filed January 3, 2020, Rulemaking 16-02-007.

[41] D.19-11-016 at 47.

[42] D.19-11-016 at Ordering Paragraph 6.

[43] *Id.*

Strauss Wind, LLC, a California Limited Liability Company ("Strauss Wind project"). This 20-year PPA is for a new-build wind energy project located in Santa Barbara County, California. [redacted] This resource is a new grid resource that is not included on the baseline resource list adopted in Rulemaking 16-02-007. Thus, the Strauss Wind project is eligible to count towards MCE's assigned 87.5 MW of incremental system resource capacity.

The project began construction in March 2020. [redacted]

The Strauss Wind project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. For this resource, please refer to row 41 of the unique_contracts tab in MCE's RDTs.

MCE Solar One

MCE's Solar One project is currently online and has been delivering energy since December 22, 2017, under a 20-year PPA with MCE. MCE Solar One is a 10.5 MW solar facility located in Richmond, California. Using the current NQC framework, this resource provides an additional 1.16 MW of September NQC that is not reflected on the baseline resource list. As such, MCE Solar One applies towards MCE's incremental system capacity procurement compliance requirement.

The MCE Solar One project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. For this resource, please refer to rows 35 and 36 of the unique_contracts tab in MCE's RDTs.

Waste Management Redwood Landfill ("Redwood Landfill Project")

The Redwood Landfill project is currently online and has been delivering energy since September 14, 2017, under a 20-year PPA with MCE. The Redwood Landfill project is a 3.9 MW landfill gas-fired generation facility located in Novato, California. This resource provides an

[44] *See* MCE's August 1, 2022, D.19-11-016 Compliance Filing for additional detail provided in the Remediation Plan.

[redacted]

additional 3.39MW of September NQC under the current framework and according to the September NQC assigned in the RDTs. This is incremental capacity that is not reflected on the baseline resource list. As such, the Redwood Landfill project applies towards MCE's incremental system capacity procurement compliance requirement.

The Redwood Landfill project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. For this resource, please refer to row 7 of the unique _contracts tab in MCE's RDTs.

i. Resources to meet D.21-06-035 procurement requirements, including:

   a. 1,000 MW of firm zero-emitting resource requirements
   b. 1,000 MW of long-duration storage resource requirements
   c. 2,500 MW of zero-emissions generation, generation paired with storage, or demand response resource requirements

In D.21-06-035, the Commission ordered LSEs to collectively procure a total of 11,500 MW of incremental system capacity by 2026, with specific procurement obligations allocated to each LSE to support mid-term system reliability needs. MCE's assigned share of this procurement is 332 MW of NQC,[46] 58 MW of which must be online by August 1, 2023, an additional 173 MW of which must be online by June 1, 2024, an additional 43 MW of which must be online by June 1, 2025, and an additional 58 MW of which must be online by June 1, 2026.

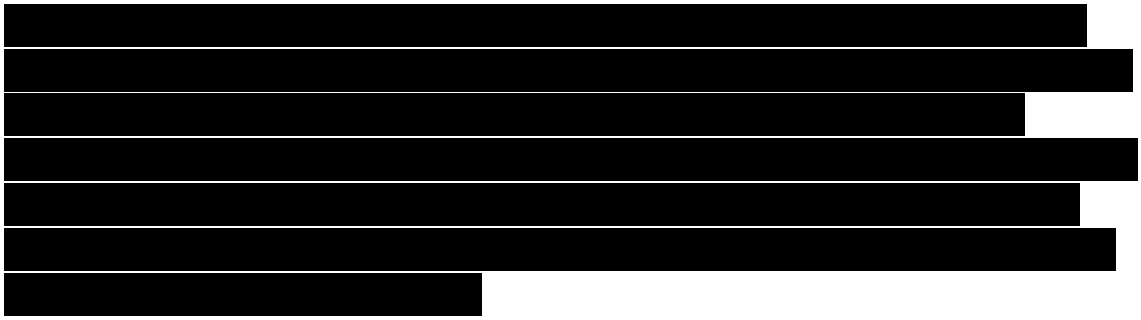
MTR Procurement Progress Report

MCE has executed agreements that MCE expects will satisfy its 2023, 2024 and 2025 incremental capacity requirements. As of the date of this filing, MCE has 308.7 MW of eligible NQC under contract towards its D.21-06-035 requirement, which represents 395 MWs of nameplate capacity.

MCE's completed procurement towards its D.21-06-035 requirement is reflected in MCE's 25 MMT and 30 MMT RDTs, respectively. MCE also provides a narrative description of specific incremental procurement efforts below.

[redacted]

[46] D.21-06-035 at 56.



Long-Duration Storage (MCE Requirement = 29 MW of NQC)

Zero Emissions Generation (MCE Requirement = 274 MW of NQC)

- Golden Fields Solar IV

  MCE executed a contract with Clearway Energy Group on February 4, 2022, for a new-build hybrid project located in Kern County that pairs 100 MW of solar PV with 92 MW four-hour battery storage. This project has an expected COD of March 2025, and MCE expects to apply this resource to count for at least 75 MW of NQC towards its general MTR requirements under D.21-06-035, including towards MCE's 72 MW of zero-emitting resources pursuant to Table 6 in D.21-06-035.[47] The Golden Fields Solar project is represented in both the 30 MMT and 25 MMT RDTs, respectively, as incremental capacity. Please refer to row 51 of the unique_contracts tab in MCE's RDTs.

- Daggett Solar Power 3, LLC

  MCE executed a contract with Clearway Energy Group on September 25, 2020, for a new-build hybrid project in San Bernardino County that pairs 110 MW of solar PV with 60 MW four-hour battery storage. This project has an expected COD of August 2023, and MCE expects to apply this resource to count for at least 65.9 MW of NQC towards its MTR requirements under D.21-06-035, which also contributes towards MCE's 72 MW

[47] MCE expects this resource to provide at least 61.3 MW of DCPP replacement capacity. To apply towards both the general MTR requirements and MCE's requirement to procure 72 MW of zero-emitting resources with certain availability requirements, MCE's PPA for this project ensures that this hybrid resource will be designed to be capable of delivering 5 MWh of energy per every MW of claimed incremental capacity during the 5PM to 10PM period, daily.

of zero-emitting resources pursuant to Table 6 in D.21-06-035.[48] The Daggett Solar Power project is represented in both the 30MMT and 25MMT RDTs, respectively, as incremental capacity. Please refer to row 55 of the unique_contracts tab in MCE's RDTs.

- Hecate Grid Humidor Storage

  MCE executed a contract with Hecate Grid in August 2022 for a new 185 MW four-hour battery storage project in Los Angeles County. This project has an expected COD of April 2023, and MCE expects to apply this resource to count for at least 167.8 MW of NQC towards its MTR requirements under D.21-06-035. The Hecate Grid Humidor Storage project is represented in both the 30 MMT and 25 MMT RDTs, respectively, as incremental capacity. Please refer to row 64 of the unique_contracts tab in MCE's RDTs.

i. All other procurement requirements

Open Season RFO

After counting the above-mentioned resources [redacted] To fill any current and future open positions, MCE issues annual open season RFOs, which seek to fill approximately 350 GWh of annual energy needs, including any incremental procurement that might be needed to meet D.21-06-035. These RFOs request offers for Portfolio Content Category 1 Renewable Energy and stand-alone, front-of-the-meter energy storage. MCE is in the final stages of completing power purchase agreements with selected respondents from 2021 RFO and expects to procure significant volumes of hybrid resources, all of which will be agreements of at least 10 years in duration. In addition, MCE expects to count these 2021 and future RFOs projects towards any future Commission-directed incremental capacity obligations. While MCE does not anticipate that the new projects will be needed for MCE's share of capacity requirements identified in D.21-06-035, they may provide back up to the projects identified above.

Because these resources are expected/planned, and not currently contracted for, these resources are reflected as "review," "PlannedExisting," and "PlannedNew"resources in both the 30 MMT and 25 MMT Resource Data Templates.

[48] MCE expects this resource to provide at least 48 MW of DCPP replacement capacity. To apply towards both the general MTR requirements and MCE's requirement to procure 72 MW of zero-emitting resources with certain availability requirements, this hybrid resource is capable of delivering 5 MWh of energy per every MW of claimed incremental capacity during the 5PM to 10PM period, daily.

ii. Offshore wind

MCEs PCP includes 95 MW of offshore wind, assumed to be located at Morro Bay, with deliveries commencing in 2033. MCE has not yet seen any proposed opportunities to contract for offshore wind and is basing its planning assumption on the significant potential indicated in the PSP. Offshore wind appears to be a high potential resource with relatively high-capacity factors and resource adequacy values. At this time, costs of offshore wind development are largely uncertain. As such, costs of offshore wind development and maintenance infrastructure pose the greatest risk to utilization of this resource. However, the completion of environmental impact review and filing a proposed sale notice for the Humboldt Wind Energy Area by the federal Bureau of Ocean Energy Management ("BOEM") is an important initial step. MCE will continue to monitor the developments and will engage the various stakeholders involved, should an opportunity to purchase offshore wind arise.

iii. Out-of-state wind

MCE's PCP includes 70 MW of planned new, out-of-state wind ("OOS"), with deliveries commencing in 2030. MCE has reviewed wind projects that have been offered in recent solicitations and understands that the transmission projects needed to connect OOS Wind to the CAISO grid require significant lead-times. OOS wind opportunities rely on existing firm transmission routes into the CAISO or construction of new transmission with the appropriate level of import allocations and deliverability assurances for California LSEs. Absence of such assurances make it difficult for MCE to realize the significant potential for wind located in Idaho, Wyoming, and New Mexico. Given the fact that OOS Wind is not needed until 2030, MCE believes that a careful and considered approach to potential OOS Wind projects is best. MCE will continue to monitor for opportunities to purchase such resources and will evaluate offers it receives during its annual open season process.

iv. Other renewable energy not described above

[redacted]

v. Other energy storage not described above

MCE is not actively planning for any additional energy storage investments beyond what is described above.

vi. Other demand response not described above

In April 2021, MCE launched the Peak FLEXmarket, a first-of-its-kind program platform aimed at shifting energy use in its service area away from times of extreme demand. Following its initial pilot year, the program received $11 million in ratepayer funding from the CPUC for the summers of 2022 and 2023. Created in partnership with Recurve, the Peak FLEXmarket provides tools to measure hourly reductions in energy use that allows MCE to compensate businesses working locally with customers for energy savings during peak demand hours. The program is technology agnostic and incentivizes load reductions from a diverse group of technologies including batteries, managed EV charging, controls systems and behavioral/operational change. The Peak FLEXmarket incentivizes regular load shifting and also calls demand response events during periods of extreme grid stress. The Peak FLEXmarket has been included in MCE's Energy Efficiency Business Plan Application for continued funding for the 2024-2027 timeframe.

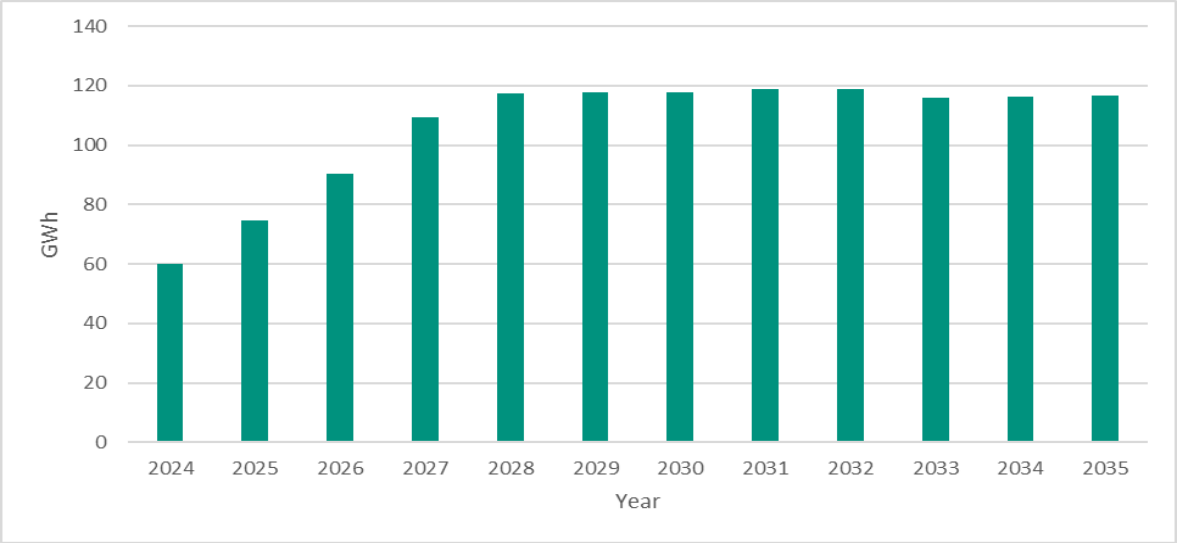
MCE plans to expand this program to monitor and control other customer owned DERs.

In addition to the City of Richmond VPP described above, MCE continues to explore opportunities for demand response in its service area while facilitating third-party demand response programs. MCE customers are eligible for many of the demand response programs administered by PG&E, and MCE receives allocations from PG&E-administered programs. Depending on the results of this analysis, MCE may launch new programs and possibly seek funding from other sources for more robust programs in this sector.

vii. Other energy efficiency not described above

MCE is an administrator of California's ratepayer-funded, energy efficiency programs alongside IOUs and Regional Energy Networks. Ratepayer funding is derived through collection of the Public Purpose Program charge from all electric service customers and is administered by the Commission. MCE has received Commission funding approval for energy efficiency programs to be administered through 2025 and currently administers programs in multifamily, single family, commercial, agriculture, and industrial sectors. Furthermore, MCE administers the Low-Income Families and Tenants ("LIFT") Program, which serves income-qualified, multifamily properties and includes a fuel-switching component to incentivize property owners to replace gas-fired space and water heaters. The forecasted cumulative savings of MCE-administered energy efficiency programs are based on average life cycle savings.

MCE also invests in multiple workforce development initiatives to encourage the growth of green jobs through the approval of its Energy Efficiency Business Plan. MCE also coordinates closely with PG&E to maximize community benefits.



MCE cumulative energy efficiency impacts (GWh)

viii. Other distributed generation not described above

Net Energy Metering and Rooftop Solar Rebates

Through its Net Energy Metering ("NEM") program, MCE supports customer-sited distributed generation within its service area by offering above-market incentives including automatic cash-outs for surplus generation each year at twice the wholesale rate (up to $5,000). MCE's NEM Program currently includes more than 63,528 customers (10.9% of all MCE accounts) with an aggregate-installed renewable generating capacity of approximately 642 MW.

Through 2021, MCE incentivized local rooftop solar development for low-income customers. MCE has a long-standing partnership with California's Single Family Affordable Solar Housing ("SASH") program administrator, GRID Alternatives. By leveraging multiple sources of funding, GRID Alternatives installs these systems in disadvantaged communities at little to no cost for the customer. MCE contributed $900 per solar installation to qualifying low-income, single-family homeowners. MCE also offered a $0.41 per watt (AC) rebate to low-income, multifamily properties that install solar to benefit their tenants.

From 2012–2021, MCE allocated $725,000 toward these two rebate programs, and supported the installation of 688 residential solar PV systems on low-income multifamily homes. These

installations represent more than 1,400 kW of new, local, renewable capacity that helps reduce monthly energy bills for low-income families.

ix. Transportation electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

As part of its broader strategy to reduce GHG emissions through buildings and transportation electrification, MCE has been working on several EV-related initiatives since 2017. These include demand response-enabled charging devices, equity-centered incentives for EVs, and funding for charging stations. These efforts started with a strategic plan and infrastructure analysis in partnership with the U.S. Environmental Protection Agency to analyze local EV market trends and their impact on MCE's customer demand.

MCE has identified workplace EV charging as an opportunity to shift the demand of the 60,200 (and growing) EV drivers in its service area to hours of the day when energy is frequently cheaper and cleaner. MCE Solar Charge, a public EV charging station that opened in 2019 at MCE's San Rafael office, demonstrates that vision to MCE's staff and customers. In 2021, MCE launched MCE Sync, a residential smart charging pilot with the goal of reducing the peak load impacts of home charging while saving customers money and reducing GHG impacts.

MCE Sync uses an app to manage home vehicle charging. During a 6-month pilot with 232 enrolled participants, the pilot shifted 93% of EV electricity usage away from the 4–9 p.m. peak, reduced carbon intensity by 55% on average, and saved customers on an EV rate around $12/month before event-based incentives. The expanded program has a goal of 2,500 enrolled customers by May 2023.

Since 2018, MCE has supported or funded 1,570 Level 2 EV charging ports for workplaces or multifamily properties. More than 930 ports have been installed — equivalent to 36% of all public Level 2 charging ports in the four counties that MCE serves — and more than 645 ports under planning and in construction. MCE is coordinating with PG&E on its EV Charge Network program and providing a supplemental rebate to customers who participate in that program. More than 71% of the MCE stations already deployed are enrolled in MCE's Deep Green service.

In addition to incentives for EV charging stations, MCE provides free technical assistance and helps coordinate with other funding sources for commercial and multifamily customers interested in EV charging infrastructure. A CEC grant won by Contra Costa Transportation Authority and MCE will increase EV engagement, access to electric transportation, and deployment of charging infrastructure, especially at multifamily properties, across marginalized communities in the county from summer 2021 to spring 2024.

MCE also partnered with Bay Area Air Quality Management District and GRID Alternatives to win grants from the CEC and Marin Community Foundation. These grants are anticipated to start in the second half of 2022. Implementation will focus on deepening relationships with local housing authorities, affordable housing administrators, owners, and property managers to increase awareness and adoption of tenant-based EV charging stations. The implementation consists of installing EV charging and providing concierge education on how to qualify for income-based EV incentives, including MCE's own EV rebate.

Lastly, MCE built upon its rebate program for income-qualified customers interested in purchasing a new EV with the goal of increasing understanding of and access to EVs beyond the typical early adopters. This program has helped over 261 customers purchase or lease a new EV and will expand in fiscal year 2023/2024 to include used EVs as well.

x. Building electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

MCE is committed to electrifying its service area and is currently offering several programs that it expects will impact building electrification efforts including its: LIFT Pilot Program, Multifamily Energy Savings ("MFES") Program, Home energy Savings ("HES") Program, and Heat Pump Water Heater ("HPWH") Contractor Incentive Program. An overview of MCE's planned investment in these programs is provided below.

Multifamily Energy Saving Program

MCE's MFES provides residential energy efficiency[49] and electrification[50] improvements to affordable multifamily properties in the MCE service area. The intent of the program is to support vulnerable communities, particularly those who have been traditionally underserved. MFES seeks to substantially fund energy efficiency and electrification measures for deed-restricted properties. It will also continue to co-leverage as many funding opportunities to provide comprehensive, whole building upgrades.

MFES was designed to co-leverage with MCE's LIFT pilot program, authorized in D.16-11-022, by providing funding to affordable properties where not all units qualify for LIFT incentives. LIFT provides comprehensive services and supports fuel switching from natural gas to electric heat pumps for cleaner and safer energy use. Income-qualified multifamily properties can layer

[49] Refrigerators, package terminal heat pumps, LED light fixtures, smart thermostats, low flows showerhead and aerators, and LED bulbs, T24 compliant windows, crawlspace, wall, and roof insulation.

[50] Domestic hot water heat pump, space heating and cooling and electrical upgrades.

incentives from LIFT on MFES program rebates. With this model, MFES supports property-wide upgrades for all tenants who live in affordable housing.

MFES services include no-cost property assessments, project scope development, and program assistance throughout the project lifetime. The program also offers owner rebates for energy efficiency and electrification measures as well as no-cost direct installation of certain energy efficiency measures.

The program addresses market barriers by providing: (1) customized technical assistance to; overcome challenges associated with the diversity of building types, ownership types, and billing configurations, and to provide assistance with analyzing potential upgrade measures; (2) guidance through the initial assessment of multiple measure upgrade opportunities throughout the property; (3) a range of participation options to best meet the current needs and abilities of properties; and (4) a bridge for the funding gap between multifamily units that qualify for LIFT or ESA incentives and the rest of the property to promote a comprehensive and equitable whole-building upgrade.

The current budget for the MFES program is $1,017,476 for 2022 and $971,459 for 2023. The current timeline for the program is 2022-2024, with project renewal expected every two years.

LIFT Pilot Program

MCE launched the LIFT pilot in 2017, providing additional incentives for property owners and tenants in multifamily buildings (5+ units) beyond what is available through the MFES program. LIFT provides $1,200 per unit for energy efficiency upgrades[51] and additional incentives for fuel substitution and fuel switching away from natural gas and propane combustion appliances to high efficiency electric heat pumps[52] (HVAC and water heating). This transition will support cleaner and more efficient energy use while resolving health and safety concerns.

MCE's LIFT program aims to support income-eligible multifamily renters with improving their household efficiency, reducing their energy costs, and increasing home safety and comfort, while simultaneously maximizing benefits to owners. The program is part of a larger goal of California's climate initiatives to support disadvantaged customers and increase statewide electrification and efficiency efforts. The literature review outlines the current regulatory

[51] Refrigerators, package terminal heat pumps, LED light fixtures, smart thermostats, low flows showerhead and aerators, and LED bulbs, T24 compliant windows, crawlspace, wall, and roof insulation.

[52] Domestic hot water heat pump, space heating and cooling and electrical upgrades.

context within California, discusses DAC definitions and metrics, electrification, health and safety, costs, and barriers to emerging technology adoption.

The LIFT pilot was originally approved by the CPUC to run under the Energy Savings Assistance ("ESA") program, followed by a series of extensions granted to keep this running as a pilot through 2023. The LIFT Program distributed over $1 million in incentives to 680 qualifying households between 2018 and 2021 and successfully reached underserved customers with 95% of participants residing outside of a DAC. Participants collectively saved over 7,800 kilowatt-hours annually and, individually, an average of $192 per year on their electricity bill.

MCE expects to serve more than 450 additional households in the LIFT program through 2023.

MCE's MFES and LIFT programs have different funding sources (CPUC – Energy Efficiency and CPUC – Energy Savings Assistance, respectively), which makes it possible for MF properties to leverage incentives from both programs. The two programs share the same implementor, providing a single point of contact ("SPOC") and stack incentives for low-income multifamily customers. The rebates, when combined with MCE's Multifamily Energy Savings program, cover up to 80% of total project costs. The program currently has a timeline of October 2017 – December 2023 with a budget of $6.75 million.

Home Energy Savings ("HES") Program

MCE's Single-Family Direct Install program, or Home Energy Savings Program ("HES"), provides no-cost energy efficiency measures to eligible homeowners and tenants in single-family homes (up to 4 attached units) and dwellings in MCE's service area. This program targets moderate-income customers whose household income falls between 200% and 400% of the Federal Poverty Guidelines ("FPG"). The target group's income exceeds the limit to receive services through programs like PG&E's Energy Savings Assistance ("ESA") program and MCE's LIFT Program, yet who are still too income constrained (lower middle-income) to participate in market rate programs. MCE will refer customers who fall outside of the moderate-income threshold to available low-income and market rate programs. MCE's goal is to fill the service gap and introduce this market sector to the concepts of energy efficiency, while providing energy upgrades and emerging technologies that reduce household energy consumption. Energy efficiency measures offered under this program include: energy and water savings kits, energy advisor provided home assessments and envelope, heating, ventilation and cooling (HVAC) and electrification home upgrade measures.

The current budget for the HES program is $2,366,392 for 2022 and $2,384,874 for 2023. The current timeline for the program is 2022-2024, with project renewal every two years.

Heat Pump Water Heater ("HPWH") Contractor Incentive Program

BayREN has partnered with MCE, East Bay Community Energy, Silicon Valley Power, City of Santa Clara, and CleanPower SF to offer a standardized midstream electrification program serving multiple Bay Area counties. The program seeks to develop the electrification market by providing Bay Area residential contractors incentives for the installation of HPWHs.

The program offers a $1,000 incentive — paid directly to licensed contractors who replace homeowners' natural gas or propane residential water heaters with high efficiency heat pump water heaters. Contractors enrolled in the BayREN Home+ program may participate in both programs and rebates are stackable. This program is self-funded by MCE and has a budget of $300,000 to install 250 HPWHs in MCE's service area.

The HPWH Contractor Incentive Program has also created a resource of all electrification programs serving the Bay Area and has developed HPWH resources[53] to help contractors and homeowners understand the benefits of this technology. MCE has contributed to a memo sharing learnings from the first year of the program, including contractor barriers to participation.[54]

xi. Other

MCE has no additional information in response to this sub-section xi.

b. Disadvantaged Communities

In total, MCE serves 54,897 customer accounts located within DACs. This represents approximately 10.8% of MCE's total customer accounts (approximately 580,000).

MCE is dedicated to reducing pollution impacts and encouraging the development, health, and prosperity of DAC within and outside our service area. In addition to the measures and programs described above, MCE's commitment is reflected in the practices, programs, and policies described below.

Green Access and Community Solar Connection Programs

As described in Section d.ii., above, MCE is collaborating with the CPUC, IOUs, and other CCAs to develop community solar programs for customers in DACs. These programs will be supported

[53] https://www.bayren.org/contractors/heat-pump-water-heater-hpwh-incentive-participating-contractors.

[54] https://www.bayren.org/sites/default/files/2022-02/hpwh_learnings_may_2021_bayren_1.pdf

by the development of an additional 5.92 MW of new, local, clean energy capacity.

Sustainable Workforce and Diversity Policy

As described in Section d.ii., above, in 2017, MCE's Board approved a Sustainable Workforce and Diversity Policy[55] to facilitate and encourage diversity and a sustainable workforce.

More recently, in 2022 MCE adopted Sustainable Workforce Guidelines[56] to create a more detailed plan for implementing its Sustainable Workforce and Diversity Policy.

These efforts have resulted in significant local developments. To date, MCE has helped build almost 48 MW of new renewable projects in our service area. All local projects over 1 MW were built with union labor. Additionally, in 2021 MCE launched two new community solar programs, Community Solar Connection and Green Access. These programs offer qualifying customers living in a CalEnviroScreen-designated DAC access to 100% renewable energy and a 20% discount on their electricity bills for up to 20 years. Both programs will be supported by the development of additional new clean energy resources.

In developing its Compliance IRP, MCE carefully considered the impact of its resource procurement on DACs. MCE's PCP minimizes the use of fossil-based resources and unspecified system power, reducing reliance on natural gas generators that have an impact on DACs.

c. Commission Direction of Actions

MCE is not seeking any specific direction of actions from the Commission at this time. However, MCE notes that it is aware of the Commission's recent *Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement* ("ALJ Ruling").[57] MCE looks forward to exploring the options for a programmatic approach to procurement to meet the goals of the IRP process as outlined in the *Staff Paper on Programmatic Approaches to Electricity Procurement* included with the ALJ Ruling. Whichever programmatic approach the Commission ultimately adopts, it is critical for the Commission to ensure that any new program equitably reflects an LSE's full contribution to

[55] *See* MCE November 16, 2017, Board of Directors Meeting Packet, Agenda Item No. 7 Attachment A https://www.mcecleanenergy.org/wp-content/uploads/2020/05/MCE-Board-Meeting-Packet-November_2017.pdf

[56] *See* https://www.mcecleanenergy.org/wp-content/uploads/2022/05/MCE-Sustainable-Workforce-Guidelines_05122022.pdf

[57] *Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement,* issued September 8, 2022.

system reliability and achievement of California's environmental goals and allows for flexibility to accommodate continuously evolving grid needs.

V. Lessons Learned

MCE shares the Commission's commitment to robust and comprehensive integrated resource planning. MCE also understands the procedural and substantive complexity that defines IRP development at the state agency level and that continues through to individual LSEs as they respond to and integrate statutory and regulatory requirements into their resource planning efforts. However, in addition to the statutory requirements articulated in 454.52(a)(1)(A) -(I), MCE's resource planning process must also give deference to its Board of Directors, which is granted statutory authority to govern MCE's procurement and approve MCE's IRP under 454.52(b)(3) and 366.2(a)(5). To meet all of the aforementioned statutory objectives and requirements, it is critical for MCE and other similarly situated LSEs to expect and receive timely and clear guidance from the Commission and adequate time to incorporate this guidance into its planning process. Administrative Law Judge Fitch alluded to this in the July 15, 2022 Ruling in which Energy Division Staff was directed to provide "final versions of the CSP Calculators and RDT . . ." within a reasonable period of time following July 1, 2022.[58] Despite this clear guidance, updated RDTs were provided to LSEs on Friday, September 30, 2022.[59] MCE appreciates these updates and the diligent work being done by Energy Division Staff, but revised templates and revised guidance this late in the process, no matter how insignificant or helpful, are disruptive to and dismissive of LSEs' internal processes and timelines, particularly in the case of CCAs where other law governs procedure and timelines that must be followed when requesting their Boards take action. MCE urges the Commission to take steps in the next IRP cycle to adhere firmly to its timelines and the direction in its own rulings. Diligence on this front will aid all stakeholders in meeting statutory requirements and comprehensively and thoroughly addressing the state's resource planning efforts.

[58] Load Forecast Ruling issued June 15, 2022, at 14.

[59] Email from Ali Eshraghi to Commission-jurisdictional LSEs, *Aggregated CAM Resources for LSEs* [sic] *Plan Development*, sent September 30, 2022; LSEs were initially advised of this update on Friday, September 23, 2022, via an email from James McGarry to Commission-jurisdictional LSEs, *Notice of IRP Template Update and Q&A document* [sic], sent September 23, 2022.

Glossary of Terms

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

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

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

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

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

Capacity Expansion Model: *a capacity expansion model is a computer model that simulates generation and transmission investment to meet 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) methodology**: the methodology used to estimate GHG, and criteria pollutant emissions associated with an LSE's Portfolio based on how the LSE will expect to rely on system power on an hourly basis.*

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

***Conforming Portfolio**: the LSE portfolio that conforms to IRP Planning Standards, the 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.*

***Effective Megawatts (MW):** perfect capacity equivalent MW, such as the MW calculated by applying an ELCC % multiplier to nameplate MW.*

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

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

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

***GHG Benchmark (or LSE-specific 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., a LOLE of 0.1.*

Maximum Import Capability: a California ISO metric that represents a quantity in MWs of imports determined by the CAISO to be simultaneously deliverable to the aggregate of load in the ISO's Balancing Authority (BAA) Area and thus eligible for use in the Resource Adequacy process. The California ISO assess a MIC MW value for each intertie into the ISO's BAA and allocated yearly to the LSEs. A LSE's RA import showings are limited to its share of the MIC at each intertie.

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

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

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

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

***Planned resource:** any resource included in an LSE portfolio, whether already online or not, that is yet to be procured. Relating this to capacity expansion modeling terms, planned resources can be baseline*

resources (needing contract renewal, or currently owned/contracted by another LSE), candidate resources, or possibly resources that were not considered by the modeling, e.g., due to the passage of time between the modeling taking place and LSEs developing their plans. Planned resources can be specific (e.g., with a CAISO ID) or generic, with only the type, size and some geographic information identified.

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

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

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

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

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

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

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

***Transmission Planning Process (TPP)**: annual process conducted by the California Independent System Operator (CAISO) to identify potential transmission system limitations and areas that need reinforcements over a 10-year horizon.*

lse_unique_contract_id	resource	alternative_resource_name	contract_status	project_interconnection_position	interconnection_substat on	marginal_addition	marginal_add tion_to	total_nameplate_capacity	contracted_nameplate_capacity	sep_contracted_mw_nqc	contract_gwh_annual	s_hybrid_paired	can_charge_from_grid
Ost onn_MCE	WHEATL_6_LNDFIL		Onl ne		NA	NA	NA		2	2	12	NotHyb d	
Hay MCE	PEABDY 2 LNDF L		Onl ne		NA	NA	NA		2	2	11	NotHyb d	
Geyse s MCE	GEYS13 7 UNIT13		Onl ne		NA	NA	NA		10	10	88	NotHyb d	
L ncoln MCE	PLSNTG 7 LNCLND		Onl ne		NA	NA	NA		5	4	27	NotHyb d	
Voyage II MCE	VOYAGR 2 VOYWD3		Onl ne		NA	NA	NA			5	138	NotHyb d	
WM MCE	NOVATO 6 LNDFL		Onl ne		NA	NA	NA		4	3	30	NotHyb d	
Antelope 2 MCE	BGSKYN 2 AS2SR1		Onl ne		NA	NA	NA		105	12	289	NotHyb d	
Cooley l MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Cost Plus_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
Dese t Ha vest MCE	DSRTHV 2 DH1SR1		Onl ne		NA	NA	NA		80	9	252	NotHyb d	
F eethy1 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
F eethy2_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
G ost Valley MCE	TRNQLB 2 RDSR1		Onl ne		NA	NA	NA		100	11	285	NotHyb d	
L ttle Bea 1 MCE	LTBERA 1 LB1SR1		Onl ne		NA	NA	NA		40	4	105	NotHyb d	
L ttle Bea 3 MCE	LTBEAR 1 LB3SR3		Onl ne		NA	NA	NA		20	2	52	NotHyb d	
L ttle Bea 4 MCE	LTBEAR 1 LB4SR4		Onl ne		NA	NA	NA		50	6	132	NotHyb d	
L ttle Bea 5 MCE	LTBEAR_1_LB4SR5		Onl ne		NA	NA	NA		50	6	132	NotHyb d	
SR A po t MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Mustang MCE	MSTANG 2 SOLAR4		Onl ne		NA	NA	NA		30	3	82	NotHyb d	
Soscal Fe y Sola C_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Soscal Fe y Sola D MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola A MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola B MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola C MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
S lve a Ranch A MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
S lve a Ranch B MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
SR A po t 2 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
ED P oducts MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
Oakley RV & Boat Sto age MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
DRES Qua y 2.4 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	0	0	0	1	NotHyb d	
Co co an_MCE	CORCAN_1_SOLAR2		Onl ne		NA	NA	NA		11	1	27	NotHyb d	
GoosieLake MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA		12	1	30	NotHyb d	
Buck MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
MCE Sola 1_8.5_MCE	R CHMN_1_CHVSR2		Onl ne		NA	NA	NA		9	1	17	NotHyb d	
MCE Sola 1 2.0 MCE	R CHMN 1 SOLAR		Onl ne		NA	NA	NA		2	0	4	NotHyb d	
Ke n Tule PCC1 1 LT MCE	KRNCNY 6 UNIT		Onl ne		NA	NA	NA		11	5	37	NotHyb d	
S lve a Ranch C_MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
LakeHe man PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	5	5	0	13	NotHyb d	
By on Sola PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	3	3	0	8	NotHyb d	
St auss PCC1 1 LT MCE	STRAUSSWIND		Development	WDT-1320	NA	NA	NA					NotHyb d	
By on Sola PCC1 2 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Haywo th_PCC1_1_LT_MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Fallon PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
RPCA PCC1 1 LT MCE	NEW_GENERIC SOLAR FIXED		Development		B entwood 2105	NA	NA	5	5	0	13	NotHyb d	
Napa PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
CMSA PCC1 2 LT MCE	EX STING_GENER C_BIOMASS/WOOD		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
EBCE PCC1 Sale 1 MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA			0	8	NotHyb d	
SJCE_PCC1_Sale_1_MCE	CORCAN_1_SOLAR2		Onl ne		NA	NA	NA			0	4	NotHyb d	
PCEA PCC1 Sale 1 MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA			0	10	NotHyb d	
Golden F elds PCC1 LT MCE	NEW_GENERIC SOLAR 1AXIS		Development	Q-1212	NA	NA	NA	100	100	103	272	NewSola NewSto age	NO
Ranch Se eno_PCC1_LT_MCE	_NEW_GENERIC_SOLAR_1AXIS		Development	WDT-2597	NA	NA	NA	2	2	1	5	NewSola NewSto age	NO
CES Elect on Fa m PCC1 DAC 1 LT MCE	NEW GENERIC SOLAR 1AXIS		Development			NA	NA	0	0	0	1	NotHyb d	
CES Elect on Fa m PCC1 DAC 2 LT MCE	NEW GENERIC SOLAR 1AXIS		Development			NA	NA	4	4	0	12	NotHyb d	
Daggett PCC1 1 LT MCE	NEW GENERIC SOLAR 1AXIS		Development	Q-1314	NA	NA	NA	110	110	66	317	NewSola NewSto age	NO
Ma sh Land ng LLC RA 1 BAF MCE	COCOPP 2 CTG4		Onl ne		NA	NA	NA		81	77	0	NotHyb d	
WELLHEAD RA 3 POP MCE	AGRICO 7 UNIT		Onl ne		NA	NA	NA		50	48	0	NotHyb d	
CALPINE RA 35 S F MCE	BOGUE 1 UNITA1		Onl ne		NA	NA	NA		32	32	0	NotHyb d	
CALPINE RA 34 NS MCE	SUTTER 2 CTG1		Onl ne		NA	NA	NA		70	70	0	NotHyb d	
CALPINE RA 44 NS MCE	_EXISTING_GENERIC_COMBINED_CYCLE		Onl ne		NA	NA	NA		25	25	0	NotHyb d	
CALPINE RA 67 NS MCE	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne		NA	NA	NA		15	15	0	NotHyb d	
CALPINE RA 68 NSF MCE	EXISTING GENERIC COMBINED CYCLE		Onl ne		NA	NA	NA		15	15	0	NotHyb d	
ENERSPONSE RA 2 SS MCE	EXISTING GENER C_DR		Onl ne		NA	NA	NA	20	20	20	0	NotHyb d	
Hecate Sto age RA 2024	NEW GENERIC BATTERY STORAGE		Development			NA	NA	185	185	185	0	NotHyb d	
EBMUD B1 MCE	CAMCHE 1 PL1X3		Onl ne		NA	NA	NA	10		0	46	NotHyb d	
EBMUD B1 MCE	PARDEB 6 UNITS		Onl ne		NA	NA	NA	30		0	140	NotHyb d	
SENA CF 13 MCE	EX STING GENERIC INSTATE LARGE HYDRO		Onl ne		NA	NA	NA			0	200	NotHyb d	
MSCG CF 5 MCE	EX STING GENERIC NW HYDRO		Onl ne		NA	NA	NA			0	400	NotHyb d	
B ooklfield CF 4 MCE	EX STING GENERIC NW HYDRO		Onl ne		NA	NA	NA			0	200	NotHyb d	
TENASKA CF 2 MCE	EXCHEC 7 UNIT 1		Onl ne		NA	NA	NA	95		0	120	NotHyb d	
POWEREX CF 3 MCE	_EX STING_GENERIC_NW_HYDRO		Onl ne		NA	NA	NA			0	250	NotHyb d	
Powe ex CF 4 MCE	EX STING GENERIC NW HYDRO		Onl ne		NA	NA	NA			0	206	NotHyb d	
Powe ex CF 5 MCE	EX STING GENERIC NW HYDRO		Onl ne		NA	NA	NA			0	100	NotHyb d	
WAPA BR_MCE	EX STING_GENERIC_INSTATE_LARGE_HYDRO		Onl ne		NA	NA	NA			0	25	NotHyb d	
WAPA BR 2 MCE	EX STING GENERIC INSTATE LARGE HYDRO		Onl ne		NA	NA	NA			0	25	NotHyb d	
OHGF ee A locat on	EX STING GENERIC INSTATE LARGE HYDRO		PlannedEx st ng							0	500	NotHyb d	
DR_ _ r	EXISTING_GENER C_DR		O l							19	0	N_HY	
[redacted]													
Gene c LT W nd NM 2030	CREZ GENER C_NEW_MEX CO_WIND		PlannedNew	w nd mpo t planned				70	70	20	250	NotHyb d	
Gene c LT W nd 2033	EZ_GENER C_MORRO_BAY_OFFSHORE_WIND		PlannedNew	w nd_ca so_planned				95	95	41	400	NotHyb d	
Gene c LT Geothe mal 2030	NEW GENERIC GEOTHERMAL		PlannedNew	geothe mal mpo t planned				75	75	70	580	NotHyb d	
MTR LDS 2026	NEW GENERIC BATTERY STORAGE		PlannedNew	batte y ca so planned				40	40	40	0	NotHyb d	
VAMO ST B omass	EX STING_GENER C_BIOMASS/WOOD		Onl ne							0	33	NotHyb d	
VAMO ST Sola PV	EXISTING GENER C SOLAR FIXED		Onl ne							0	206	NotHyb d	
VAMO ST W nd	EXISTING GENERIC WIND		Onl ne							0	165	NotHyb d	
VAMO ST Small Hyd o	EX STING GENERIC INSTATE SMALL HYDRO		Onl ne							0	14	NotHyb d	
VAMO ST Geothe mal	EX STING GENERIC GEOTHERMAL		Onl ne							0	70	NotHyb d	
Gene c ST B omass	_EX STING_GENER C_BIOMASS/WOOD		PlannedEx st ng							0	20	NotHyb d	
Gene c ST Sola	EXISTING GENER C SOLAR FIXED		PlannedEx st ng							0	99	NotHyb d	
Gene c ST W nd	EXISTING GENERIC WIND		PlannedEx st ng							0	378	NotHyb d	
Gene c ST Small Hyd o	EX STING_GENERIC_INSTATE_SMALL_HYDRO		PlannedEx st ng							0	40	NotHyb d	
Gene c ST Geothe mal	EX STING GENERIC GEOTHERMAL		PlannedEx st ng							0	125	NotHyb d	
Gene c ST La ge Hyd o/AC5	EX STING GENERIC NW HYDRO		PlannedEx st ng							0	144	NotHyb d	
Gene c LDS 2030	NEW GENERIC BATTERY STORAGE		PlannedNew	batte y ca so planned				50	50	50	0	NotHyb d	
Gene c 4 Hou Sto age 2028	NEW GENERIC BATTERY STORAGE		PlannedNew	batte y ca so planned				200	200	200	0	NotHyb d	
Gene c 4 Hou Sto age 2034	NEW GENERIC BATTERY STORAGE		PlannedNew	batte y ca so planned				200	200	200	0	NotHyb d	
Gene c CCGT RA 2023	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					750	750	750	0	NotHyb d	
Gene c CCGT RA 2024	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					686	686	686	0	NotHyb d	
Gene c CCGT RA 2025	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					639	639	639	0	NotHyb d	
Gene c CCGT RA 2026	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					731	731	731	0	NotHyb d	
Gene c CCGT RA 2027	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					672	672	672	0	NotHyb d	
Gene c CCGT RA 2028	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					498	498	498	0	NotHyb d	
Gene c CCGT RA 2029	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					535	535	535	0	NotHyb d	
Gene c CCGT RA 2030	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					425	425	425	0	NotHyb d	
Gene c CCGT RA 2031	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					518	518	518	0	NotHyb d	
Gene c CCGT RA 2032	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					542	542	542	0	NotHyb d	
Gene c CCGT RA 2033	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					530	530	530	0	NotHyb d	
Gene c CCGT RA 2034	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					541	541	541	0	NotHyb d	
Gene c CCGT RA 2035	EXISTING GENERIC COMBINED CYCLE		PlannedEx st ng					549	549	549	0	NotHyb d	
RESI RA 2 NS MCE	NEW GENERIC DR		Rev ew	d ca so planned				15	15	15	0	NotHyb d	
PGE Onl ne cogt 1	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne						44	44	0	NotHyb d	
PGE Onl ne cogt 2	EXISTING GENERIC COMBINED CYCLE		Onl ne						39	39	0	NotHyb d	
PGE Onl ne cogt 3	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne						61	61	0	NotHyb d	
PGE Onl ne chp	EXISTING GENERIC COGEN		Onl ne						4	4	0	NotHyb d	
PGE Onl ne chp 1	EXISTING GENERIC COGEN		Onl ne						3	0	5	NotHyb d	
PGE Onl ne chp 2	EXISTING_GENERIC_COGEN		Onl ne						1	1	7	NotHyb d	
PGE Onl ne batte y	EX STING GENER C_BATTERY STORAGE		Onl ne						23	23	0	NotHyb d	
PGE Development batte y 1	NEW GENERIC BATTERY STORAGE		Development						6	5	0	NotHyb d	
PGE_Development_batte y_2	_NEW_GENERIC_BATTERY_STORAGE		Development						0	0	0	NotHyb d	

lse_unique_contract_id	total_generator_mw	contracted_generator_mw	total_storage_mw	contracted_storage_mw	solar_technology_sub_type	storage_technology_sub_type	total_storage_depth_mwh	contracted_storage_depth_mwh	viability_cod_reasonableness	viabil ty_technical_feasibility	viability_f nancing_sitecontrol	resource_mix	di911016_vamo_ghgfree	buy_sell_own
Ost onn_MCE														
Hay MCE														
Geyse s MCE														
L ncoln MCE														
Voyage II MCE														
WM MCE														
Antelope 2 MCE					1Ax s									
Cooley l MCE					F xed									
Cost Plus_MCE					F xed									
Dese t Ha vest MCE					1Ax s									
F eethy1 MCE					F xed									
F eethy2 MCE					F xed									
G ost Valley MCE					1Ax s									
L ttle Bea 1 MCE					1Ax s									
L ttle Bea 3 MCE					1Ax s									
L ttle Bea 4 MCE					1Ax s									
L ttle Bea 5 MCE					1Ax s									
SR A po t MCE					F xed									
Mustang MCE					1Ax s									
Soscal Fe y Sola C_MCE					F xed									
Soscal Fe y Sola D MCE					F xed									
Ame can Canyon Sola A MCE					F xed									
Ame can Canyon Sola B MCE					F xed									
Ame can Canyon Sola C MCE					F xed									
S lve a Ranch A MCE					F xed									
S lve a Ranch B MCE					F xed									
SR A po t 2 MCE					F xed									
ED P oducts MCE					F xed									
Oakley RV B Bost Sto age MCE					F xed									
DRES Qua y 2.4 MCE					F xed									
Co co an MCE					F xed									
Goosi e Lake MCE					F xed									
Buck MCE					F xed									
MCE Sola 1 8.5 MCE					F xed									
MCE Sola 1 2.0 MCE					F xed									
Ke n Tule PCC1 1 LT MCE														
S lve a Ranch C_MCE					F xed									
Lake He man PCC1 1 LT MCE					F xed									
By on Sola PCC1 1 LT MCE					F xed									
St auss PCC1 1 LT MCE									4	3	5			
By on Sola PCC1 2 LT MCE					F xed									
Haywo th_PCC1_1_LT_MCE					F xed									
Fallon PCC1 1 LT MCE					F xed									
RPCA PCC1 1 LT MCE					F xed				4	3	4			
Napa PCC1 1 LT MCE					F xed									
CMSA PCC1 2 LT MCE														
EBCE PCC1 Sale 1 MCE					F xed									Sell
SJCE_PCC1_Sale_1_MCE					F xed									Sell
PCEA PCC1 Sale 1 MCE					F xed									Sell
Golden F elds PCC1 LT MCE	100	100	92	92	1Ax s	L	368	368	4	3	3			
Ranch Se eno_PCC1_LT_MCE	2	2	0 8	0 8	F xed	L	3 2	3 2	4	3	3			
CES Elect on Fa m PCC1 DAC 1 LT MCE					F xed				4	3	3			
CES Elect on Fa m PCC1 DAC 2 LT MCE					F xed				4	3	3			
Daggett PCC1 1 LT MCE	110	110	60	60	1Ax s	L	240	240	4	3	5			
Ma sh Land ng LLC RA 1 BAF MCE														
WELLHEAD_RA 3_POF_MCE														
CALPINE RA 35 5 F MCE														
CALPINE RA 34 NS MCE														
CALPINE RA 44_NS_MCE														
CALPINE RA 67 NS MCE														
CALPINE RA 68 NSF MCE														
ENERSPONSE_RA 2_SS_MCE														
Hecate Sto age RA 2024						L	740	740	4	3	5			
EBMUD B1 MCE														
EBMUD B1 MCE														
SENA CF 13 MCE														
MSCG CF 5 MCE														
B ooklfdd CF 4 MCE														
TENASKA CF 2 MCE														
POWEREX_CF_3 MCE														
Powe ex CF 4 MCE														
Powe ex CF 5 MCE														
WAPA BR MCE														
WAPA BR 2 MCE														
GHG F ee A locat on													GHG F ee PCIA	Buy
DR A locat on														Buy
[redacted]														
OS22 New W nd 2026									1	2	1			
Gene c LT W nd NM 2030									1	2	1			
Gene c LT W nd 2033									1	2	1			
Gene c LT Geothe mal 2030									1	2	1			
MTR LDS 2026						L	320	320	1	1	1			
VAMO_ST_B omass													VAMO	Buy
VAMO_ST_Sola PV													VAMO	Buy
VAMO ST W nd													VAMO	Buy
VAMO ST Small Hyd o													VAMO	Buy
VAMO ST Geothe mal													VAMO	Buy
Gene c ST B omass														
Gene c ST Sola														
Gene c ST W nd														
Gene c ST Small Hyd o														
Gene c ST Geothe mal														
Gene c ST La ge Hyd o/AC5														
Gene c LDS 2030						L	400	400	1	1	1			
Gene c 4 Hou Sto age 2028						L	800	800	1	2	1			
Gene c 4 Hou Sto age 2034						L	800	800	1	2	1			
Gene c CCGT RA 2023														
Gene c CCGT RA 2024														
Gene c CCGT RA 2025														
Gene c CCGT RA 2026														
Gene c CCGT RA 2027														
Gene c CCGT RA 2028														
Gene c CCGT RA 2029														
Gene c CCGT RA 2030														
Gene c CCGT RA 2031														
Gene c CCGT RA 2032														
Gene c CCGT RA 2033														
Gene c CCGT RA 2034														
Gene c CCGT RA 2035														
RESI RA 2 NS MCE									4	3	5			
PGE Onl ne cogt 1													CAM	
PGE Onl ne cogt 2													CAM	
PGE Onl ne_cogt_3													CAM	
PGE Onl ne chp													CAM	
PGE Onl ne chp 1													CAM	
PGE Onl ne_chp_2													CAM	
PGE Onl ne batte y						L		93.23439546					CAM	
PGE Development batte y 1						L		23.30859887					CAM	
PGE_Development_batte y_2						L		0.385368835					CAM	

lse_unique_contract_id	counterparty	generator_supplier	developer_name	capacity_area	capacity_sub_area	cpuc_approval_ref	county	COD_year	COD_month	COD_day	contract_start_date_year	contract_start_date_month	contract_start_date_day	contract_end_date_year	contract_end_date_month	contract_end_date_day
Ost onn_MCE			NA	S e a			YubaCounty	2013	7	1	2013	7	1	2031	6	30
Hay MCE			NA	PacGE			SolanoCounty	2013	7	1	2013	7	1	2033	6	30
Geyse s MCE			NA	No thCoastNo thBay			SonomaCounty	1980	1	1	2017	1	1	2026	12	31
L ncoln MCE			NA	S e a			Place County	1985	1	1	2013	2	14	2033	2	13
Voyage II MCE			NA	SCE			Ke nCounty	2018	12	29	2018	12	29	2030	12	28
WM MCE			NA	No thCoastNo thBay	No sub a ea		Ma nCounty	2017	9	14	2017	9	14	2037	9	13
Antelope 2 MCE			NA	B gC oekVentu a			LosAngelesCounty	2019	1	1	2019	1	1	2038	12	31
Cooley I MCE			NA	G eate Bay			Ma nCounty	2017	7	5	2017	3	1	2037	2	28
Cost Plus_MCE			NA	G eate Bay			Ma nCounty	2016	9	1	2016	9	1	2036	8	31
Dese t Ha vest MCE			NA	SCE			R ve s deCounty	2020	12	17	2020	12	17	2040	12	16
F eethy1 MCE			NA	G eate Bay			Cont aCostaCount	2016	10	6	2016	10	6	2036	10	5
F eethy2 MCE			NA	G eate Bay			Cont aCostaCount	2016	10	6	2016	10	6	2036	10	5
G ust Valley MCE			NA	G eate F esno			F esnoCounty	2018	4	14	2018	4	14	2033	4	13
L ttle Bea 1 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 3 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 4 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 5 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
SR A po t MCE			NA	G eate Bay			Ma nCounty	2012	10	23	2012	10	23	2032	10	22
Mustang MCE			NA	G eate F esno			K ngsCounty	2015	6	25	2015	6	25	2032	12	31
Soscal Fe y Sola C_MCE			NA	PacGE			NapaCounty	2020	12	11	2020	8	30	2040	8	29
Soscal Fe y Sola D MCE			NA	PacGE			NapaCounty	2020	12	11	2020	8	30	2040	8	29
Ame can Canyon Sola A MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
Ame can Canyon Sola B MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
Ame can Canyon Sola C MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
S lve a Ranch A MCE			NA	PacGE			Ma nCounty	2021	3	30	2021	3	30	2041	3	29
S lve a Ranch B MCE			NA	PacGE			Ma nCounty	2021	3	30	2021	3	30	2041	3	29
SR A po t2 MCE			NA	PacGE			Ma nCounty	2020	8	28	2020	9	30	2040	9	29
ED P oducts MCE			NA	G eate Bay			Ma nCounty	2018	12	10	2018	12	10	2038	12	9
Oakley RV & Boat Sto age MCE			NA	G eate Bay			Cont aCostaCount	2018	7	23	2018	7	31	2038	7	30
DRES Qua y 2.4 MCE			NA	G eate Bay			Ma nCounty	2019	5	24	2019	5	14	2039	5	13
Co co an MCE			NA	G eate F esno			K ngsCounty	2015	5	22	2015	5	22	2040	4	30
Goose Lake MCE			NA	G eate F esno			K ngsCounty	2015	5	22	2015	5	22	2040	4	30
Buck MCE			NA	G eate Bay			Ma nCounty	2015	5	22	2015	5	22	2040	4	30
MCE Sola 1_8.5_MCE			NA	G eate Bay	No sub a ea		Cont aCostaCount	2017	12	22	2017	12	22	2037	12	21
MCE Sola 1 2.0 MCE			NA	G eate Bay	No sub a ea		Cont aCostaCount	2017	12	22	2017	12	22	2037	12	21
Ke n Tule PCC1 1 LT MCE			NA	PacGE			Ke nCounty	2021	6	9	2021	7	5	2036	7	4
S lve a Ranch C_MCE			NA	PacGE			NapaCounty	2021	3	30	2021	3	30	2041	3	29
Lake He man PCC1 1 LT MCE			NA	PacGE			SolanoCounty	2021	9	14	2021	9	30	2041	9	29
By on Sola PCC1 1 LT MCE			NA	PacGE			Cont aCostaCount	2022	5	21	2022	5	21	20 2	5	20
St auss PCC1 1 LT MCE			BayWa RE	PacGE	No sub a ea		SantaBa ba aCount	[redacted]								
By on Sola PCC1 2 LT MCE			NA	PacGE			Cont aCostaCount	2021	12	10	2021	12	1	2041	11	30
Haywo th_PCC1_1_LT_MCE			NA	PacGE			Cont aCostaCount	2022	3	7	2021	10	1	2041	9	30
Fallon PCC1 1 LT MCE			NA	PacGE			Ma nCounty	2022	4	4	2021	12	1	2041	11	30
RPCA PCC1 1 LT MCE			RPCA Sola 3_LLC	PacGE			Cont aCostaCount	2022	11	30	2022	11	30	2042	11	29
Napa PCC1_1 LT_MCE			NA	PacGE			NapaCounty	2022	4	13	2021	11	1	2041	10	31
CMSA PCC1 2 LT MCE			NA	G eate Bay			Ma nCounty	2022	7	15	2022	7	16	2032	7	15
EBCE PCC1 Sale 1 MCE	East Bay Commun ty Ene gy		NA	G eate F esno			K ngsCounty	2015	5	22	2021	9	6	2024	12	31
SJCE_PCC1_Sale_1_MCE	San Jose Clean Ene gy		NA	G eate F esno			K ngsCounty	2015	5	22	2021	11	1	2024	12	31
PCEA PCC1 Sale 1 MCE	Pen nsula Clean Ene gy Autho ty		NA	G eate F esno			K ngsCounty	2015	5	22	2022	1	17	2024	12	31
Golden Fields PCC1 LT MCE			Clea way Ene gy G oup	SCE	No sub a ea		Ke nCounty	2025	3	1	2025	3	1	2040	2	29
Ranch Se eno_PCC1_LT_MCE			Ranch Se eno Clean Powe LLC	PacGE			Cont aCostaCount	2024	2	22	2024	2	22	2044	2	21
CES Elect on Fa m PCC1 DAC 1 LT MCE			CES Elect on Fa m One, LLC	PacGE			F esnoCounty	2023	12	31	2023	12	31	2043	12	30
CES Elect on Fa m PCC1 DAC 2 LT MCE			CES Elect on Fa m One, LLC	PacGE			F esnoCounty	2023	12	31	2023	12	31	2043	12	30
Daggett PCC1 1 LT MCE			Clea way Ene gy G oup	SCE	No sub a ea		SanBe na d nocoun	2023	8	28	2023	8	28	2038	8	27
Ma sh Land ng LLC RA 1 BAF MCE			NA	G eate Bay			Cont aCostaCount	2013	5	1	2023	5	1	2026	9	30
WELLHEAD RA 3_POF_MCE			NA	G eate F esno			F esnoCounty	2001	1	1	2020	1	1	2030	12	31
CALPINE RA 35 5 F MCE			NA	S e a			Sutte County	2002	12	23	2023	1	1	2024	12	31
CALPINE RA 34 NS MCE			NA	BANC	No sub a ea		Sutte County	2001	7	1	2021	1	1	2023	12	31
CALPINE RA 44_NS_MCE			NA	PacGE			Cal fo n a				2022	1	1	2028	12	31
CALPINE RA 67 NS MCE			NA	PacGE			Cal fo n a				2022	7	1	2030	12	31
CALPINE RA 68 NSF MCE			NA	PacGE			Cal fo n a				2023	1	1	2030	12	31
ENERSPONSE RA 2_SS_MCE			NA	PacGE			Cal fo n a				2023	4	1	2025	12	31
Hecate Sto age RA 2024			Hecate G d	SCE			LosAngelesCounty	2024	4	1	2024	4	1	2034	3	31
EBMUD B1 MCE			NA	Stockton			SanJoaqu nCounty	1983	1	1	2015	7	1	2025	6	30
EBMUD B1 MCE			NA	PacGE			Calave asCounty	1930	1	1	2023	1	1	2024	12	31
SENA CF 13 MCE			NA	PacGE			Cal fo n a				2024	1	1	2024	12	31
MSCG CF 5 MCE			NA	PACW			O egon				2021	1	1	2024	12	31
B ooklfield CF 4 MCE			NA	PACW			O egon				2021	1	1	2024	12	31
TENASKA CF 2 MCE			NA	S e a			Place County	1966	1	1	2022	1	1	2024	12	31
POWEREX_CF_3_MCE			NA	PACW			O egon				2023	1	1	2025	12	31
Powe ex CF 4 MCE			NA	PACW			O egon				2022	5	20	2025	12	31
Powe ex CF 5 MCE			NA	PACW			O egon				2023	1	1	2025	12	31
WAPA_BR_MCE			NA	BANC			Cal fo n a				2015	1	1	2024	12	31
WAPA BR 2 MCE			NA	BANC			Cal fo n a				2025	1	1	2054	12	31
GHG F ee A locat on	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2024	1	1	2043	12	31
DR A locat on	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
[redacted]																
OS22 New W nd 2026			Unknown	SCE			Ke nCounty	2026	1	1	2026	1	1	2045	12	31
Gene c LT W nd NM 2030			Unknown	PacGE			NewMex co	2030	1	1	2030	1	1	2049	12	31
Gene c LT W nd 2033			Unknown	PacGE			Cal fo n a	2033	1	1	2033	1	1	2052	12	31
Gene c LT Geothe mal 2030			Unknown	I D			Impe alCounty	2030	1	1	2030	1	1	2049	12	31
MTR LDS 2026			Unknown	PacGE			Cont aCostaCount	2026	1	1	2026	1	1	2045	12	31
VAMO ST B omass	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Sola PV	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST W nd	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Small Hyd o	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Geothe mal	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
Gene c ST B omass			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Sola			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST W nd			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Small Hyd o			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Geothe mal			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST La ge Hyd o/AC5			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c LDS 2030			Unknown	PacGE			Cont aCostaCount	2030	1	1	2030	1	1	2049	12	31
Gene c 4 Hou Sto age 2028			Unknown	PacGE			SolanoCounty	2028	1	1	2028	1	1	2047	12	31
Gene c 4 Hou Sto age 2034			Unknown	PacGE			NapaCounty	2034	1	1	2034	1	1	2053	12	31
Gene c CCGT RA 2023			NA	PacGE			Cal fo n a				2023	1	1	2023	12	31
Gene c CCGT RA 2024			NA	PacGE			Cal fo n a				2024	1	1	2024	12	31
Gene c CCGT RA 2025			NA	PacGE			Cal fo n a				2025	1	1	2025	12	31
Gene c CCGT RA 2026			NA	PacGE			Cal fo n a				2026	1	1	2026	12	31
Gene c CCGT RA 2027			NA	PacGE			Cal fo n a				2027	1	1	2027	12	31
Gene c CCGT RA 2028			NA	PacGE			Cal fo n a				2028	1	1	2028	12	31
Gene c CCGT RA 2029			NA	PacGE			Cal fo n a				2029	1	1	2029	12	31
Gene c CCGT RA 2030			NA	PacGE			Cal fo n a				2030	1	1	2030	12	31
Gene c CCGT RA_2031			NA	PacGE			Cal fo n a				2031	1	1	2031	12	31
Gene c CCGT RA 2032			NA	PacGE			Cal fo n a				2032	1	1	2032	12	31
Gene c CCGT RA 2033			NA	PacGE			Cal fo n a				2033	1	1	2033	12	31
Gene c CCGT RA_2034			NA	PacGE			Cal fo n a				2034	1	1	2034	12	31
Gene c CCGT RA 2035			NA	PacGE			Cal fo n a				2035	1	1	2035	12	31
RESI RA 2 NS MCE			Res Stat on, LLC	PacGE			Cal fo n a	2023	1	1	2023	1	1	2032	12	31
PGE Onl ne cogt 1	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2026	12	31
PGE Onl ne cogt 2	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2025	12	31
PGE Onl ne_cogt_3	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2024	12	31
PGE Onl ne chp	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2024	12	31
PGE Onl ne chp 1	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2025	12	31
PGE Onl ne_chp_2	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2026	12	31
PGE Onl ne batte y	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2035	12	31
PGE Development batte y 1	Pac f c Gas & Elect c							2024	1	1	2025	1	1	2035	12	31
PGE_Development_batte y_2	Pac f c Gas & Elect c							2024	1	1	2024	1	1	2035	12	31

lse_unique_contract_id	contract_execution_date_year	contract_execut on_date_month	contract_execut on_date_day	tx_upgrades	tx_upgrade_date_year	tx_upgrade_date_month	tx_upgrade_date_day	tx_upgrade_descript on	d1911016_tranche	d2106035_procurement_cat	mtr_tranche1_NQC	mtr_tranche2_NQC	mtr_tranche3_NQC	mtr_tranche4_NQC_LDES	mtr_tranche4_NQC_firm_ZE	mtr_NQC_ZE_gen_paired_dr	previous_COD_year
Ost onn_MCE	2010	12	3						NA	NA							
Hay MCE	2010	12	3						NA	NA							
Geyse r_MCE	2013	7	11						NA	NA							
L ncoln MCE	2012	7	6						NA	NA							
Voyage II MCE	2016	12	5						NA	NA							
WM MCE	2014	11	6	NA					3	NA							2017
Antelope 2 MCE	2016	11	15						NA	NA							
Cooley I MCE	2014	10	7						NA	NA							
Cost Plus_MCE	2015	4	14						NA	NA							
Dese t Ha vest MCE	2016	11	18						NA	NA							
F eethy1 MCE	2015	9	4						NA	NA							
F eethy2 MCE	2015	9	4						NA	NA							
G ust Valley MCE	2016	9	15						NA	NA							
L ttle Bea 1 MCE	2016	9	23						NA	NA							
L ttle Bea 3 MCE	2016	9	23						NA	NA							
L ttle Bea 4 MCE	2016	9	23						NA	NA							
L ttle Bea 5 MCE	2016	9	23						NA	NA							
SR A po t MCE	2012	5	8						NA	NA							
Mustang MCE	2014	10	3						NA	NA							
Soscal Fe y Sola C_MCE	2018	8	30						NA	NA							
Soscal Fe y Sola D MCE	2018	8	30						NA	NA							
Ame can Canyon Sola A MCE	2018	8	30						NA	NA							
Ame can Canyon Sola B MCE	2018	8	30						NA	NA							
Ame can Canyon Sola C MCE	2018	8	30						NA	NA							
S lve a Ranch A MCE	2019	3	7						NA	NA							
S lve a Ranch B MCE	2019	3	7						NA	NA							
SR A po t2 MCE	2018	10	24						NA	NA							
ED P oducts MCE	2018	10	31						NA	NA							
Oakley RV & Boat Sto age MCE	2018	5	8						NA	NA							
DRES Qua y 2.4 MCE	2018	3	23						NA	NA							
Co co an MCE	2011	7	8						NA	NA							
Goose Lake MCE	2011	7	8						NA	NA							
Buck MCE	2011	7	8						NA	NA							
MCE Sola 1_8.5_MCE	2017	5	30	NA					3	NA							2017
MCE Sola 1 2.0 MCE	2017	5	30	NA					3	NA							2017
Ke n Tule PCC1 1 LT MCE	2020	1	22						NA	NA							
S lve a Ranch C_MCE	2019	3	7						NA	NA							
Lake He man PCC1 1 LT MCE	2020	7	29						NA	NA							
By on Sola PCC1 1 LT MCE	2020	10	15						NA	NA							
St auss PCC1 1 LT MCE	2018	10	19	YES				Completed	3	NA							2022
By on Sola PCC1 2 LT MCE	2020	12	11						NA	NA							
Haywo th_PCC1_1_LT_MCE	2021	3	8						NA	NA							
Fallon PCC1 1 LT MCE	2021	4	5						NA	NA							
RPCA PCC1 1 LT MCE	2021	3	29						NA	NA							
Napa PCC1 1 LT MCE	2021	4	14						NA	NA							
CMSA PCC1 2 LT MCE	2021	7	16						NA	NA							
EBCE PCC1 Sale 1 MCE	2021	9	6						NA	NA							
SJCE_PCC1_Sale_1_MCE	2021	11	1						NA	NA							
PCEA PCC1 Sale 1 MCE	2021	11	29						NA	NA							
Golden Fields PCC1 LT MCE	2022	2	4	YES	2024	10	1		NA	gene al & ZE gen pa ed d			75			61.3	
Ranch Se eno_PCC1_LT_MCE	2022	2	23	NO					NA	NA							
CES Elect on Fa m PCC1 DAC 1 LT MCE	2022	3	20						NA	NA							
CES Elect on Fa m PCC1 DAC 2 LT MCE	2022	3	20						NA	NA							
Daggett PCC1 1 LT MCE	2020	9	25	YES					NA	gene al & ZE gen pa ed d	58	7.9				48.1	2022
Ma ch Land ng LLC RA 1 BAF MCE	2022	7	26						NA	NA							
WELLHEAD RA 3 POF MCE	2019	8	1						NA	NA							
CALPINE RA 35 5 F MCE									NA	NA							
CALPINE RA 34 NS MCE	2020	2	28	NA					1&2	NA							2001
CALPINE RA 44 NS MCE									NA	NA							
CALPINE RA 67 NS MCE									NA	NA							
CALPINE RA 68 NSF MCE									NA	NA							
ENERSPONSE RA 2 SS MCE									NA	NA							
Hecate Sto age RA 2024	2022	8	4						NA	gene al		167.795					
EBMUD B1 MCE	2015	6	22						NA	NA							
EBMUD B1 MCE	2015	6	22						NA	NA							
SENA CF 13 MCE	2019	4	26						NA	NA							
MSCG CF 5 MCE	2020	9	15						NA	NA							
B ooklfield CF 6 MCE	2020	2	14						NA	NA							
TENASKA CF 2 MCE	2021	12	17						NA	NA							
POWEREX_CF_3 MCE	2022	4	11						NA	NA							
Powe ex CF 4 MCE	2022	5	18						NA	NA							
Powe ex CF 5 MCE	2022	5	18						NA	NA							
WAPA BR_MCE	2011	12	14						NA	NA							
WAPA BR 2 MCE	2021	3	18						NA	NA							
GHG F ee A locat on									NA	NA							
DR A locat on									NA	NA							
[redacted]																	
OS22 New W nd 2026									NA	NA							
Gene c LT W nd NM 2030									NA	NA							
Gene c LT W nd 2033									NA	NA							
Gene c LT Geothe mal 2030									NA	NA							
MTR LDS 2026									NA	long du at on sto age				31.28			
VAMO ST B omass									NA	NA							
VAMO ST Sola PV									NA	NA							
VAMO ST W nd									NA	NA							
VAMO ST Small Hyd o									NA	NA							
VAMO ST Geothe mal									NA	NA							
Gene c ST B omass									NA	NA							
Gene c ST Sola									NA	NA							
Gene c ST W nd									NA	NA							
Gene c ST Small Hyd o									NA	NA							
Gene c ST Geothe mal									NA	NA							
Gene c ST La ge Hyd o/AC5									NA	NA							
Gene c LDS 2030									NA	NA							
Gene c 4 Hou Sto age 2028									NA	NA							
Gene c 4 Hou Sto age 2034									NA	NA							
Gene c CCGT RA 2023									NA	NA							
Gene c CCGT RA 2024									NA	NA							
Gene c CCGT RA 2025									NA	NA							
Gene c CCGT RA 2026									NA	NA							
Gene c CCGT RA 2027									NA	NA							
Gene c CCGT RA 2028									NA	NA							
Gene c CCGT RA 2029									NA	NA							
Gene c CCGT RA 2030									NA	NA							
Gene c CCGT RA 2031									NA	NA							
Gene c CCGT RA 2032									NA	NA							
Gene c CCGT RA 2033									NA	NA							
Gene c CCGT RA 2034									NA	NA							
Gene c CCGT RA 2035									NA	NA							
RESI RA 2 NS MCE	2022	8	31	NA					3								
PGE Onl ne cogt 1	2017	1	1														
PGE Onl ne cogt 2	2017	1	1														
PGE Onl ne_cogt_3	2017	1	1														
PGE Onl ne chp	2017	1	1														
PGE Onl ne chp 1	2017	1	1														
PGE Onl ne_chp_2	2017	1	1														
PGE Onl ne batte y	2017	1	1														
PGE Development batte y 1	2022	1	1														
PGE_Development_batte y_2	2022	1	1														

lse_unique_contract_id	prev ous_COD_month	previous_COD_day	remediat on_plan	signed_contract	notice_to_proceed	public_contract	buying_energy_capac ty	NQC_reporting_source	procurement_origin	csp_resource_category	csp_annual_2024	csp_annual_2026	csp_annual_2030	csp_annual_2035	macro_supertype	notes
Ost om_MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	12	12	12	0	phys cal	
Hay MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	11	11	11	0	phys cal	
Geyse s MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Geothe rmal (GWh)	88	88	0	0	phys cal	
L ncoln MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	27	27	27	0	phys cal	
Voyage II MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	W ind Ex st ng Cal fo n a (GWh)	138	138	137	0	phys cal	
WM MCE	9	14	NO	YES	NO	YES	E gyCapac ty	C lc ate	RPS, R	B gas GWh	30	0	0	3	y cal	executed cont act n ts Feb ua y 1, 2021 compl anc
Antelope 2 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	294	292	286	279	phys cal	
Cooley I MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
Cost Plus_MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	1	1	1	1	ex st nggene c	
Dese t Ha vest MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	258	255	250	243	phys cal	
F eethy 1 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
F eethy 2 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
G ost Valley MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	286	284	281	0	phys cal	
L ttle Bea 1 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	108	107	105	102	phys cal	
L ttle Bea 3 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	54	53	52	51	phys cal	
L ttle Bea 4 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	135	133	131	127	phys cal	
L ttle Bea 5 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	135	133	131	127	phys cal	
SR A po t MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	0	ex st nggene c	
Mustang MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	82	81	79	0	phys cal	
Soscal Fe y Sola C_MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Soscal Fe y Sola D MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola A MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola B MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola C MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
S lve a Ranch A MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
S lve a Ranch B MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
SR A po t 2 MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	0	ex st nggene c	
ED P oducts MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	0	0	ex st nggene c	
Oakley RV B Stot Sto age MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
DRES Qua y 2.4 MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	0	0	ex st nggene c	
Co co an MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	28	28	27	26	phys cal	
Goose Lake MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	31	30	30	29	phys cal	
Buck MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	2	1	ex st nggene c	
MCE Sola 1_8.5_MCE	12	22	NO	YES	NO	YES	E gyCapa ty	C lc ate	RPS, R	S l Ex st g l o a GWh)	17	7	7	1	y cal	executed cont act n ts Feb ua y 1, 2021 compl anc
MCE Sola 1_2.0_MCE	12	22	NO	YES	NO	YES	En g Ca ac y	C lc t d	RPS RA	S la E st Ca fo l W)	4		4		h s al	executed cont act n ts Feb ua y 1, 2021 compl anc
Ke n Tule PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sma l Hyd o (GWh)	37	37	37	37	phys cal	
S lve a Ranch C_MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Lake He man PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
By on Sola PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
St auss PCC1 1 LT MCE	7	1	YES	YES	YES	a y n c a at on	e y a a t	C lc t d	RP , R	W Ne PG E(GWh)	91	2	90	290	y l	med at on Plan and (2) a P oject T met ne. tn ts Feb
By on Sola PCC1 2 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	8	8	8	8	ex st nggene c	
Haywo tth_PCC1_1_LT_MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
Fallon PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
RPCA PCC1 1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola D st buted (GWh)	14	14	14	13	newgene c	Feed n ta ff
Napa PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	1	1	ex st nggene c	
CMSA PCC1 2 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	B omass (GWh)	4	4	4	0	ex st nggene c	
EBCE PCC1 Sale 1 MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	8	0	0	0	phys cal	
SJCE_PCC1_Sale_1_MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	4	0	0	0	phys cal	
PCEA PCC1 Sale 1 MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	10	0	0	0	phys cal	
Golden F elds PCC1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene y apa ty	C lc ate	RPS D.21-06- 35	o P e So an Batte (GWh)	0	0	295	5	n w n	count towa ds meet ng the subset of MCE's equ em
Ranch Se eno_PCC1_LT_MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola D st buted (GWh)	5	5	5	5	newgene c	Feed n ta ff
CES Elect on Fa m PCC1 DAC 1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola D st buted (GWh)	1	1	1	1	newgene c	Feed n ta ff
CES Elect on Fa m PCC1 DAC 2 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS	Sola D st buted (GWh)	12	12	12	12	newgene c	Feed n ta ff
Daggett PCC1 1 LT MCE	12	31	NA	YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Cal lated	RPS R	Hy Pa S la a d tt G	328	32	319	31	n en c	MCE also expects th s esou ce to count towa ds me
Ma sh Land ng LLC RA 1 BAF MCE						YES	Capac tyOnly	Calculated	RA	NA	0	0	0	0	phys cal	
WELLHEAD RA 3_POP_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	phys cal	
CALPINE RA 35 5 F MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	phys cal	
CALPINE RA 34 NS MCE	7	1	NO	YES	NO	YES	Cap c t O y	th ont act	D19 101 RA	NA		0		0	s e ed m t	n ts Feb ua y 1, 2021 compl ance f l ng pe D.20-12-
CALPINE RA_44_NS_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
CALPINE RA 67 NS MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
CALPINE RA 68 NSF MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
ENERSPOKE RA_2_SS_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
Hecate Sto age RA 2024				YES	Yes, but p c ng and any f nanc al nfo mat on		Capac tyOnly	Calculated	D2106035	Batte y Sto age MWh Ene gy Capac ty)	555	7 0	740	7 0	ne	nt pu suant to D.21-06-035. MCE ntends and expect
EBMUD B1 MCE						YES	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	45.8	0	0	0	phys cal	
EBMUD B1 MCE						YES	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	139.5	0	0	0	phys cal	
SENA CF 13 MCE						YES	Ene gyOnly	Calculated	pol cy	La ge Hyd o (GWh)	200	0	0	0	ex st nggene c	
MSCG CF 5 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	400	0	0	0	ex st nggene c	
B ooklfield CF 4 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	200	0	0	0	ex st nggene c	
TENASKA CF 2 MCE						YES	Ene gyOnly	Calculated	pol cy	La ge Hyd o (GWh)	120	0	0	0	phys cal	
POWEREX_CF_3_MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	250	0	0	0	ex st nggene c	
Powe ex CF 4 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	200	0	0	0	ex st nggene c	
Powe ex CF 5 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	100	0	0	0	ex st nggene c	
WAPA BR_MCE						YES	Ene gyOnly	Calculated	RPS	La ge Hyd o (GWh)	25	0	0	0	ex st nggene c	
WAPA BR 2_MCE						YES	Ene gyOnly	Calculated	RPS	La ge Hyd o (GWh)	0	25	25	25	ex st nggene c	
OHG F ee A locat on						No	Ene gyOnly	Calculated	allocat on	La ge Hyd o (GWh)	500	500	500	500	ex st nggene c	
DR A locat on						No	Capac tyOnly	In the cont act	allocat on	Shed DR MW)	0	0	0	0	ex st nggene c	
[redacted]																
OS22 New W nd 2026			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd New SCE SDG&E (GWh)	0	263	263	263	newgene c	Gene c
Gene c LT W nd NM 2030			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd New Mex co (GWh)	0	0	250	250	new esolve	Gene c
Gene c LT W nd 2033			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd Offsho a Mo o Bay (GWh)	0	0	0	400	new esolve	Gene c
Gene c LT Geothe mal 2030			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	Geothe rmal (GWh)	0	0	580	580	newgene c	Gene c
MTR LDS 2026			NA	NO		No	Ene gyCapac ty	Calculated	D2106035	Batte y Sto age MWh Ene gy Capac ty)	0	0	0	0	newgene c	Gene c
VAMO ST B omass						Yes	Ene gyOnly	Calculated	allocat on	B omass (GWh)	33	0	0	0	ex st nggene c	
VAMO ST Sola PV						Yes	Ene gyOnly	Calculated	allocat on	Sola Ex st ng Cal fo n a (GWh)	206	0	0	0	ex st nggene c	
VAMO ST W nd						Yes	Ene gyOnly	Calculated	allocat on	W nd Ex st ng Cal fo n a GWh)	165	0	0	0	ex st nggene c	
VAMO ST Small Hyd o						Yes	Ene gyOnly	Calculated	allocat on	Sma l Hyd o (GWh)	14	0	0	0	ex st nggene c	
VAMO ST Geothe mal						Yes	Ene gyOnly	Calculated	allocat on	Geothe mal (GWh)	70	0	0	0	ex st nggene c	
Gene c STB omass						No	Ene gyOnly	Calculated	RPS	B omass (GWh)	28	34	0	16	ex st nggene c	
Gene c STSola						No	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	138	171	0	79	ex st nggene c	
Gene c ST W nd						No	Ene gyOnly	Calculated	RPS	W nd Ex st ng Cal fo n a GWh)	303	558	214	374	ex st nggene c	
Gene c ST Small Hyd o						No	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	55	69	0	32	ex st nggene c	
Gene c ST Geothe mal						No	Ene gyOnly	Calculated	RPS	Geothe mal (GWh)	142	98	117	149	ex st nggene c	
Gene c STLa ge Hyd o/AC5						No	Ene gyOnly	Calculated	RPS	Impo ted Hyd o (GWh)	0	766	69	120	ex st nggene c	
Gene c LDS 2030			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	400	400	newgene c	Gene c
Gene c 4 Hou Sto age 2028			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	800	800	newgene c	Gene c
Gene c 4 Hou Sto age 2034			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	0	800	newgene c	Gene c
Gene c CCGT RA 2023						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2024						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2025						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2026						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2027						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2028						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2029						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2030						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA_2031						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2032						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2033						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA_2034						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2035						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
RESI RA 2 NS MCE				YES	NO	any f nanc al nfo mat on	Capac tyOnly	In the cont act	D1911016_RA	Shed DR MW)	15	15	15	0	new e e	oast 15 MW of nc emental NQC towa ds MCE's D 19 1
PGE Onl ne cugt 1							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne cugt 2							Ene gyCapac ty			NA	0	0	0	0		
PGE_Onl ne_cugt_3							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne chp							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne chp 1							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne_chp_2							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne batte y							Capac tyOnly			Batte y Sto age MWh Ene gy Capac ty)	93.23439546	93.23439546	93.23439546	93.23439546		
PGE Development batte y 1							Capac tyOnly			Batte y Sto age MWh Ene gy Capac ty)	23.30859887	23.30859887	23.30859887	23.30859887		
PGE_Development_batte y_2							Ene gyCapac ty			Batte y Sto age MWh Ene gy Capac ty)	0.385368835	0 385368835	0 385368835	0 385368835		

resource	contract_status	contracted_nameplate_capacity	is_hybrid_paired	can_charge_from_grid	contracted_generator_mw	contracted_storage_mw	contracted_storage_depth_mwh	buy_sell_own	contract_start_date_year	contract_start_date_month	contract_start_date_day	contract_end_date_year
WHEATL_6_LNDFIL	Online	2	NotHybrid	0	0	0	0	0	2013	7	1	2031
PEABDY_2_LNDFIL	Online	2	NotHybrid	0	0	0	0	0	2013	7	1	2033
GEYS13_7_UNIT13	Online	10	NotHybrid	0	0	0	0	0	2017	1	1	2026
PLSNTG_7_LNCLND	Online	5	NotHybrid	0	0	0	0	0	2013	2	14	2033
VOYAGR_2_VOYWD3	Online	0	NotHybrid	0	0	0	0	0	2018	12	29	2030
NOVATO_6_LNDFL	Online	4	NotHybrid	0	0	0	0	0	2017	9	14	2037
BGSKYN_2_AS2SR1	Online	105	NotHybrid	0	0	0	0	0	2019	1	1	2038
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2017	3	1	2037
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	9	1	2036
DSRTHV_2_DH1SR1	Online	80	NotHybrid	0	0	0	0	0	2020	12	17	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	10	6	2036
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	10	6	2036
TRNQL8_2_ROJSR1	Online	100	NotHybrid	0	0	0	0	0	2018	4	14	2033
LTBERA_1_LB1SR1	Online	40	NotHybrid	0	0	0	0	0	2020	12	10	2040
LTBEAR_1_LB3SR3	Online	20	NotHybrid	0	0	0	0	0	2020	12	10	2040
LTBEAR_1_LB4SR4	Online	50	NotHybrid	0	0	0	0	0	2020	12	10	2040
LTBEAR_1_LB4SR5	Online	50	NotHybrid	0	0	0	0	0	2020	12	10	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2012	10	23	2032
MSTANG_2_SOLAR4	Online	30	NotHybrid	0	0	0	0	0	2015	6	25	2032
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	8	30	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	8	30	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1	2039
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1	2039
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1	2039
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	9	30	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2018	12	10	2038
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2018	7	31	2038
_EXISTING_GENERIC_SOLAR_FIXED	Online	0	NotHybrid	0	0	0	0	0	2019	5	14	2039
CORCAN_1_SOLAR2	Online	11	NotHybrid	0	0	0	0	0	2015	5	22	2040
GOOSLK_1_SOLAR1	Online	12	NotHybrid	0	0	0	0	0	2015	5	22	2040
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2015	5	22	2040
RICHMN_1_CHVSR2	Online	9	NotHybrid	0	0	0	0	0	2017	12	22	2037
RICHMN_1_SOLAR	Online	2	NotHybrid	0	0	0	0	0	2017	12	22	2037
KRNCNY_6_UNIT	Online	11	NotHybrid	0	0	0	0	0	2021	7	5	2036
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	5	NotHybrid	0	0	0	0	0	2021	9	30	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	3	NotHybrid	0	0	0	0	0	2022	5	21	2042
STRAUSSWIND	Development	91	NotHybrid	0	0	0	0	0	[redacted]			
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	12	1	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	10	1	2041
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	12	1	2041
_NEW_GENERIC_SOLAR_FIXED	Development	5	NotHybrid	0	0	0	0	0	2022	11	30	2042
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	11	1	2041
_EXISTING_GENERIC_BIOMASS/WOOD	Online	1	NotHybrid	0	0	0	0	0	2022	7	16	2032
GOOSLK_1_SOLAR1	Online	0	NotHybrid	0	0	0	0	Sell	2021	9	6	2024
CORCAN_1_SOLAR2	Online	0	NotHybrid	0	0	0	0	Sell	2021	11	1	2024
GOOSLK_1_SOLAR1	Online	0	NotHybrid	0	0	0	0	Sell	2022	1	17	2024
_NEW_GENERIC_SOLAR_1AXIS	Development	100	NewSolarNewStorage	NO	100	92	368	0	2025	3	1	2040
_NEW_GENERIC_SOLAR_1AXIS	Development	2	NewSolarNewStorage	NO	2	0.8	3.2	0	2024	2	22	2044
_NEW_GENERIC_SOLAR_1AXIS	Development	0	NotHybrid	0	0	0	0	0	2023	12	31	2043
_NEW_GENERIC_SOLAR_1AXIS	Development	4	NotHybrid	0	0	0	0	0	2023	12	31	2043
_NEW_GENERIC_SOLAR_1AXIS	Development	110	NewSolarNewStorage	NO	110	60	240	0	2023	8	28	2038
COCOPP_2_CTG4	Online	81	NotHybrid	0	0	0	0	0	2023	5	1	2026
AGRICO_7_UNIT	Online	50	NotHybrid	0	0	0	0	0	2020	1	1	2030
BOGUE_1_UNITA1	Online	32	NotHybrid	0	0	0	0	0	2023	1	1	2024
SUTTER_2_CISO	Online	70	NotHybrid	0	0	0	0	0	2021	1	1	2023
_EXISTING_GENERIC_COMBINED_CYCLE	Online	25	NotHybrid	0	0	0	0	0	2022	1	1	2028
_EXISTING_GENERIC_COMBINED_CYCLE	Online	15	NotHybrid	0	0	0	0	0	2022	7	1	2030
_EXISTING_GENERIC_COMBINED_CYCLE	Online	15	NotHybrid	0	0	0	0	0	2023	1	1	2030
_EXISTING_GENERIC_DR	Online	20	NotHybrid	0	0	0	0	0	2023	4	1	2025
_NEW_GENERIC_BATTERY_STORAGE	Development	185	NotHybrid	0	0	0	740	0	2024	4	1	2034
CAMCHE_1_PL1X3	Online	0	NotHybrid	0	0	0	0	0	2015	7	1	2025
PARDEB_6_UNITS	Online	0	NotHybrid	0	0	0	0	0	2023	1	1	2024
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2024	1	1	2024
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2021	1	1	2024
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2021	1	1	2024
EXCHEC_7_UNIT1	Online	0	NotHybrid	0	0	0	0	0	2022	1	1	2024
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2023	1	1	2025
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2022	5	20	2025
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2023	1	1	2025
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2015	1	1	2024
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2025	1	1	2054
_EXISTING_GENERIC_INSTATE_LARGE_H	PlannedExisting	0	NotHybrid	0	0	0	0	Buy	2024	1	1	2043
_EXISTING_GENERIC_DR	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2042
[redacted]												
_NEW_GENERIC_WIND	PlannedNew	100	NotHybrid	0	0	0	0	0	2026	1	1	2045
_CREZ_GENERIC_NEW_MEXICO_WIND	PlannedNew	70	NotHybrid	0	0	0	0	0	2030	1	1	2049
_CREZ_GENERIC_MORRO_BAY_OFFSHOR	PlannedNew	95	NotHybrid	0	0	0	0	0	2033	1	1	2052
_NEW_GENERIC_GEOTHERMAL	PlannedNew	75	NotHybrid	0	0	0	0	0	2030	1	1	2049
_NEW_GENERIC_BATTERY_STORAGE	PlannedNew	40	NotHybrid	0	0	0	320	0	2026	1	1	2045
_EXISTING_GENERIC_BIOMASS/WOOD	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2024
_EXISTING_GENERIC_SOLAR_FIXED	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2024
_EXISTING_GENERIC_WIND	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2024
_EXISTING_GENERIC_INSTATE_SMALL_H	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2024
_EXISTING_GENERIC_GEOTHERMAL	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1	2024
_EXISTING_GENERIC_BIOMASS/WOOD	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_EXISTING_GENERIC_SOLAR_FIXED	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_EXISTING_GENERIC_WIND	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_EXISTING_GENERIC_INSTATE_SMALL_H	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_EXISTING_GENERIC_GEOTHERMAL	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_EXISTING_GENERIC_NW_HYDRO	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1	2042
_NEW_GENERIC_BATTERY_STORAGE	PlannedNew	50	NotHybrid	0	0	0	400	0	2030	1	1	2049

NEW_GENERIC_BATTERY_STORAGE	PlannedNew	200	NotHybrid	0	0	0	800	0	2028	1	1	2047
NEW_GENERIC_BATTERY_STORAGE	PlannedNew	200	NotHybrid	0	0	0	800	0	2034	1	1	2053
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	750	NotHybrid	0	0	0	0	0	2023	1	1	2023
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	686	NotHybrid	0	0	0	0	0	2024	1	1	2024
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	639	NotHybrid	0	0	0	0	0	2025	1	1	2025
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	731	NotHybrid	0	0	0	0	0	2026	1	1	2026
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	672	NotHybrid	0	0	0	0	0	2027	1	1	2027
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	498	NotHybrid	0	0	0	0	0	2028	1	1	2028
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	535	NotHybrid	0	0	0	0	0	2029	1	1	2029
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	425	NotHybrid	0	0	0	0	0	2030	1	1	2030
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	518	NotHybrid	0	0	0	0	0	2031	1	1	2031
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	542	NotHybrid	0	0	0	0	0	2032	1	1	2032
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	530	NotHybrid	0	0	0	0	0	2033	1	1	2033
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	541	NotHybrid	0	0	0	0	0	2034	1	1	2034
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	549	NotHybrid	0	0	0	0	0	2035	1	1	2035
NEW_GENERIC_DR	Review	15	NotHybrid	0	0	0	0	0	2023	1	1	2032
EXISTING_GENERIC_COMBINED_CYCLE	Online	44	NotHybrid	0	0	0	0	0	2024	1	1	2026
EXISTING_GENERIC_COMBINED_CYCLE	Online	39	NotHybrid	0	0	0	0	0	2024	1	1	2025
EXISTING_GENERIC_COMBINED_CYCLE	Online	61	NotHybrid	0	0	0	0	0	2024	1	1	2024
EXISTING_GENERIC_COGEN	Online	4	NotHybrid	0	0	0	0	0	2024	1	1	2024
EXISTING_GENERIC_COGEN	Online	3	NotHybrid	0	0	0	0	0	2024	1	1	2025
EXISTING_GENERIC_COGEN	Online	1	NotHybrid	0	0	0	0	0	2024	1	1	2026
EXISTING_GENERIC_BATTERY_STORAGE	Online	23	NotHybrid	0	0	0	93.23439546	0	2024	1	1	2035
NEW_GENERIC_BATTERY_STORAGE	Development	6	NotHybrid	0	0	0	23.30859887	0	2025	1	1	2035
NEW_GENERIC_BATTERY_STORAGE	Development	0	NotHybrid	0	0	0	0.385368835	0	2024	1	1	2035

resource	contract_end_date_month	contract_end_date_day	buying_energy_capacity	multiplier	resource_el	hybrid/pair	elcc type (f	start year	end year	hybrid stor	short durat	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
WHEATL_6_LNDFIL	6	30	EnergyCapacity	1	biomass_w	n/a	biomass_w	2014	2030	100%	100%	1.536156	1.577034	1.617911	1.619055	1.620199	1.60572	1.59124	0	0	0	0	0
PEABDY_2_LNDFIL	6	30	EnergyCapacity	1	biomass_w	n/a	biomass_w	2014	2032	100%	100%	1.260436	1.293976	1.327517	1.328455	1.329394	1.317513	1.305633	1.330399	1.355164	0	0	0
GEYS13_7_UNIT13	12	31	EnergyCapacity	1	geotherma	n/a	geotherma	2017	2026	100%	100%	8.640037	8.78262	8.925204	0	0	0	0	0	0	0	0	0
PLSNTG_7_LNCLND	2	13	EnergyCapacity	1	biomass_w	n/a	biomass_w	2013	2032	100%	100%	3.923107	4.027501	4.131895	4.134817	4.137739	4.100761	4.063782	4.140866	4.217949	0	0	0
VOYAGR_2_VOYWD3	12	28	EnergyCapacity	1	in_state_w	n/a	in_state_w	2019	2030	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
NOVATO_6_LNDFL	9	13	EnergyCapacity	1	biogas	n/a	biogas	2018	2036	100%	100%	2.958149	3.035487	3.112826	3.101022	3.089218	3.05182	3.014423	3.088523	3.162624	3.236724	3.310825	3.384925
BGSKYN_2_AS2SR1	12	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	10.08	10.73107	11.38214	10.67643	9.970732	8.135366	6.3	6.384	6.468	6.552	6.636	6.72
_EXISTING_GENERIC_SOLAR_FIXED	2	28	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2035	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
DSRTHV_2_DH1SR1	12	16	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	7.68	8.176051	8.672103	8.134426	7.596749	6.198374	4.8	4.864	4.928	4.992	5.056	5.12
_EXISTING_GENERIC_SOLAR_FIXED	10	5	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	10	5	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
TRNQL8_2_ROJSR1	4	13	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2032	100%	100%	9.6	10.22006	10.84013	10.16803	9.495936	7.747968	6	6.08	6.16	0	0	0
LTBERA_1_LB1SR1	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	3.84	4.088026	4.336051	4.067213	3.798374	3.099187	2.4	2.432	2.464	2.496	2.528	2.56
LTBEAR_1_LB3SR3	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	1.92	2.044013	2.168026	2.033606	1.899187	1.549594	1.2	1.216	1.232	1.248	1.264	1.28
LTBEAR_1_LB4SR4	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	4.8	5.110032	5.420064	5.084016	4.747968	3.873984	3	3.04	3.08	3.12	3.16	3.2
LTBEAR_1_LB4SR5	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	4.8	5.110032	5.420064	5.084016	4.747968	3.873984	3	3.04	3.08	3.12	3.16	3.2
_EXISTING_GENERIC_SOLAR_FIXED	10	22	EnergyCapacity	1	utility_pv	n/a	utility_pv	2013	2032	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0	0	0
MSTANG_2_SOLAR4	12	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2016	2032	100%	100%	2.88	3.066019	3.252039	3.05041	2.848781	2.32439	1.8	1.824	1.848	0	0	0
_EXISTING_GENERIC_SOLAR_FIXED	8	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	8	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2020	2038	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2020	2038	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	9	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.09312	0.099135	0.105149	0.09863	0.092111	0.075155	0.0582	0.058976	0.059752	0.060528	0.061304	0.06208
_EXISTING_GENERIC_SOLAR_FIXED	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	7	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2037	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	5	13	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	0.0096	0.01022	0.01084	0.010168	0.009496	0.007748	0.006	0.00608	0.00616	0.00624	0.00632	0.0064
CORCAN_1_SOLAR2	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	1.056	1.124207	1.192414	1.118484	1.044553	0.852276	0.66	0.6688	0.6776	0.6864	0.6952	0.704
GOOSLK_1_SOLAR1	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	1.152	1.226408	1.300815	1.220164	1.139512	0.929756	0.72	0.7296	0.7392	0.7488	0.7584	0.768
_EXISTING_GENERIC_SOLAR_FIXED	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
RICHMN_1_CHVSR2	12	21	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2037	100%	100%	0.816	0.868705	0.921411	0.864283	0.807155	0.658577	0.51	0.5168	0.5236	0.5304	0.5372	0.544
RICHMN_1_SOLAR	12	21	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2037	100%	100%	0.192	0.204401	0.216803	0.203361	0.189919	0.154959	0.12	0.1216	0.1232	0.1248	0.1264	0.128
KRNCNY_6_UNIT	7	4	EnergyCapacity	1	small_hydr	n/a	small_hydr	2022	2035	100%	100%	4.307478	4.287055	4.266633	4.043767	3.820902	3.744074	3.667246	3.587345	3.507444	3.427543	3.347642	3.267742
_EXISTING_GENERIC_SOLAR_FIXED	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	9	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2040	100%	100%	0.48	0.511003	0.542006	0.508402	0.474797	0.387398	0.3	0.304	0.308	0.312	0.316	0.32
_EXISTING_GENERIC_SOLAR_FIXED	5	20	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.288	0.306602	0.325204	0.305041	0.284878	0.232439	0.18	0.1824	0.1848	0.1872	0.1896	0.192
STRAUSSWIND	[redacted]		EnergyCapacity	1	in_state_w	n/a	in_state_w	2023	2042	100%	100%	[redacted]											
_EXISTING_GENERIC_SOLAR_FIXED	11	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_SOLAR_FIXED	9	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2040	100%	100%	0.09	0.095813	0.101626	0.095325	0.089024	0.072637	0.05625	0.057	0.05775	0.0585	0.05925	0.06
_EXISTING_GENERIC_SOLAR_FIXED	11	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.09216	0.098113	0.104065	0.097613	0.091161	0.07438	0.0576	0.058368	0.059136	0.059904	0.060672	0.06144
_NEW_GENERIC_SOLAR_FIXED	11	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2023	2042	100%	100%	0.48	0.511003	0.542006	0.508402	0.474797	0.387398	0.3	0.304	0.308	0.312	0.316	0.32
_EXISTING_GENERIC_SOLAR_FIXED	10	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.09504	0.101179	0.107317	0.100664	0.09401	0.076705	0.0594	0.060192	0.060984	0.061776	0.062568	0.06336
_EXISTING_GENERIC_BIOMASS/WOOD	7	15	EnergyCapacity	1	biomass_w	n/a	biomass_w	2023	2031	100%	100%	0.783834	0.804692	0.825549	0.826133	0.826717	0.819329	0.81194	0.827342	0	0	0	0
GOOSLK_1_SOLAR1	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
CORCAN_1_SOLAR2	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
GOOSLK_1_SOLAR1	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_NEW_GENERIC_SOLAR_1AXIS	2	29	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2025	2039	100%	100%	0	93.15806	95.29613	87.95403	80.61194	77.57597	74.54	68.2904	62.0408	55.7912	49.5416	43.292
_NEW_GENERIC_SOLAR_1AXIS	2	21	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2024	2043	100%	100%	0.9	0.925601	0.951203	0.879761	0.808319	0.762159	0.716	0.66256	0.60912	0.55568	0.50224	0.4488
_NEW_GENERIC_SOLAR_1AXIS	12	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2024	2043	100%	100%	0.02304	0.024528	0.026016	0.024403	0.02279	0.018595	0.0144	0.014592	0.014784	0.014976	0.015168	0.01536
_NEW_GENERIC_SOLAR_1AXIS	12	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2024	2043	100%	100%	0.4224	0.449683	0.476966	0.447393	0.417821	0.340911	0.264	0.26752	0.27104	0.27456	0.27808	0.2816
_NEW_GENERIC_SOLAR_1AXIS	8	27	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2024	2037	100%	100%	63.66	65.33207	67.00414	61.91484	56.82553	54.06276	51.3	47.26	43.22	39.18	35.14	31.1
COCOPP_2_CTG4	9	30	CapacityOnly	1	gas_ct	n/a	gas_ct	2023	2025	100%	100%	64.67364	65.82678	0	0	0	0	0	0	0	0	0	0
AGRICO_7_UNIT	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2020	2030	100%	100%	42.32256	43.04568	43.7688	43.62155	43.47431	42.9585	42.44269	0	0	0	0	0
BOGUE_1_UNITA1	12	31	CapacityOnly	1	gas_ct	n/a	gas_ct	2023	2024	100%	100%	25.4668	0	0	0	0	0	0	0	0	0	0	0
SUTTER_2_CISO	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2021	2023	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2022	2028	100%	100%	21.20369	21.56597	21.92825	21.85448	21.78071	0	0	0	0	0	0	0
_EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2030	100%	100%	12.72221	12.93958	13.15695	13.11269	13.06843	12.91338	12.75832	0	0	0	0	0
_EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2030	100%	100%	12.72221	12.93958	13.15695	13.11269	13.06843	12.91338	12.75832	0	0	0	0	0
_EXISTING_GENERIC_DR	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2025	100%	100%	17.86	18.16703	0	0	0	0	0	0	0	0	0	0
_NEW_GENERIC_BATTERY_STORAGE	3	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2024	2033	100%	100%	163.725	166.7775	169.83	156.4175	143.005	140.415	137.825	125.097	112.369	99.641	0	0
CAMCHE_1_PL1X3	6	30	EnergyOnly	0	hydro	n/a	hydro	2016	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
PARDEB_6_UNITS	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_LARGE_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2024	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2021	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2021	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
EXCHEC_7_UNIT1	12	31	EnergyOnly	0	hydro	n/a	hydro	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2022	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_LARGE_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2015	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_LARGE_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2025	2054	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_LARGE_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2024	2043	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_DR	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]																							
_NEW_GENERIC_WIND	12	31	EnergyCapacity	1	in_state_w	n/a	in_state_w	2026	2045	100%	100%	0	0	15.25475	11.84833	8.4419	8.341688	8.241477	7.482969	6.724462	5.965954	5.207446	4.448939
_CREZ_GENERIC_NEW_MEXICO_WIND	12	31	EnergyCapacity	1	out_of_stat	n/a	out_of_sta	2030	2049	100%	100%	0	0	0	0	0	0	14.88271	15.70658	16.53044	17.35431	18.17817	19.00203
_CREZ_GENERIC_MORRO_BAY_OFFSHOR	12	31	EnergyCapacity	1	offshore_w	n/a	offshore_w	2033	2052	100%	100%	0	0	0	0	0	0	0	0	0	34.428	32.414	30.4
_NEW_GENERIC_GEOTHERMAL	12	31	EnergyCapacity	1	geotherma	n/a	geotherma	2030	2049	100%	100%	0	0	0	0	0	0	68.85716	69.40385	69.95055	70.49724	71.04393	71.59062
_NEW_GENERIC_BATTERY_STORAGE	12	31	EnergyCapacity	1	8hr_batter	n/a	8hr_batter	2026	2045	100%	100%	0	0	37.2	35.96	34.72	34.3	33.88	32.672	31.464	30.256	29.048	27.84
_EXISTING_GENERIC_BIOMASS/WOOD	12	31	EnergyOnly	0	biomass_w	n/a	biomass_w	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_SOLAR_FIXED	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_WIND	12	31	EnergyOnly	0	in_state_w	n/a	in_state_w	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_SMALL_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_GEOTHERMAL	12	31	EnergyOnly	0	geotherma	n/a	geotherma	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_BIOMASS/WOOD	12	31	EnergyOnly	0	biomass_w	n/a	biomass_w	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_SOLAR_FIXED	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_WIND	12	31	EnergyOnly	0	in_state_w	n/a	in_state_w	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_INSTATE_SMALL_H	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_GEOTHERMAL	12	31	EnergyOnly	0	geotherma	n/a	geotherma	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_EXISTING_GENERIC_NW_HYDRO	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
_NEW_GENERIC_BATTERY_STORAGE	12	31	EnergyCapacity	1	8hr_batter	n/a	8hr_batter	2030	2049	100%	100%	0	0	0	0	0	0	42.35	40.84	39.33	37.82	36.31	34.8

NEW_GENERIC_BATTERY_STORAGE	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2028	2047	100%	100%	0	0	0	0	154.6	151.8	149	135.24	121.48	107.72	93.96	80.2
NEW_GENERIC_BATTERY_STORAGE	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2034	2053	100%	100%	0	0	0	0	0	0	0	0	0	0	93.96	80.2
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2023	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2024	2024	100%	100%	581.8292	0	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2025	2025	100%	100%	0	551.2262	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2026	2026	100%	100%	0	0	640.9263	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2027	2027	100%	100%	0	0	0	587.4485	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2028	2028	100%	100%	0	0	0	0	433.8718	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2029	2029	100%	100%	0	0	0	0	0	460.5771	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2030	2030	100%	100%	0	0	0	0	0	0	361.4858	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2031	2031	100%	100%	0	0	0	0	0	0	0	447.0256	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2032	2032	100%	100%	0	0	0	0	0	0	0	0	474.4736	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2033	2033	100%	100%	0	0	0	0	0	0	0	0	0	470.556	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2034	2034	100%	100%	0	0	0	0	0	0	0	0	0	0	487.0462	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2035	2035	100%	100%	0	0	0	0	0	0	0	0	0	0	0	501.0718
NEW_GENERIC_DR	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2032	100%	100%	13.395	13.62527	13.85554	11.58527	9.315	9.09	8.865	7.524	6.183	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2026	100%	100%	37.56135	38.20312	38.84488	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2025	100%	100%	33.27804	33.84662	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COMBINED_CYCLE	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2024	100%	100%	51.92692	0	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COGEN	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2024	100%	100%	3.268641	0	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COGEN	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2025	100%	100%	2.781822	2.861703	0	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_COGEN	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2026	100%	100%	1.217047	1.251995	1.286943	0	0	0	0	0	0	0	0	0
EXISTING_GENERIC_BATTERY_STORAGE	12	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2024	2035	100%	100%	20.62811	21.0127	21.39729	19.70742	18.01755	17.69123	17.36491	15.76127	14.15764	12.55401	10.95038	9.346748
NEW_GENERIC_BATTERY_STORAGE	12	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2025	2035	100%	100%	0	5.253175	5.349323	4.926855	4.504387	4.422807	4.341227	3.940319	3.539411	3.138503	2.737595	2.336687
NEW_GENERIC_BATTERY_STORAGE	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2024	2035	100%	100%	0.06876	0.070042	0.071324	0.065691	0.060058	0.058971	0.057883	0.052538	0.047192	0.041847	0.036501	0.031156

CSPReportSheet

Resource	2024	2026	2030	2035	Units	*Type*
Large Hydro	845	525	525	525	GWh	GHG-Free
Imported Hydro	1,150	766	69	120	GWh	GHG-Free
Asset Controlling Supplier	-	-	-	-	GWh	GHG-Free (Partial)
Nuclear	-	-	-	-	GWh	GHG-Free
Biogas	80	80	80	30	GWh	RPS Eligible
Biomass	65	38	4	16	GWh	RPS Eligible
Geothermal	332	454	1,753	1,785	GWh	RPS Eligible
Small Hydro	291	106	37	69	GWh	RPS Eligible
Wind Resources						
Wind Existing California	606	783	438	461	GWh	RPS Eligible
Wind New PG&E	291	290	290	290	GWh	RPS Eligible
Wind New SCE SDG&E	-	263	263	263	GWh	RPS Eligible
Wind Pacific Northwest	-	-	-	-	GWh	RPS Eligible
Wind Wyoming	-	-	-	-	GWh	RPS Eligible
Wind New Mexico	-	-	250	250	GWh	RPS Eligible
Wind Offshore Morro Bay	-	-	-	400	GWh	RPS Eligible
Wind Offshore Humboldt	-	-	-	-	GWh	RPS Eligible
Solar Resources						
Solar Existing California	1,815	1,649	1,451	1,137	GWh	RPS Eligible
Solar New PG&E	-	-	-	-	GWh	RPS Eligible
Solar New SCE SDG&E	-	-	-	-	GWh	RPS Eligible
Solar Distributed	32	32	32	31	GWh	RPS Eligible
Hybrid						
Hybrid or Paired Solar and Battery	328	626	614	596	GWh	RPS Eligible
Storage & DR						
Shed DR	15	15	15	-	MW	GHG-Free
Pumped Storage	-	-	-	-	MW	n/a
Battery Storage	649	857	2,057	2,117	MWh Energy Capacity	n/a
User-Specified Profies						
Storage Resource Custom Profile	-	-	-	-	MW	n/a
RPS Resource Custom Profile	-	-	-	-	GWh	RPS Eligible
GHG-free non-RPS Resource	-	-	-	-	GWh	GHG-Free
Coal						
Coal	-	-	-	-	GWh	n/a

lse_unique_contract_id	resource	alternative_resource_name	contract_status	project_interconnection_position	interconnection_substat on	marginal_addition	marginal_add tion_to	total_nameplate_capacity	contracted_nameplate_capacity	sep_contracted_mw_nqc	contract_gwh_annual	s_hybrid_paired	can_charge_from_grid
Ost onn_MCE	WHEATL_6_LNDFIL		Onl ne		NA	NA	NA		2	2	12	NotHyb d	
Hay MCE	PEABDY 2 LNDF L		Onl ne		NA	NA	NA		2	2	11	NotHyb d	
Geyse s MCE	GEYS13 7 UNIT13		Onl ne		NA	NA	NA		10	10	88	NotHyb d	
L ncoln MCE	PLSNTG 7 LNCLND		Onl ne		NA	NA	NA		5	4	27	NotHyb d	
Voyage II MCE	VOYAGR 2 VOYWD3		Onl ne		NA	NA	NA			5	138	NotHyb d	
WM MCE	NOVATO 6 LNDFL		Onl ne		NA	NA	NA		4	3	30	NotHyb d	
Antelope 2 MCE	BGSKYN 2 AS2SR1		Onl ne		NA	NA	NA		105	12	289	NotHyb d	
Cooley l MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Cost Plus_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
Dese l Ha vest MCE	DSRTHV 2 DH1SR1		Onl ne		NA	NA	NA		80	9	252	NotHyb d	
F eethy1 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
F eethy2_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
G ost Valley MCE	TRNQLB 2 RDGSR1		Onl ne		NA	NA	NA		100	11	285	NotHyb d	
L ttle Bea 1 MCE	LTBERA 1 LB1SR1		Onl ne		NA	NA	NA		40	4	105	NotHyb d	
L ttle Bea 3 MCE	LTBEAR 1 LB3SR3		Onl ne		NA	NA	NA		20	2	52	NotHyb d	
L ttle Bea 4 MCE	LTBEAR 1 LB4SR4		Onl ne		NA	NA	NA		50	6	132	NotHyb d	
L ttle Bea 5 MCE	LTBEAR_1_LB4SR5		Onl ne		NA	NA	NA		50	6	132	NotHyb d	
SR A po t MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Mustang MCE	MSTANG 2 SOLAR4		Onl ne		NA	NA	NA		30	3	82	NotHyb d	
Soscal Fe y Sola C_MCE	_EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Soscal Fe y Sola D MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola A MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola B MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Ame can Canyon Sola C MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
S lve a Ranch A MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
S lve a Ranch B MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
SR A po t 2 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
ED P oducts MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
Oakley RV & Boat Sto age MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
DRES Qua y 2.4 MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	0	0	0	1	NotHyb d	
Co co an_MCE	CORCAN_1_SOLAR2		Onl ne		NA	NA	NA		11	1	27	NotHyb d	
GoosiLake MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA		12	1	30	NotHyb d	
Buck MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
MCE Sola 1_8.5_MCE	R CHMN_1_CHVSR2		Onl ne		NA	NA	NA		9	1	17	NotHyb d	
MCE Sola 1 2.0 MCE	R CHMN 1 SOLAR		Onl ne		NA	NA	NA		2	0	4	NotHyb d	
Ke n Tule PCC1 1 LT MCE	KRNCNY 6 UNIT		Onl ne		NA	NA	NA		11	5	37	NotHyb d	
S lve a Ranch C_MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Lake He man PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	5	5	0	13	NotHyb d	
By on Sola PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	3	3	0	8	NotHyb d	
St auss PCC1 1 LT MCE	STRAUSSWIND		Development	WDT-1320	NA	NA	NA					NotHyb d	
By on Sola PCC1 2 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
Haywo th PCC1_1_LT_MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
Fallon PCC1 1 LT MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	2	NotHyb d	
RPCA PCC1 1 LT MCE	NEW_GENERIC_SOLAR_FIXED		Developent		B entwood 2105	NA	NA	5	5	0	13	NotHyb d	
Napa PCC1_1_LT_MCE	EXISTING_GENER C_SOLAR_FIXED		Onl ne		NA	NA	NA	1	1	0	1	NotHyb d	
CMSA PCC1_2_LT MCE	EX STING_GENER C_BIOMASS/WOOD		Onl ne		NA	NA	NA	1	1	0	3	NotHyb d	
EBCE PCC1 Sale 1 MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA			0	8	NotHyb d	
SJCE_PCC1_Sale_1_MCE	CORCAN_1_SOLAR2		Onl ne		NA	NA	NA			0	4	NotHyb d	
PCEA PCC1 Sale 1 MCE	GOOSLK 1 SOLAR1		Onl ne		NA	NA	NA			0	10	NotHyb d	
Golden F elds PCC1 LT MCE	NEW_GENERIC_SOLAR_1AXIS		Development	Q-1212	NA	NA	NA	100	100	103	272	NewSola NewSto age	NO
Ranch Se eno_PCC1_LT_MCE	_NEW_GENERIC_SOLAR_1AXIS		Development	WDT-2597	NA	NA	NA	2	2	1	5	NewSola NewSto age	NO
CES Elect on Fa m PCC1_DAC_1 LT MCE	NEW_GENERIC_SOLAR_1AXIS		Development			NA	NA	0	0	0	1	NotHyb d	
CES Elect on Fa m PCC1_DAC_2 LT MCE	NEW_GENERIC_SOLAR_1AXIS		Development			NA	NA	4	4	0	12	NotHyb d	
Daggett PCC1 1 LT MCE	NEW_GENERIC_SOLAR_1AXIS		Development	Q-1314	NA	NA	NA	110	110	66	317	NewSola NewSto age	NO
Ma sh Land ng LLC_RA 1 BAF_MCE	COCOPP 2 CTG4		Onl ne		NA	NA	NA		81	77	0	NotHyb d	
WELLHEAD_RA 3_POP_MCE	AGRICO 7_UNIT		Onl ne		NA	NA	NA		50	48	0	NotHyb d	
CALPINE RA 35 S F MCE	BOGUE 1 UNITA1		Onl ne		NA	NA	NA		32	32	0	NotHyb d	
CALPINE RA 34 NS MCE	SUTTER 2 CTG1		Onl ne		NA	NA	NA		70	70	0	NotHyb d	
CALPINE_RA_44_NS_MCE	_EXISTING_GENERIC_COMBINED_CYCLE		Onl ne		NA	NA	NA		25	25	0	NotHyb d	
CALPINE RA 67 NS MCE	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne		NA	NA	NA		15	15	0	NotHyb d	
CALPINE RA 68 NSF MCE	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne		NA	NA	NA		15	15	0	NotHyb d	
ENERSPONSE RA 2_SS_MCE	EXISTING_GENER C_DR		Onl ne		NA	NA	NA	20	20	20	0	NotHyb d	
Hecate Sto age RA 2024	NEW_GENERIC_BATTERY_STORAGE		Development					185	185	185	0	NotHyb d	
EBMUD B1 MCE	CAMCHE 1 PL1X3		Onl ne		NA	NA	NA	10		0	46	NotHyb d	
EBMUD B1 MCE	PARDEB 6 UNITS		Onl ne		NA	NA	NA	30		0	140	NotHyb d	
SENA CF 13 MCE	EX STING_GENERIC_INSTATE_LARGE_HYDRO		Onl ne		NA	NA	NA			0	200	NotHyb d	
MSCG_CF_5_MCE	_EX STING_GENERIC_NW_HYDRO		Onl ne		NA	NA	NA			0	400	NotHyb d	
B ooklfield CF 4 MCE	EX STING_GENERIC_NW HYDRO		Onl ne		NA	NA	NA			0	200	NotHyb d	
TENASKA CF 2 MCE	EXCHEC 7 UNIT 1		Onl ne		NA	NA	NA	95		0	120	NotHyb d	
POWEREX_CF_3_MCE	_EX STING_GENERIC_NW_HYDRO		Onl ne		NA	NA	NA			0	250	NotHyb d	
Powe ex CF 4 MCE	EX STING_GENERIC_NW HYDRO		Onl ne		NA	NA	NA			0	206	NotHyb d	
Powe ex CF 5 MCE	EX STING_GENERIC_NW HYDRO		Onl ne		NA	NA	NA			0	100	NotHyb d	
WAPA_BR_MCE	EX STING_GENERIC_INSTATE_LARGE_HYDRO		Onl ne		NA	NA	NA			0	25	NotHyb d	
WAPA BR 2 MCE	EX STING_GENERIC_INSTATE_LARGE HYDRO		Onl ne		NA	NA	NA			0	25	NotHyb d	
GHG F ee A locat on	EX STING_GENERIC_INSTATE_LARGE HYDRO		PlannedEx st ng							0	500	NotHyb d	
DR A locat on	EXISTING_GENER C_DR		Onl ne							19	0	NotHyb d	
[redacted]													
OS22 New W nd 2026	NEW_GENER C_WIND		PlannedNew	w nd ca so planned				100	100	22	263	NotHyb d	
Gene c LT W nd NM 2030	CREZ_GENER C_NEW_MEX CO_WIND		PlannedNew	w nd mpo t planned				70	70	20	250	NotHyb d	
Gene c LT W nd 2033	EZ_GENER C_MORRO_BAY_OFFSHORE_WIND		PlannedNew	w nd_ca so_planned				95	95	41	400	NotHyb d	
Gene c LT Geothe mal 2030	NEW_GENERIC_GEOTHERMAL		PlannedNew	geothe mal mpo t planned				75	70	30	580	NotHyb d	
MTR LDS 2026	NEW_GENERIC_BATTERY_STORAGE		PlannedNew	batte y ca so planned				40	40	40	0	NotHyb d	
VAMO_ST_B omass	EX STING_GENER C_BIOMASS/WOOD		Onl ne							0	33	NotHyb d	
VAMO_ST Sola PV	EXISTING_GENER C_SOLAR_FIXED		Onl ne							0	206	NotHyb d	
VAMO ST W nd	EXISTING_GENERIC_WIND		Onl ne							0	165	NotHyb d	
VAMO ST Small Hyd o	EX STING_GENERIC_INSTATE_SMALL_HYDRO		Onl ne							0	14	NotHyb d	
VAMO ST Geothe mal	EX STING_GENERIC_GEOTHERMAL		Onl ne							0	70	NotHyb d	
Gene c ST B omass	_EX STING_GENER C_BIOMASS/WOOD		PlannedEx st ng							0	20	NotHyb d	
Gene c ST Sola	EXISTING_GENER C_SOLAR_FIXED		PlannedEx st ng							0	99	NotHyb d	
Gene c ST W nd	EXISTING_GENERIC_WIND		PlannedEx st ng							0	378	NotHyb d	
Gene c ST Small Hyd o	EX STING_GENERIC_INSTATE_SMALL_HYDRO		PlannedEx st ng							0	40	NotHyb d	
Gene c ST Geothe mal	EX STING_GENERIC_GEOTHERMAL		PlannedEx st ng							0	125	NotHyb d	
Gene c ST La ge Hyd o/AC5	EX STING_GENERIC_NW HYDRO		PlannedEx st ng							0	144	NotHyb d	
Gene c LDS 2030	NEW_GENERIC_BATTERY_STORAGE		PlannedNew	batte y ca so planned				50	50	50	0	NotHyb d	
Gene c 4 Hou Sto age 2028	NEW_GENERIC_BATTERY_STORAGE		PlannedNew	batte y ca so planned				200	200	200	0	NotHyb d	
Gene c 4 Hou Sto age 2034	NEW_GENERIC_BATTERY_STORAGE		PlannedNew	batte y ca so planned				200	200	200	0	NotHyb d	
Gene c CCGT RA 2023	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					750	750	750	0	NotHyb d	
Gene c CCGT RA 2024	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					686	686	686	0	NotHyb d	
Gene c CCGT RA 2025	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					639	639	639	0	NotHyb d	
Gene c CCGT RA 2026	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					731	731	731	0	NotHyb d	
Gene c CCGT RA 2027	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					672	672	672	0	NotHyb d	
Gene c CCGT RA 2028	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					498	498	498	0	NotHyb d	
Gene c CCGT RA 2029	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					535	535	535	0	NotHyb d	
Gene c CCGT RA 2030	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					425	425	425	0	NotHyb d	
Gene c CCGT RA 2031	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					518	518	518	0	NotHyb d	
Gene c CCGT RA 2032	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					542	542	542	0	NotHyb d	
Gene c CCGT RA 2033	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					530	530	530	0	NotHyb d	
Gene c CCGT RA 2034	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					541	541	541	0	NotHyb d	
Gene c CCGT RA 2035	EXISTING_GENERIC_COMBINED_CYCLE		PlannedEx st ng					549	549	549	0	NotHyb d	
RESI RA 2 NS MCE	NEW_GENERIC DR		Rev ew	d ca so planned				15	15	15	0	NotHyb d	
PGE Onl ne cogt 1	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne						44	44	0	NotHyb d	
PGE Onl ne cogt 2	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne						39	39	0	NotHyb d	
PGE Onl ne_cogt_3	EXISTING_GENERIC_COMBINED_CYCLE		Onl ne						61	61	0	NotHyb d	
PGE Onl ne chp	EXISTING_GENERIC_COGEN		Onl ne						4	4	0	NotHyb d	
PGE Onl ne chp 1	EXISTING_GENERIC_COGEN		Onl ne						3	0	5	NotHyb d	
PGE Onl ne_chp_2	_EXISTING_GENERIC_COGEN		Onl ne						1	1	7	NotHyb d	
PGE Onl ne batte y	EX STING_GENER C_BATTERY STORAGE		Onl ne						23	23	0	NotHyb d	
PGE Development batte y 1	NEW_GENERIC_BATTERY_STORAGE		Development						6	5	0	NotHyb d	
PGE_Development_batte y_2	_NEW_GENERIC_BATTERY_STORAGE		Development						0	0	0	NotHyb d	

lse_unique_contract_id	total_generator_mw	contracted_generator_mw	total_storage_mw	contracted_storage_mw	solar_technology_sub_type	storage_technology_sub_type	total_storage_depth_mwh	contracted_storage_depth_mwh	viability_cod_reasonableness	viabil ty_technical_feasibility	viability_f nancing_sitecontrol	resource_mix	di911016_vamo_ghgfree	buy_sell_own
Ost onn_MCE														
Hay MCE														
Geyse s MCE														
L ncoln MCE														
Voyage II MCE														
WM MCE														
Antelope 2 MCE					1Ax s									
Cooley l MCE					F xed									
Cost Plus MCE					F xed									
Dese t Ha vest MCE					1Ax s									
F eethy1 MCE					F xed									
F eethy2 MCE					F xed									
G ost Valley MCE					1Ax s									
L ttle Bea 1 MCE					1Ax s									
L ttle Bea 3 MCE					1Ax s									
L ttle Bea 4 MCE					1Ax s									
L ttle Bea 5 MCE					1Ax s									
SR A po t MCE					F xed									
Mustang MCE					1Ax s									
Soscal Fe y Sola C_MCE					F xed									
Soscal Fe y Sola D MCE					F xed									
Ame can Canyon Sola A MCE					F xed									
Ame can Canyon Sola B MCE					F xed									
Ame can Canyon Sola C MCE					F xed									
S lve a Ranch A MCE					F xed									
S lve a Ranch B MCE					F xed									
SR A po t 2 MCE					F xed									
ED P oducts MCE					F xed									
Oakley RV B Boot Sto age MCE					F xed									
DRES Qua y 2.4 MCE					F xed									
Co co an MCE					F xed									
Goosi e Lake MCE					F xed									
Buck MCE					F xed									
MCE Sola 1_8.5 MCE					F xed									
MCE Sola 1 2.0 MCE					F xed									
Ke n Tule PCC1 1 LT MCE														
S lve a Ranch C_MCE					F xed									
LakeHe man PCC1 1 LT MCE					F xed									
By on Sola PCC1 1 LT MCE					F xed									
St auss PCC1 1 LT MCE									4	3	5			
By on Sola PCC1 2 LT MCE					F xed									
Haywo th_PCC1_1_LT_MCE					F xed									
Fallon PCC1 1 LT MCE					F xed									
RPCA PCC1 1 LT MCE					F xed				4	3	4			
Napa PCC1_1 LT MCE					F xed									
CMSA PCC1 2 LT MCE														
EBCE PCC1 Sale 1 MCE					F xed									Sell
SJCE_PCC1_Sale_1_MCE					F xed									Sell
PCEA PCC1 Sale 1 MCE					F xed									Sell
Golden F elds PCC1 LT MCE	100	100	92	92	1Ax s	L	368	368	4	3	3			
Ranch Se eno_PCC1_LT_MCE	2	2	0 8	0 8	F xed	L	3 2	3 2	4	3	3			
CES Elect on Fa m PCC1 DAC 1 LT MCE					F xed				4	3	3			
CES Elect on Fa m PCC1 DAC 2 LT MCE					F xed				4	3	3			
Daggett PCC1 1 LT MCE	110	110	60	60	1Ax s	L	240	240	4	3	5			
Ma sh Land ng LLC RA 1 BAF MCE														
WELLHEAD_RA 3_POF_MCE														
CALPINE RA 35 5 F MCE														
CALPINE RA 34 NS MCE														
CALPINE RA 44_NS_MCE														
CALPINE RA 67 NS MCE														
CALPINE RA 68 NSF MCE														
ENERSPONSE_RA 2_SS_MCE														
Hecate Sto age RA 2024						L	740	740	4	3	5			
EBMUD B1 MCE														
EBMUD B1 MCE														
SENA CF 13 MCE														
MSCG CF 5 MCE														
B ooklf eld CF 4 MCE														
TENASKA CF 2 MCE														
POWEREX_CF_3 MCE														
Powe ex CF 4 MCE														
Powe ex CF 5 MCE														
WAPA BR MCE														
WAPA BR 2 MCE														
GHG F ee A locat on													GHG F ee PCIA	Buy
DR A locat on														Buy
[redacted]														
Gene c LT W nd NM 2030									1	2	1			
Gene c LT W nd 2033									1	2	1			
Gene c LT Geothe mal 2030									1	2	1			
MTR LDS 2026						L	320	320	1	1	1			
VAMO_ST_B omass													VAMO	Buy
VAMO_ST Sola PV													VAMO	Buy
VAMO ST W nd													VAMO	Buy
VAMO ST Small Hyd o													VAMO	Buy
VAMO ST Geothe mal													VAMO	Buy
Gene c ST B omass														
Gene c ST Sola														
Gene c ST W nd														
Gene c ST Small Hyd o														
Gene c ST Geothe mal														
Gene c ST La ge Hyd o/AC5														
Gene c LDS 2030						L	400	400	1	1	1			
Gene c 4 Hou Sto age 2028						L	800	800	1	2	1			
Gene c 4 Hou Sto age 2034						L	800	800	1	2	1			
Gene c CCGT RA 2023														
Gene c CCGT RA 2024														
Gene c CCGT RA 2025														
Gene c CCGT RA 2026														
Gene c CCGT RA 2027														
Gene c CCGT RA 2028														
Gene c CCGT RA 2029														
Gene c CCGT RA 2030														
Gene c CCGT RA 2031														
Gene c CCGT RA 2032														
Gene c CCGT RA 2033														
Gene c CCGT RA 2034														
Gene c CCGT RA 2035														
RESI RA 2 NS MCE									4	3	5			
PGE Onl ne cogt 1													CAM	
PGE Onl ne cogt 2													CAM	
PGE Onl ne_cogt_3													CAM	
PGE Onl ne chp													CAM	
PGE Onl ne chp 1													CAM	
PGE Onl ne chp 2													CAM	
PGE Onl ne batte y						L		93					CAM	
PGE Development batte y 1						L		23					CAM	
PGE_Development_batte y_2						L		0					CAM	

lse_unique_contract_id	counterparty	generator_supplier	developer_name	capacity_area	capacity_sub_area	cpuc_approval_ref	county	COD_year	COD_month	COD_day	contract_start_date_year	contract_start_date_month	contract_start_date_day	contract_end_date_year	contract_end_date_month	contract_end_date_day
Ost onn_MCE			NA	S e a			YubaCounty	2013	7	1	2013	7	1	2031	6	30
Hay MCE			NA	PacGE			SolanoCounty	2013	7	1	2013	7	1	2033	6	30
Geyse s MCE			NA	No thCoastNo thBay			SonomaCounty	1980	1	1	2017	1	1	2026	12	31
L ncoln MCE			NA	S e a			Place County	1985	1	1	2013	2	14	2033	2	13
Voyage II MCE			NA	SCE			Ke nCounty	2018	12	29	2018	12	29	2030	12	28
WM MCE			NA	No thCoastNo thBay	No sub a ea		Ma nCounty	2017	9	14	2017	9	14	2037	9	13
Antelope 2 MCE			NA	B gC oekVentu a			LosAngelesCounty	2019	1	1	2019	1	1	2038	12	31
Cooley I MCE			NA	G eate Bay			Ma nCounty	2017	7	5	2017	3	1	2037	2	28
Cost Plus_MCE			NA	G eate Bay			Ma nCounty	2016	9	1	2016	9	1	2036	8	31
Dese t Ha vest MCE			NA	SCE			R ve s deCounty	2020	12	17	2020	12	17	2040	12	16
F eethy1 MCE			NA	G eate Bay			Cont aCostaCount	2016	10	6	2016	10	6	2036	10	5
F eethy2 MCE			NA	G eate Bay			Cont aCostaCount	2016	10	6	2016	10	6	2036	10	5
G ust Valley MCE			NA	G eate F esno			F esnoCounty	2018	4	14	2018	4	14	2033	4	13
L ttle Bea 1 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 3 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 4 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
L ttle Bea 5 MCE			NA	G eate F esno			F esnoCounty	2020	12	10	2020	12	10	2040	12	9
SR A po t MCE			NA	G eate Bay			Ma nCounty	2012	10	23	2012	10	23	2032	10	22
Mustang MCE			NA	G eate F esno			K ngsCounty	2015	6	25	2015	6	25	2032	12	31
Soscal Fe y Sola C_MCE			NA	PacGE			NapaCounty	2020	12	11	2020	8	30	2040	8	29
Soscal Fe y Sola D MCE			NA	PacGE			NapaCounty	2020	12	11	2020	8	30	2040	8	29
Ame can Canyon Sola A MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
Ame can Canyon Sola B MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
Ame can Canyon Sola C MCE			NA	PacGE			NapaCounty	2019	9	24	2019	9	1	2039	8	31
S lve a Ranch A MCE			NA	PacGE			Ma nCounty	2021	3	30	2021	3	30	2041	3	29
S lve a Ranch B MCE			NA	PacGE			Ma nCounty	2021	3	30	2021	3	30	2041	3	29
SR A po t2 MCE			NA	PacGE			Ma nCounty	2020	8	28	2020	9	30	2040	9	29
ED P oducts MCE			NA	G eate Bay			Ma nCounty	2018	12	10	2018	12	10	2038	12	9
Oakley RV & Boat Sto age MCE			NA	G eate Bay			Cont aCostaCount	2018	7	23	2018	7	31	2038	7	30
DRES Qua y 2.4 MCE			NA	G eate Bay			Ma nCounty	2019	5	24	2019	5	14	2039	5	13
Co co an MCE			NA	G eate F esno			K ngsCounty	2015	5	22	2015	5	22	2040	4	30
Goose Lake MCE			NA	G eate F esno			K ngsCounty	2015	5	22	2015	5	22	2040	4	30
Buck MCE			NA	G eate Bay			Ma nCounty	2015	5	22	2015	5	22	2040	4	30
MCE Sola 1_8.5_MCE			NA	G eate Bay	No sub a ea		Cont aCostaCount	2017	12	22	2017	12	22	2037	12	21
MCE Sola 1 2.0 MCE			NA	G eate Bay	No sub a ea		Cont aCostaCount	2017	12	22	2017	12	22	2037	12	21
Ke n Tule PCC1 1 LT MCE			NA	PacGE			Ke nCounty	2021	6	9	2021	7	5	2036	7	4
S lve a Ranch C_MCE			NA	PacGE			NapaCounty	2021	3	30	2021	3	30	2041	3	29
Lake He man PCC1 1 LT MCE			NA	PacGE			SolanoCounty	2021	9	14	2021	9	30	2041	9	29
By on Sola PCC1 1 LT MCE			NA	PacGE			Cont aCostaCount	2022	5	21	2022	5	21	2042	5	20
St auss PCC1 1 LT MCE			BayWa RE	PacGE	No sub a ea		SantaBa ba aCounty							2042	12	30
By on Sola PCC1 2 LT MCE			NA	PacGE			Cont aCostaCount	2021	12	10	2021	12	1	2041	11	30
Haywo th_PCC1_1_LT_MCE			NA	PacGE			Cont aCostaCount	2022	3	7	2021	10	1	2041	9	30
Fallon PCC1 1 LT MCE			NA	PacGE			Ma nCounty	2022	4	4	2021	12	1	2041	11	30
RPCA PCC1 1 LT MCE			RPCA Sola 3_LLC	PacGE			Cont aCostaCount	2022	11	30	2022	11	30	2042	11	29
Napa PCC1_1 LT_MCE			NA	PacGE			NapaCounty	2022	4	13	2021	11	1	2041	10	31
CMSA PCC1 2 LT MCE			NA	G eate Bay			Ma nCounty	2022	7	15	2022	7	16	2032	7	15
EBCE PCC1 Sale 1 MCE	East Bay Commun ty Ene gy		NA	G eate F esno			K ngsCounty	2015	5	22	2021	9	6	2024	12	31
SJCE_PCC1_Sale_1_MCE	San Jose Clean Ene gy		NA	G eate F esno			K ngsCounty	2015	5	22	2021	11	1	2024	12	31
PCEA PCC1 Sale 1 MCE	Pen nsula Clean Ene gy Autho ty		NA	G eate F esno			K ngsCounty	2015	5	22	2022	1	17	2024	12	31
Golden F elds PCC1 LT MCE			Clea way Ene gy G oup	SCE	No sub a ea		Ke nCounty	2025	3	1	2025	3	1	2040	2	29
Ranch Se eno_PCC1_LT_MCE			Ranch Se eno Clean Powe LLC	PacGE			Cont aCostaCount	2024	2	22	2024	2	22	2044	2	21
CES Elect on Fa m PCC1 DAC 1 LT MCE			CES Elect on Fa m One, LLC	PacGE			F esnoCounty	2023	12	31	2023	12	31	2043	12	30
CES Elect on Fa m PCC1 DAC 2 LT MCE			CES Elect on Fa m One, LLC	PacGE			F esnoCounty	2023	12	31	2023	12	31	2043	12	30
Daggett PCC1 1 LT MCE			Clea way Ene gy G oup	SCE	No sub a ea		SanBe na d nCoun	2023	8	28	2023	8	28	2038	8	27
Ma sh Land ng LLC RA 1 BAF MCE			NA	G eate Bay			Cont aCostaCount	2013	5	1	2023	5	1	2026	9	30
WELLHEAD RA 3_POP_MCE			NA	G eate F esno			F esnoCounty	2001	1	1	2020	1	1	2030	12	31
CALPINE RA 35 5 F MCE			NA	S e a			Sutte County	2002	12	23	2023	1	1	2024	12	31
CALPINE RA 34 NS MCE			NA	BANC	No sub a ea		Sutte County	2001	7	1	2021	1	1	2023	12	31
CALPINE RA 44_NS_MCE			NA	PacGE			Cal fo n a				2022	1	1	2028	12	31
CALPINE RA 67 NS MCE			NA	PacGE			Cal fo n a				2022	7	1	2030	12	31
CALPINE RA 68 NSF MCE			NA	PacGE			Cal fo n a				2023	1	1	2030	12	31
ENERSPONSE RA 2_SS_MCE			NA	PacGE			Cal fo n a				2023	4	1	2025	12	31
Hecate Sto age RA 2024			Hecate G d	SCE			LosAngelesCounty	2024	4	1	2024	4	1	2034	3	31
EBMUD B1 MCE			NA	Stockton			SanJoaqu nCounty	1983	1	1	2015	7	1	2025	6	30
EBMUD B1 MCE			NA	PacGE			Calave asCounty	1930	1	1	2023	1	1	2024	12	31
SENA CF 13 MCE			NA	PacGE			Cal fo n a				2024	1	1	2024	12	31
MSCG CF 5 MCE			NA	PACW			O egon				2021	1	1	2024	12	31
B ooklfd CF 4 MCE			NA	PACW			O egon				2021	1	1	2024	12	31
TENASKA CF 2 MCE			NA	S e a			Place County	1966	1	1	2022	1	1	2024	12	31
POWEREX CF 3 MCE			NA	PACW			O egon				2023	1	1	2025	12	31
Powe ex CF 4 MCE			NA	PACW			O egon				2022	5	20	2025	12	31
Powe ex CF 5 MCE			NA	PACW			O egon				2023	1	1	2025	12	31
WAPA BR_MCE			NA	BANC			Cal fo n a				2015	1	1	2024	12	31
WAPA BR 2_MCE			NA	BANC			Cal fo n a				2025	1	1	2054	12	31
GHG F ee A locat on	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2024	1	1	2043	12	31
DR A locat on	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
[redacted]																
OS22 New W nd 2026			Unknown	SCE			Ke nCounty	2026	1	1	2026	1	1	2045	12	31
Gene c LT W nd NM 2030			Unknown	PacGE			NewMex co	2030	1	1	2030	1	1	2049	12	31
Gene c LT W nd 2033			Unknown	PacGE			Cal fo n a	2033	1	1	2033	1	1	2052	12	31
Gene c LT Geothe mal 2030			Unknown	I D			Impe alCounty	2030	1	1	2030	1	1	2049	12	31
MTR LDS 2026			Unknown	PacGE			Cont aCostaCount	2026	1	1	2026	1	1	2045	12	31
VAMO ST B omass	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Sola PV	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST W nd	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Small Hyd o	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
VAMO ST Geothe mal	Pac f c Gas & Elect c		NA	PacGE			Cal fo n a				2023	1	1	2024	12	31
Gene c ST B omass			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Sola			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST W nd			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Small Hyd o			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST Geothe mal			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c ST La ge Hyd o/AC5			NA	PacGE			Cal fo n a				2023	1	1	2042	12	31
Gene c LDS 2030			Unknown	PacGE			Cont aCostaCount	2030	1	1	2030	1	1	2049	12	31
Gene c 4 Hou Sto age 2028			Unknown	PacGE			SolanoCounty	2028	1	1	2028	1	1	2047	12	31
Gene c 4 Hou Sto age 2034			Unknown	PacGE			NapaCounty	2034	1	1	2034	1	1	2053	12	31
Gene c CCGT RA 2023			NA	PacGE			Cal fo n a				2023	1	1	2023	12	31
Gene c CCGT RA 2024			NA	PacGE			Cal fo n a				2024	1	1	2024	12	31
Gene c CCGT RA 2025			NA	PacGE			Cal fo n a				2025	1	1	2025	12	31
Gene c CCGT RA 2026			NA	PacGE			Cal fo n a				2026	1	1	2026	12	31
Gene c CCGT RA 2027			NA	PacGE			Cal fo n a				2027	1	1	2027	12	31
Gene c CCGT RA 2028			NA	PacGE			Cal fo n a				2028	1	1	2028	12	31
Gene c CCGT RA 2029			NA	PacGE			Cal fo n a				2029	1	1	2029	12	31
Gene c CCGT RA 2030			NA	PacGE			Cal fo n a				2030	1	1	2030	12	31
Gene c CCGT RA 2031			NA	PacGE			Cal fo n a				2031	1	1	2031	12	31
Gene c CCGT RA 2032			NA	PacGE			Cal fo n a				2032	1	1	2032	12	31
Gene c CCGT RA 2033			NA	PacGE			Cal fo n a				2033	1	1	2033	12	31
Gene c CCGT RA 2034			NA	PacGE			Cal fo n a				2034	1	1	2034	12	31
Gene c CCGT RA 2035			NA	PacGE			Cal fo n a				2035	1	1	2035	12	31
RESI RA 2 NS MCE			Res Stat on, LLC	PacGE			Cal fo n a	2023	1	1	2023	1	1	2032	12	31
PGE Onl ne cogt 1	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2026	12	31
PGE Onl ne cogt 2	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2025	12	31
PGE Onl ne_cogt_3	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2024	12	31
PGE Onl ne chp	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2024	12	31
PGE Onl ne chp 1	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2025	12	31
PGE Onl ne_chp_2	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2026	12	31
PGE Onl ne batte y	Pac f c Gas & Elect c							2018	1	1	2024	1	1	2035	12	31
PGE Development batte y 1	Pac f c Gas & Elect c							2024	1	1	2025	1	1	2035	12	31
PGE_Development_batte y_2	Pac f c Gas & Elect c							2024	1	1	2024	1	1	2035	12	31

lse_unique_contract_id	contract_execution_date_year	contract_execut on_date_month	contract_execut on_date_day	tx_upgrades	tx_upgrade_date_year	tx_upgrade_date_month	tx_upgrade_date_day	tx_upgrade_descript on	d1911016_tranche	d2106035_procurement_cat	mtr_tranche1_NQC	mtr_tranche2_NQC	mtr_tranche3_NQC	mtr_tranche4_NQC_LDES	mtr_tranche4_NQC_firm_ZE	mtr_NQC_ZE_gen_paired_dr	previous_COD_year
Ost onn_MCE	2010	12	3						NA	NA							
Hay MCE	2010	12	3						NA	NA							
Geyse r_MCE	2013	7	11						NA	NA							
L ncoln MCE	2012	7	6						NA	NA							
Voyage II MCE	2016	12	5						NA	NA							
WM MCE	2014	11	6	NA					3	NA							2017
Antelope 2 MCE	2016	11	15						NA	NA							
Cooley I MCE	2014	10	7						NA	NA							
Cost Plus_MCE	2015	4	14						NA	NA							
Dese t Ha vest MCE	2016	11	18						NA	NA							
F eethy1 MCE	2015	9	4						NA	NA							
F eethy2 MCE	2015	9	4						NA	NA							
G ust Valley MCE	2016	9	15						NA	NA							
L ttle Bea 1 MCE	2016	9	23						NA	NA							
L ttle Bea 3 MCE	2016	9	23						NA	NA							
L ttle Bea 4 MCE	2016	9	23						NA	NA							
L ttle Bea 5 MCE	2016	9	23						NA	NA							
SR A po t MCE	2012	5	8						NA	NA							
Mustang MCE	2014	10	3						NA	NA							
Soscal Fe y Sola C_MCE	2018	8	30						NA	NA							
Soscal Fe y Sola D MCE	2018	8	30						NA	NA							
Ame can Canyon Sola A MCE	2018	8	30						NA	NA							
Ame can Canyon Sola B MCE	2018	8	30						NA	NA							
Ame can Canyon Sola C MCE	2018	8	30						NA	NA							
S lve a Ranch A MCE	2019	3	7						NA	NA							
S lve a Ranch B MCE	2019	3	7						NA	NA							
SR A po t 2 MCE	2018	10	24						NA	NA							
ED P oducts MCE	2018	10	31						NA	NA							
Oakley RV & Boat Sto age MCE	2018	5	8						NA	NA							
DRES Qua y 2.4 MCE	2018	3	23						NA	NA							
Co co an MCE	2011	7	8						NA	NA							
Goose Lake MCE	2011	7	8						NA	NA							
Buck MCE	2011	7	8						NA	NA							
MCE Sola 1_8.5_MCE	2017	5	30	NA					3	NA							2017
MCE Sola 1 2.0 MCE	2017	5	30	NA					3	NA							2017
Ke n Tule PCC1 1 LT MCE	2020	1	22						NA	NA							
S lve a Ranch C_MCE	2019	3	7						NA	NA							
LakeHe man PCC1 1 LT MCE	2020	7	29						NA	NA							
By on Sola PCC1 1 LT MCE	2020	10	15						NA	NA							
St auss PCC1 1 LT MCE	2018	10	19	YES				Completed	3	NA							2022
By on Sola PCC1 2 LT MCE	2020	12	11						NA	NA							
Haywo th_PCC1_1_LT_MCE	2021	3	8						NA	NA							
Fallon PCC1 1 LT MCE	2021	4	5						NA	NA							
RPCA PCC1 1 LT MCE	2021	3	29						NA	NA							
Napa PCC1 1 LT MCE	2021	4	14						NA	NA							
CMSA PCC1 2 LT MCE	2021	7	16						NA	NA							
EBCE PCC1 Sale 1 MCE	2021	9	6						NA	NA							
SJCE_PCC1_Sale_1_MCE	2021	11	1						NA	NA							
PCEA PCC1 Sale 1 MCE	2021	11	29						NA	NA							
Golden Fields PCC1 LT MCE	2022	2	4	YES	2024	10	1		NA	gene al & ZE gen pa ed d			75			61.3	
Ranch Se eno_PCC1_LT_MCE	2022	2	23	NO					NA	NA							
CES Elect on Fa m PCC1 DAC 1 LT MCE	2022	3	20						NA	NA							
CES Elect on Fa m PCC1 DAC 2 LT MCE	2022	3	20						NA	NA							
Daggett PCC1 1 LT MCE	2020	9	25	YES					NA	gene al & ZE gen pa ed d	58	7.9				48.1	2022
Ma ah Land ng LLC RA 1 BAF MCE	2022	7	26						NA	NA							
WELLHEAD_RA 3_POF_MCE	2019	8	1						NA	NA							
CALPINE RA 35 5 F MCE									NA	NA							
CALPINE RA 34 NS MCE	2020	2	28	NA					1&2	NA							2001
CALPINE_RA_44_NS_MCE									NA	NA							
CALPINE RA 67 NS MCE									NA	NA							
CALPINE RA 68 NSF MCE									NA	NA							
ENERSPONSE_RA_2_SS_MCE									NA	NA							
Hecate Sto ageRA 2024	2022	8	4						NA	gene al		167.795					
EBMUD B1 MCE	2015	6	22						NA	NA							
EBMUD B1 MCE	2015	6	22						NA	NA							
SENA CF 13 MCE	2019	4	26						NA	NA							
MSCG_CF_5_MCE	2020	9	15						NA	NA							
B ooklfield CF 6 MCE	2020	2	14						NA	NA							
TENASKA CF 2 MCE	2021	12	17						NA	NA							
POWEREX_CF_3_MCE	2022	4	11						NA	NA							
Powe ex CF 4 MCE	2022	5	18						NA	NA							
Powe ex CF 5 MCE	2022	5	18						NA	NA							
WAPA BR_MCE	2011	12	14						NA	NA							
WAPA BR 2 MCE	2021	3	18						NA	NA							
GHG F ee A locat on									NA	NA							
DR A locat on									NA	NA							
[redacted]																	
OS22 New W nd 2026				NA					NA	NA							
Gene c LT W nd NM 2030				NA					NA	NA							
Gene c LT W nd 2033				NA					NA	NA							
Gene c LT Geothe mal 2030				NA					NA	NA							
MTR LDS 2026				NA					NA	long du at on sto age			31.28				
VAMO_ST_B omass									NA	NA							
VAMO_ST_Sola PV									NA	NA							
VAMO ST W nd									NA	NA							
VAMO ST Small Hyd o									NA	NA							
VAMO ST Geothe mal									NA	NA							
Gene c ST B omass									NA	NA							
Gene c ST Sola									NA	NA							
Gene c ST W nd									NA	NA							
Gene c ST Small Hyd o									NA	NA							
Gene c ST Geothe mal									NA	NA							
Gene c ST La ge Hyd o/AC5									NA	NA							
Gene c LDS 2030				NA					NA	NA							
Gene c 4 Hou Sto age 2028				NA					NA	NA							
Gene c 4 Hou Sto age 2034				NA					NA	NA							
Gene c CCGT RA 2023									NA	NA							
Gene c CCGT RA 2024									NA	NA							
Gene c CCGT RA 2025									NA	NA							
Gene c CCGT RA 2026									NA	NA							
Gene c CCGT RA 2027									NA	NA							
Gene c CCGT RA 2028									NA	NA							
Gene c CCGT RA 2029									NA	NA							
Gene c CCGT RA 2030									NA	NA							
Gene c CCGT RA 2031									NA	NA							
Gene c CCGT RA 2032									NA	NA							
Gene c CCGT RA 2033									NA	NA							
Gene c CCGT RA 2034									NA	NA							
Gene c CCGT RA 2035									NA	NA							
RESI RA 2 NS MCE	2022	8	31	NA					3								
PGE Onl ne cogt 1	2017	1	1														
PGE Onl ne cogt 2	2017	1	1														
PGE Onl ne_cogt_3	2017	1	1														
PGE Onl ne chp	2017	1	1														
PGE Onl ne chp 1	2017	1	1														
PGE Onl ne chp 2	2017	1	1														
PGE Onl ne batte y	2017	1	1														
PGE Development batte y 1	2022	1	1														
PGE_Development_batte y_2	2022	1	1														

lse_unique_contract_id	prev ous_COD_month	previous_COD_day	remediat on_plan	signed_contract	notice_to_proceed	public_contract	buying_energy_capac ty	NQC_reporting_source	procurement_origin	csp_resource_category	csp_annual_2024	csp_annual_2026	csp_annual_2030	csp_annual_2035	macro_supertype	notes
Ost om_MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	12	12	12	0	phys cal	
Hay MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	11	11	11	0	phys cal	
Geyse s MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Geothe rmal (GWh)	88	88	0	0	phys cal	
L ncoln MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	B ogas (GWh)	27	27	27	0	phys cal	
Voyage II MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	W nd Ex st ng Cal fo n a (GWh)	138	138	137	0	phys cal	
WM MCE	9	14	NO	YES	NO	YES	E gyCapac ty	C lc ate	RPS, R	B gas GWh	30	0	0	3	y cal	executed cont act n ts Feb ua y 1, 2021 compl anc
Antelope 2 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	294	292	286	279	phys cal	
Cooley I MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
Cost Plus_MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	1	1	1	1	ex st nggene c	
Dese t Ha vest MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	258	255	250	243	phys cal	
F eethy 1 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
F eethy 2 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
G ost Valley MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	286	284	281	0	phys cal	
L ttle Bea 1 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	108	107	105	102	phys cal	
L ttle Bea 3 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	54	53	52	51	phys cal	
L ttle Bea 4 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	135	133	131	127	phys cal	
L ttle Bea 5 MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	135	133	131	127	phys cal	
SR A po t MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	2	2	2	0	ex st nggene c	
Mustang MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	82	81	79	0	phys cal	
Soscal Fe y Sola C_MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Soscal Fe y Sola D MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola A MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola B MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Ame can Canyon Sola C MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
S lve a Ranch A MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
S lve a Ranch B MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
SR A po t 2 MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	0	ex st nggene c	
ED P oducts MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	0	0	ex st nggene c	
Oakley RV B Stor Sto age MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
DRES Qua y 2.4 MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	0	0	ex st nggene c	
Co co an MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	28	28	27	26	phys cal	
Goosi Lake MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	31	30	30	29	phys cal	
Buck MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	2	1	ex st nggene c	
MCE Sola 1_8.5_MCE	12	22	NO	YES	NO	YES	E gyCapa ty	C lc ate	RPS, R	S l Ex st g l o a GWh)	17	7	7	1	y cal	executed cont act n ts Feb ua y 1, 2021 compl anc
MCE Sola 1 2.0 MCE	12	22	NO	YES	NO	YES	En g Ca ac y	C lc t d	RPS RA	S la E st Ca fo (W)	4		4		h s al	executed cont act n ts Feb ua y 1, 2021 compl anc
Ke n Tule PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sma l Hyd o (GWh)	37	37	37	37	phys cal	
S lve a Ranch C_MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
Lake He man PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
By on Sola PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS, RA	Sola Ex st ng Cal fo n a (GWh)	3	3	3	3	ex st nggene c	
St auss PCC1 1 LT MCE	7	1	YES	YES	YES	a y n c a at on	e y a a t	C lc t d	RP , R	W Ne PG E(GWh)	91	2	90	290	y l	med at on Plan and (2) a P oject T met ne. tn ts Feb
By on Sola PCC1 2 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	8	8	8	8	ex st nggene c	
Haywo ths PCC1 3 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
Fallon PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	2	2	2	2	ex st nggene c	
RPCA PCC1 1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola Di st buted (GWh)	14	14	14	13	newgene c	Feed n ta ff
Napa PCC1 1 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	1	1	1	1	ex st nggene c	
CMSA PCC1 2 LT MCE						YES	Ene gyCapac ty	Calculated	RPS	B omass (GWh)	4	4	4	0	ex st nggene c	
EBCE PCC1 Sale 1 MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	8	0	0	0	phys cal	
SJCE_PCC1_Sale_1_MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	4	0	0	0	phys cal	
PCEA PCC1 Sale 1 MCE						YES	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	10	0	0	0	phys cal	
G ld n F PC 1 LT MCE				Y S	Y , tp c n n n f n nf n		E e C a t	Cal t d	R S D 21-06-0 5	Hyb d P d S la att (Wh)	0	30	95	2 5	ne gen	u ava lab l ty equ ement ("61 MW of NQC) and the g
Ranch Se eno PCC1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola Di st buted (GWh)	5	5	5	5	newgene c	Feed n ta ff
CES Elect on Fa m PCC1 DAC 1 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS, RA	Sola Di st buted (GWh)	1	1	1	1	newgene c	Feed n ta ff
CES Elect on Fa m PCC1 DAC 2 LT MCE				YES	Yes, but p c ng and any f nanc al nfo mat on		Ene gyCapac ty	Calculated	RPS	Sola Di st buted (GWh)	12	12	12	12	newgene c	Feed n ta ff
D g e t PCC1 1 T MCE	1	31	NA	YES	Y b t c g n f n c l nf m n		Ene Ca a	C lcula d	RPS, R	Hy d So a a d Ba t (GW)	3	324	319	11	wge	DCPP S hou ava lab l ty equ ement. MCE plans to u
Ma sh Land ng LLC RA 1 BAF MCE						YES	Capac tyOnly	Calculated	RA	NA	0	0	0	0	phys cal	
WELLHEAD RA 3_POP_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	phys cal	
CALPINE RA 35 S F MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	phys cal	
CALPINE RA 34 NS MCE	7	1	NO	YES	NO	YES	Cap c t O y	th ont act	D19 101 RA	NA		0		0	s e ed m t	n ts Feb ua y 1, 2021 compl ance f l ng pe D.20-12-
CALPINE RA_44_NS_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
CALPINE RA 67 NS MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
CALPINE RA 68 NSF MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
ENERSPOKE RA 2_SS_MCE						YES	Capac tyOnly	In the cont act	RA	NA	0	0	0	0	ex st nggene c	
Hecate Sto age RA 2024				YES	Yes, but p c ng and any f nanc al nfo mat on		Capac tyOnly	Calculated	D2106035	Batte y Sto age MWh Ene gy Capac ty)	555	7 0	740	7 0	ne	nt pu suant to D.21-06-035. MCE ntends and expect
EBMUD B1 MCE						YES	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	45.8	0	0	0	phys cal	
EBMUD B1 MCE						YES	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	139.5	0	0	0	phys cal	
SENA CF 13 MCE						YES	Ene gyOnly	Calculated	pol cy	La ge Hyd o (GWh)	200	0	0	0	ex st nggene c	
MSCG CF 5 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	400	0	0	0	ex st nggene c	
B ookf eld CF 4 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	200	0	0	0	ex st nggene c	
TENASKA CF 2 MCE						YES	Ene gyOnly	Calculated	pol cy	La ge Hyd o (GWh)	120	0	0	0	phys cal	
POWEREX_CF_3_MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	250	0	0	0	ex st nggene c	
Powe ex CF 4 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	200	0	0	0	ex st nggene c	
Powe ex CF 5 MCE						YES	Ene gyOnly	Calculated	pol cy	Impo ted Hyd o (GWh)	100	0	0	0	ex st nggene c	
WAPA BR_MCE						YES	Ene gyOnly	Calculated	RPS	La ge Hyd o (GWh)	25	0	0	0	ex st nggene c	
WAPA BR 2_MCE						YES	Ene gyOnly	Calculated	RPS	La ge Hyd o (GWh)	0	25	25	25	ex st nggene c	
OHG F ee A locat on						No	Capac tyOnly	Calculated	allocat on	La ge Hyd o (GWh)	500	500	500	500	ex st nggene c	
DR A locat on						No	Capac tyOnly	In the cont act	allocat on	Shed DR MW)	0	0	0	0	ex st nggene c	
[redacted]																
OS22 New W nd 2026			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd New SCE SDG&E (GWh)	0	263	263	263	newgene c	Gene c
Gene c LT W nd NM 2030			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd New Mex co (GWh)	0	0	250	250	new esolve	Gene c
Gene c LT W nd 2033			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	W nd Offsho a Mo o Bay (GWh)	0	0	0	400	new esolve	Gene c
Gene c LT Geothe mal 2030			NA	NO		No	Ene gyCapac ty	Calculated	RPS, RA	Geothe rmal (GWh)	0	0	580	580	newgene c	Gene c
MTR LDS 2026			NA	NO		No	Ene gyCapac ty	Calculated	D2106035	Batte y Sto age MWh Ene gy Capac ty)	0	0	0	0	newgene c	Gene c
VAMO ST B omass						Yes	Ene gyOnly	Calculated	allocat on	B omass (GWh)	33	0	0	0	ex st nggene c	
VAMO ST Sola PV						Yes	Ene gyOnly	Calculated	allocat on	Sola Ex st ng Cal fo n a (GWh)	206	0	0	0	ex st nggene c	
VAMO ST W nd						Yes	Ene gyOnly	Calculated	allocat on	W nd Ex st ng Cal fo n a GWh)	165	0	0	0	ex st nggene c	
VAMO ST Small Hyd o						Yes	Ene gyOnly	Calculated	allocat on	Sma l Hyd o (GWh)	14	0	0	0	ex st nggene c	
VAMO ST Geothe mal						Yes	Ene gyOnly	Calculated	allocat on	Geothe mal (GWh)	70	0	0	0	ex st nggene c	
Gene c STB omass						No	Ene gyOnly	Calculated	RPS	B omass (GWh)	28	34	0	16	ex st nggene c	
Gene c STSola						No	Ene gyOnly	Calculated	RPS	Sola Ex st ng Cal fo n a (GWh)	138	171	0	79	ex st nggene c	
Gene c STW nd						No	Ene gyOnly	Calculated	RPS	W nd Ex st ng Cal fo n a GWh)	303	558	214	374	ex st nggene c	
Gene c STSmall Hyd o						No	Ene gyOnly	Calculated	RPS	Sma l Hyd o (GWh)	55	69	0	32	ex st nggene c	
Gene c ST Geothe mal						No	Ene gyOnly	Calculated	RPS	Geothe mal (GWh)	142	98	117	149	ex st nggene c	
Gene c STLa ge Hyd o/AC5						No	Ene gyOnly	Calculated	RPS	Impo ted Hyd o (GWh)	0	766	69	120	ex st nggene c	
Gene c LDS 2030			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	400	400	newgene c	Gene c
Gene c 4 Hou Sto age 2028			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	800	800	newgene c	Gene c
Gene c 4 Hou Sto age 2034			NA	NO		No	Ene gyCapac ty	Calculated	RA	Batte y Sto age MWh Ene gy Capac ty)	0	0	0	800	newgene c	Gene c
Gene c CCGT RA 2023						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2024						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2025						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2026						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2027						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2028						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2029						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2030						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2031						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2032						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2033						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2034						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
Gene c CCGT RA 2035						No	Capac tyOnly	Calculated	RA	NA	0	0	0	0	ex st nggene c	
RESI RA 2 NS MCE				YES	NO	any f nanc al nfo mat on	Capac tyOnly	In the cont act	D1911016_RA	Shed DR MW)	15	15	15	0	new e e	oast 15 MW of nc emental NQC towa ds MCE's D 19 1
PGE Onl ne cogt 1							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne cogt 2							Ene gyCapac ty			NA	0	0	0	0		
PGE_Onl ne_cogt_3							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne chp							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne chp 1							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne_chp_2							Ene gyCapac ty			NA	0	0	0	0		
PGE Onl ne batte y							Capac tyOnly			Batte y Sto age MWh Ene gy Capac ty)	93.23439546	93.23439546	93.23439546	93.23439546		
PGE Development batte y 1							Capac tyOnly			Batte y Sto age MWh Ene gy Capac ty)	23.30859887	23.30859887	23.30859887	23.30859887		
PGE_Development_batte y_2							Ene gyCapac ty			Batte y Sto age MWh Ene gy Capac ty)	0.385368835	0 385368835	0 385368835	0 385368835		

resource	contract_status	contracted_nameplate_capacity	is_hybrid_paired	can_charge_from_grid	contracted_generator_mw	contracted_storage_mw	contracted_storage_depth_mwh	buy_sell_own	contract_start_date_year	contract_start_date_month	contract_start_date_day
WHEATL_6_LNDFIL	Online	2	NotHybrid	0	0	0	0	0	2013	7	1
PEABDY_2_LNDFIL	Online	2	NotHybrid	0	0	0	0	0	2013	7	1
GEYS13_7_UNIT13	Online	10	NotHybrid	0	0	0	0	0	2017	1	1
PLSNTG_7_LNCLND	Online	5	NotHybrid	0	0	0	0	0	2013	2	14
VOYAGR_2_VOYWD3	Online	0	NotHybrid	0	0	0	0	0	2018	12	29
NOVATO_6_LNDFL	Online	4	NotHybrid	0	0	0	0	0	2017	9	14
BGSKYN_2_AS2SR1	Online	105	NotHybrid	0	0	0	0	0	2019	1	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2017	3	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	9	1
DSRTHV_2_DH1SR1	Online	80	NotHybrid	0	0	0	0	0	2020	12	17
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	10	6
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2016	10	6
TRNQL8_2_ROJSR1	Online	100	NotHybrid	0	0	0	0	0	2018	4	14
LTBERA_1_LB1SR1	Online	40	NotHybrid	0	0	0	0	0	2020	12	10
LTBEAR_1_LB3SR3	Online	20	NotHybrid	0	0	0	0	0	2020	12	10
LTBEAR_1_LB4SR4	Online	50	NotHybrid	0	0	0	0	0	2020	12	10
LTBEAR_1_LB4SR5	Online	50	NotHybrid	0	0	0	0	0	2020	12	10
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2012	10	23
MSTANG_2_SOLAR4	Online	30	NotHybrid	0	0	0	0	0	2015	6	25
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	8	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	8	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2019	9	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2020	9	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2018	12	10
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2018	7	31
_EXISTING_GENERIC_SOLAR_FIXED	Online	0	NotHybrid	0	0	0	0	0	2019	5	14
CORCAN_1_SOLAR2	Online	11	NotHybrid	0	0	0	0	0	2015	5	22
GOOSLK_1_SOLAR1	Online	12	NotHybrid	0	0	0	0	0	2015	5	22
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2015	5	22
RICHMN_1_CHVSR2	Online	9	NotHybrid	0	0	0	0	0	2017	12	22
RICHMN_1_SOLAR	Online	2	NotHybrid	0	0	0	0	0	2017	12	22
KRNCNY_6_UNIT	Online	11	NotHybrid	0	0	0	0	0	2021	7	5
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	3	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	5	NotHybrid	0	0	0	0	0	2021	9	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	3	NotHybrid	0	0	0	0	0	2022	5	21
STRAUSSWIND	Development	91	NotHybrid	0	0	0	0	0	[redacted]	[redacted]	[redacted]
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	12	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	10	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	12	1
_NEW_GENERIC_SOLAR_FIXED	Development	5	NotHybrid	0	0	0	0	0	2022	11	30
_EXISTING_GENERIC_SOLAR_FIXED	Online	1	NotHybrid	0	0	0	0	0	2021	11	1
_EXISTING_GENERIC_BIOMASS/WOOD	Online	1	NotHybrid	0	0	0	0	0	2022	7	16
GOOSLK_1_SOLAR1	Online	0	NotHybrid	0	0	0	0	Sell	2021	9	6
CORCAN_1_SOLAR2	Online	0	NotHybrid	0	0	0	0	Sell	2021	11	1
GOOSLK_1_SOLAR1	Online	0	NotHybrid	0	0	0	0	Sell	2022	1	17
_NEW_GENERIC_SOLAR_1AXIS	Development	100	NewSolarNewStorage	NO	100	92	368	0	2025	3	1
_NEW_GENERIC_SOLAR_1AXIS	Development	2	NewSolarNewStorage	NO	2	0.8	3.2	0	2024	2	22
_NEW_GENERIC_SOLAR_1AXIS	Development	0	NotHybrid	0	0	0	0	0	2023	12	31
_NEW_GENERIC_SOLAR_1AXIS	Development	4	NotHybrid	0	0	0	0	0	2023	12	31
_NEW_GENERIC_SOLAR_1AXIS	Development	110	NewSolarNewStorage	NO	110	60	240	0	2023	8	28
COCOPP_2_CTG4	Online	81	NotHybrid	0	0	0	0	0	2023	5	1
AGRICO_7_UNIT	Online	50	NotHybrid	0	0	0	0	0	2020	1	1
BOGUE_1_UNITA1	Online	32	NotHybrid	0	0	0	0	0	2023	1	1
SUTTER_2_CISO	Online	70	NotHybrid	0	0	0	0	0	2021	1	1
_EXISTING_GENERIC_COMBINED_CYCLE	Online	25	NotHybrid	0	0	0	0	0	2022	1	1
_EXISTING_GENERIC_COMBINED_CYCLE	Online	15	NotHybrid	0	0	0	0	0	2022	7	1
_EXISTING_GENERIC_COMBINED_CYCLE	Online	15	NotHybrid	0	0	0	0	0	2023	1	1
_EXISTING_GENERIC_DR	Online	20	NotHybrid	0	0	0	0	0	2023	4	1
_NEW_GENERIC_BATTERY_STORAGE	Development	185	NotHybrid	0	0	0	740	0	2024	4	1
CAMCHE_1_PL1X3	Online	0	NotHybrid	0	0	0	0	0	2015	7	1
PARDEB_6_UNITS	Online	0	NotHybrid	0	0	0	0	0	2023	1	1
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2024	1	1
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2021	1	1
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2021	1	1
EXCHEC_7_UNIT1	Online	0	NotHybrid	0	0	0	0	0	2022	1	1
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2023	1	1
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2022	5	20
_EXISTING_GENERIC_NW_HYDRO	Online	0	NotHybrid	0	0	0	0	0	2023	1	1
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2015	1	1
_EXISTING_GENERIC_INSTATE_LARGE_H	Online	0	NotHybrid	0	0	0	0	0	2025	1	1
_EXISTING_GENERIC_INSTATE_LARGE_H	PlannedExisting	0	NotHybrid	0	0	0	0	Buy	2024	1	1
_EXISTING_GENERIC_DR	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1
[redacted]											
_NEW_GENERIC_WIND	PlannedNew	100	NotHybrid	0	0	0	0	0	2026	1	1
_CREZ_GENERIC_NEW_MEXICO_WIND	PlannedNew	70	NotHybrid	0	0	0	0	0	2030	1	1
_CREZ_GENERIC_MORRO_BAY_OFFSHOR	PlannedNew	95	NotHybrid	0	0	0	0	0	2033	1	1
_NEW_GENERIC_GEOTHERMAL	PlannedNew	75	NotHybrid	0	0	0	0	0	2030	1	1
_NEW_GENERIC_BATTERY_STORAGE	PlannedNew	40	NotHybrid	0	0	0	320	0	2026	1	1
_EXISTING_GENERIC_BIOMASS/WOOD	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1
_EXISTING_GENERIC_SOLAR_FIXED	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1

EXISTING_GENERIC_WIND	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1
EXISTING_GENERIC_INSTATE_SMALL_H	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1
EXISTING_GENERIC_GEOTHERMAL	Online	0	NotHybrid	0	0	0	0	Buy	2023	1	1
EXISTING_GENERIC_BIOMASS/WOOD	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_SOLAR_FIXED	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_WIND	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_INSTATE_SMALL_H	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_GEOTHERMAL	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_NW_HYDRO	PlannedExisting	0	NotHybrid	0	0	0	0	0	2023	1	1
NEW_GENERIC_BATTERY_STORAGE	PlannedNew	50	NotHybrid	0	0	0	400	0	2030	1	1
NEW_GENERIC_BATTERY_STORAGE	PlannedNew	200	NotHybrid	0	0	0	800	0	2028	1	1
NEW_GENERIC_BATTERY_STORAGE	PlannedNew	200	NotHybrid	0	0	0	800	0	2034	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	750	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	686	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	639	NotHybrid	0	0	0	0	0	2025	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	731	NotHybrid	0	0	0	0	0	2026	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	672	NotHybrid	0	0	0	0	0	2027	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	498	NotHybrid	0	0	0	0	0	2028	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	535	NotHybrid	0	0	0	0	0	2029	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	425	NotHybrid	0	0	0	0	0	2030	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	518	NotHybrid	0	0	0	0	0	2031	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	542	NotHybrid	0	0	0	0	0	2032	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	530	NotHybrid	0	0	0	0	0	2033	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	541	NotHybrid	0	0	0	0	0	2034	1	1
EXISTING_GENERIC_COMBINED_CYCLE	PlannedExisting	549	NotHybrid	0	0	0	0	0	2035	1	1
NEW_GENERIC_DR	Review	15	NotHybrid	0	0	0	0	0	2023	1	1
EXISTING_GENERIC_COMBINED_CYCLE	Online	44	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COMBINED_CYCLE	Online	39	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COMBINED_CYCLE	Online	61	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COGEN	Online	4	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COGEN	Online	3	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_COGEN	Online	1	NotHybrid	0	0	0	0	0	2024	1	1
EXISTING_GENERIC_BATTERY_STORAGE	Online	23	NotHybrid	0	0	0	93.23439546	0	2024	1	1
NEW_GENERIC_BATTERY_STORAGE	Development	6	NotHybrid	0	0	0	23.30859887	0	2025	1	1
NEW_GENERIC_BATTERY_STORAGE	Development	0	NotHybrid	0	0	0	0.385368835	0	2024	1	1

contract_end_date_year	contract_end_date_month	contract_end_date_day	buying_energy_capacity	multiplier	resource el	hybrid/pai	elcc type (f	start year	end year	hybrid stor	short durat	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2031	6	30	EnergyCapacity	1	biomass_w	n/a	biomass_w	2014	2030	100%	100%	1.513355	1.548507	1.583658	1.597592	1.611526	1.589226	1.566927	0	0	0	0	0
2033	6	30	EnergyCapacity	1	biomass_w	n/a	biomass_w	2014	2032	100%	100%	1.241727	1.27057	1.299412	1.310845	1.322278	1.303981	1.285684	1.311304	1.336924	0	0	0
2026	12	31	EnergyCapacity	1	geotherma	n/a	geotherma	2017	2026	100%	100%	8.603574	8.884542	9.165511	0	0	0	0	0	0	0	0	0
2033	2	13	EnergyCapacity	1	biomass_w	n/a	biomass_w	2013	2032	100%	100%	3.864877	3.954648	4.044419	4.080004	4.115589	4.05864	4.001691	4.081434	4.161177	0	0	0
2030	12	28	EnergyCapacity	1	in_state_w	n/a	in_state_w	2019	2030	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2037	9	13	EnergyCapacity	1	biogas	n/a	biogas	2018	2036	100%	100%	2.924747	2.988238	3.051728	3.063706	3.075684	3.03129	2.986897	3.058498	3.1301	3.201702	3.273303	3.344905
2038	12	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	13.05631	12.70809	12.35987	10.51701	8.67416	8.043484	7.412808	7.274247	7.135685	6.997123	6.858562	6.72
2037	2	28	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2036	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2035	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2040	12	16	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	9.947667	9.682355	9.417044	8.012964	6.608884	6.128369	5.647854	5.542283	5.436712	5.331142	5.225571	5.12
2036	10	5	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2036	10	5	EnergyCapacity	1	utility_pv	n/a	utility_pv	2017	2036	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2033	4	13	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2032	100%	100%	12.43458	12.10294	11.7713	10.0162	8.261105	7.660461	7.059817	6.927854	6.79589	0	0	0
2040	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	4.973834	4.841178	4.708522	4.006482	3.304442	3.064185	2.823927	2.771142	2.718356	2.665571	2.612785	2.56
2040	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	2.486917	2.420589	2.354261	2.003241	1.652221	1.532092	1.411963	1.385571	1.359178	1.332785	1.306393	1.28
2040	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	6.217292	6.051472	5.885652	5.008102	4.130553	3.830231	3.529909	3.463927	3.397945	3.331963	3.265982	3.2
2040	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	6.217292	6.051472	5.885652	5.008102	4.130553	3.830231	3.529909	3.463927	3.397945	3.331963	3.265982	3.2
2032	10	22	EnergyCapacity	1	utility_pv	n/a	utility_pv	2013	2032	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0	0	0
2032	12	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2016	2032	100%	100%	3.730375	3.630883	3.531391	3.004861	2.478332	2.298138	2.117945	2.078356	2.038767	0	0	0
2040	8	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2040	8	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2039	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2020	2038	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2039	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2020	2038	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2039	8	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2020	2038	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2041	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2041	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2040	9	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2039	100%	100%	0.120615	0.117399	0.114182	0.097157	0.080133	0.074306	0.06848	0.0672	0.06592	0.06464	0.06336	0.06208
2038	12	9	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2038	7	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2037	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2039	5	13	EnergyCapacity	1	utility_pv	n/a	utility_pv	2019	2038	100%	100%	0.012435	0.012103	0.011771	0.010016	0.008261	0.00766	0.00706	0.006928	0.006796	0.006664	0.006532	0.0064
2040	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	1.367804	1.331324	1.294843	1.101783	0.908722	0.842651	0.77658	0.762064	0.747548	0.733032	0.718516	0.704
2040	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	1.49215	1.452353	1.412557	1.201945	0.991333	0.919255	0.847178	0.831342	0.815507	0.799671	0.783836	0.768
2040	4	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2015	2039	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2037	12	21	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2037	100%	100%	1.05694	1.02875	1.000561	0.851377	0.702194	0.651139	0.600084	0.588868	0.577651	0.566434	0.555217	0.544
2037	12	21	EnergyCapacity	1	utility_pv	n/a	utility_pv	2018	2037	100%	100%	0.248692	0.242059	0.235426	0.200324	0.165222	0.153209	0.141196	0.138557	0.135918	0.133279	0.130639	0.128
2036	7	4	EnergyCapacity	1	small_hydr	n/a	small_hydr	2022	2035	100%	100%	3.862597	3.963558	4.064519	3.988405	3.912291	4.026608	4.140925	3.966288	3.791651	3.617015	3.442378	3.267742
2041	3	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2021	2040	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2041	9	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2040	100%	100%	0.621729	0.605147	0.588565	0.50081	0.413055	0.383023	0.352991	0.346393	0.339795	0.333196	0.326598	0.32
2042	5	20	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.373038	0.363088	0.353139	0.300486	0.247833	0.229814	0.211795	0.207836	0.203877	0.199918	0.195959	0.192
[redacted]			EnergyCapacity	1	in_state_w	n/a	in_state_w	2023	2042	100%	100%	[redacted]											
2041	11	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2041	9	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2040	100%	100%	0.116574	0.113465	0.110356	0.093902	0.077448	0.071817	0.066186	0.064949	0.063711	0.062474	0.061237	0.06
2041	11	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.119372	0.116188	0.113005	0.096156	0.079307	0.07354	0.067774	0.066507	0.065241	0.063974	0.062707	0.06144
2042	11	29	EnergyCapacity	1	utility_pv	n/a	utility_pv	2023	2042	100%	100%	0.621729	0.605147	0.588565	0.50081	0.413055	0.383023	0.352991	0.346393	0.339795	0.333196	0.326598	0.32
2041	10	31	EnergyCapacity	1	utility_pv	n/a	utility_pv	2022	2041	100%	100%	0.123102	0.119819	0.116536	0.09916	0.081785	0.075839	0.069892	0.068586	0.067279	0.065973	0.064666	0.06336
2032	7	15	EnergyCapacity	1	biomass_w	n/a	biomass_w	2023	2031	100%	100%	0.772199	0.790135	0.808072	0.815181	0.822291	0.810913	0.799535	0.815467	0	0	0	0
2024	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2040	2	29	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2025	2039	100%	100%	0	91.59094	92.1793	87.7562	83.33311	86.13646	88.93982	79.81025	70.68069	61.55113	52.42156	43.292
2044	2	21	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2024	2043	100%	100%	0.931892	0.933259	0.934626	0.876324	0.818022	0.835609	0.853196	0.772317	0.691438	0.610559	0.529679	0.4488
2043	12	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2024	2043	100%	100%	0.029843	0.029047	0.028251	0.024039	0.019827	0.018385	0.016944	0.016627	0.01631	0.015993	0.015677	0.01536
2043	12	30	EnergyCapacity	1	utility_pv	n/a	utility_pv	2024	2043	100%	100%	0.547122	0.53253	0.517937	0.440713	0.363489	0.33706	0.310632	0.304826	0.299019	0.293213	0.287406	0.2816
2038	8	27	EnergyCapacity	1	utility_pv	4hr_batter	hybrid	2024	2037	100%	100%	64.91804	65.15324	65.38843	61.71783	58.04722	59.60651	61.1658	55.15264	49.13948	43.12632	37.11316	31.1
2026	9	30	CapacityOnly	1	gas_ct	n/a	gas_ct	2023	2025	100%	100%	65.50175	67.2924	0	0	0	0	0	0	0	0	0	0
2030	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2020	2030	100%	100%	42.11837	42.60402	43.08968	43.23086	43.37203	42.8922	42.41238	0	0	0	0	0
2024	12	31	CapacityOnly	1	gas_ct	n/a	gas_ct	2023	2024	100%	100%	25.79289	0	0	0	0	0	0	0	0	0	0	0
2023	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2021	2023	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2028	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2022	2028	100%	100%	21.10139	21.3447	21.58802	21.65875	21.72947	0	0	0	0	0	0	0
2030	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2030	100%	100%	12.66083	12.80682	12.95281	12.99525	13.03768	12.89345	12.74921	0	0	0	0	0
2030	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2030	100%	100%	12.66083	12.80682	12.95281	12.99525	13.03768	12.89345	12.74921	0	0	0	0	0
2025	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2025	100%	100%	15.44808	15.95003	0	0	0	0	0	0	0	0	0	0
2034	3	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2024	2033	100%	100%	157.99	159.84	161.69	156.325	150.96	157.805	164.65	146.557	128.464	110.371	0	0
2025	6	30	EnergyOnly	0	hydro	n/a	hydro	2016	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2024	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2021	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2021	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2022	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2025	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2025	12	31	EnergyOnly	0	hydro	n/a	hydro	2022	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2025	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2025	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2015	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2054	12	31	EnergyOnly	0	hydro	n/a	hydro	2025	2054	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2043	12	31	EnergyOnly	0	hydro	n/a	hydro	2024	2043	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
[redacted]																							
2045	12	31	EnergyCapacity	1	in_state_w	n/a	in_state_w	2026	2045	100%	100%	0	0	15.43079	10.69366	5.956532	7.720144	9.483756	8.464475	7.445194	6.425913	5.406632	4.387351
2049	12	31	EnergyCapacity	1	out_of_sta	n/a	out_of_sta	2030	2049	100%	100%	0	0	0	0	0	0	21.22436	20.7799	20.33543	19.89096	19.4465	19.00203
2052	12	31	EnergyCapacity	1	offshore_w	n/a	offshore_w	2033	2052	100%	100%	0	0	0	0	0	0	0	0	0	41.43544	35.91772	30.4
2049	12	31	EnergyCapacity	1	geotherma	n/a	geotherma	2030	2049	100%	100%	0	0	0	0	0	0	68.38894	68.96685	69.54475	70.12266	70.70057	71.27847
2045	12	31	EnergyCapacity	1	8hr_batter	n/a	8hr_batter	2026	2045	100%	100%	0	0	35.16	34.74	34.32	34.96	35.6	34.048	32.496	30.944	29.392	27.84
2024	12	31	EnergyOnly	0	biomass_w	n/a	biomass_w	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0

2024	12	31	EnergyOnly	0	in_state_w	n/a	in_state_w	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyOnly	0	geothermo	n/a	geothermo	2023	2024	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	biomass_w	n/a	biomass_w	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	utility_pv	n/a	utility_pv	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	in_state_w	n/a	in_state_w	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	geothermo	n/a	geothermo	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2042	12	31	EnergyOnly	0	hydro	n/a	hydro	2023	2042	100%	100%	0	0	0	0	0	0	0	0	0	0	0
2049	12	31	EnergyCapacity	1	8hr_batter	n/a	8hr_batter	2030	2049	100%	100%	0	0	0	0	0	0	44.5	42.56	40.62	38.68	36.74	34.8
2047	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2028	2047	100%	100%	0	0	0	0	163.2	170.6	178	158.44	138.88	119.32	99.76	80.2
2053	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2034	2053	100%	100%	0	0	0	0	0	0	0	0	0	0	99.76	80.2
2023	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2023	2023	100%	100%	0	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2024	2024	100%	100%	579.022	0	0	0	0	0	0	0	0	0	0	0
2025	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2025	2025	100%	100%	0	545.5706	0	0	0	0	0	0	0	0	0	0
2026	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2026	2026	100%	100%	0	0	630.9817	0	0	0	0	0	0	0	0	0
2027	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2027	2027	100%	100%	0	0	0	582.1871	0	0	0	0	0	0	0	0
2028	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2028	2028	100%	100%	0	0	0	0	432.8511	0	0	0	0	0	0	0
2029	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2029	2029	100%	100%	0	0	0	0	0	459.8663	0	0	0	0	0	0
2030	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2030	2030	100%	100%	0	0	0	0	0	0	361.2277	0	0	0	0	0
2031	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2031	2031	100%	100%	0	0	0	0	0	0	0	446.2075	0	0	0	0
2032	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2032	2032	100%	100%	0	0	0	0	0	0	0	0	473.0909	0	0	0
2033	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2033	2033	100%	100%	0	0	0	0	0	0	0	0	0	468.6887	0	0
2034	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2034	2034	100%	100%	0	0	0	0	0	0	0	0	0	0	484.6144	0
2035	12	31	CapacityOnly	1	gas_cc	n/a	gas_cc	2035	2035	100%	100%	0	0	0	0	0	0	0	0	0	0	0	498.0705
2032	12	31	CapacityOnly	1	demand_re	n/a	demand_re	2023	2032	100%	100%	11.58606	11.96252	12.33898	11.6229	10.90682	11.92616	12.9455	10.7884	8.6313	0	0	0
2026	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2026	100%	100%	37.38013	37.81115	38.24217	0	0	0	0	0	0	0	0	0
2025	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2025	100%	100%	33.11748	33.49935	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyCapacity	1	gas_cc	n/a	gas_cc	2024	2024	100%	100%	51.67638	0	0	0	0	0	0	0	0	0	0	0
2024	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2024	100%	100%	3.402331	0	0	0	0	0	0	0	0	0	0	0
2025	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2025	100%	100%	2.895601	2.889729	0	0	0	0	0	0	0	0	0	0
2026	12	31	EnergyCapacity	1	cogen	n/a	cogen	2024	2026	100%	100%	1.266825	1.264257	1.261688	0	0	0	0	0	0	0	0	0
2035	12	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2024	2035	100%	100%	19.90554	20.13863	20.37172	19.69577	19.01982	19.88223	20.74465	18.46507	16.18549	13.90591	11.62633	9.346748
2035	12	31	CapacityOnly	1	4hr_batter	n/a	4hr_batter	2025	2035	100%	100%	0	5.034657	5.092929	4.923942	4.754954	4.970559	5.186163	4.616268	4.046373	3.476478	2.906582	2.336687
2035	12	31	EnergyCapacity	1	4hr_batter	n/a	4hr_batter	2024	2035	100%	100%	0.066352	0.067129	0.067906	0.065653	0.063399	0.066274	0.069149	0.06155	0.053952	0.046353	0.038754	0.031156

CSPReportSheet

Resource	2024	2026	2030	2035	Units	*Type*
Large Hydro	845	525	525	525	GWh	GHG-Free
Imported Hydro	1,150	766	69	120	GWh	GHG-Free
Asset Controlling Supplier	-	-	-	-	GWh	GHG-Free (Partial)
Nuclear	-	-	-	-	GWh	GHG-Free
Biogas	80	80	80	30	GWh	RPS Eligible
Biomass	65	38	4	16	GWh	RPS Eligible
Geothermal	332	454	1,753	1,785	GWh	RPS Eligible
Small Hydro	291	106	37	69	GWh	RPS Eligible
Wind Resources						
Wind Existing California	606	783	438	461	GWh	RPS Eligible
Wind New PG&E	291	290	290	290	GWh	RPS Eligible
Wind New SCE SDG&E	-	263	263	263	GWh	RPS Eligible
Wind Pacific Northwest	-	-	-	-	GWh	RPS Eligible
Wind Wyoming	-	-	-	-	GWh	RPS Eligible
Wind New Mexico	-	-	250	250	GWh	RPS Eligible
Wind Offshore Morro Bay	-	-	-	400	GWh	RPS Eligible
Wind Offshore Humboldt	-	-	-	-	GWh	RPS Eligible
Solar Resources						
Solar Existing California	1,815	1,649	1,451	1,137	GWh	RPS Eligible
Solar New PG&E	-	-	-	-	GWh	RPS Eligible
Solar New SCE SDG&E	-	-	-	-	GWh	RPS Eligible
Solar Distributed	32	32	32	31	GWh	RPS Eligible
Hybrid						
Hybrid or Paired Solar and Battery	328	626	614	596	GWh	RPS Eligible
Storage & DR						
Shed DR	15	15	15	-	MW	GHG-Free
Pumped Storage	-	-	-	-	MW	n/a
Battery Storage	649	857	2,057	2,117	MWh Energy Capacity	n/a
User-Specified Profies						
Storage Resource Custom Profile	-	-	-	-	MW	n/a
RPS Resource Custom Profile	-	-	-	-	GWh	RPS Eligible
GHG-free non-RPS Resource	-	-	-	-	GWh	GHG-Free
Coal						
Coal	-	-	-	-	GWh	n/a

October 20, 2022

TO: MCE Board of Directors

FROM: David Potovsky, Principal Power Procurement Manager

RE: Approval of Power Purchase Agreement with Mayacma Geothermal, LLC (Agenda Item #09)

ATTACHMENTS: A. Draft Power Purchase Agreement with Mayacma Geothermal LLC
B. Mayacma Geothermal LLC Proposal Presentation

Dear Board Members:

Background:

MCE's Open Season procurement process had three primary goals:

1. To meet Integrated Resource Planning (IRP) targets for renewable energy and energy storage
2. Adding Resource Adequacy (RA) supply to the portfolio
3. Adding resources that would fulfill the Mid Term Reliability (MTR) obligations as outlined in the CA Public Utilities Commission (CPUC) decision D.21-06-035.

As a result of the solicitation, staff received an offer from Mayacma Geothermal LLC (Mayacma) for the bundled renewable energy and RA from a new geothermal energy plant. The proposed facility would satisfy a portion of the aforementioned MTR obligation. Staff is currently negotiating the terms of one additional contract, which will be presented to MCE's Technical Committee in November.

Summary:

The Mayacma project is being developed by Open Mountain Energy (OME), and is sited in Lake County, CA. The project is at a mature stage in the development process with a clear path to an interconnection agreement, full site control and a well-

defined plan to acquire all relevant permits.
Staff negotiated the attached draft Power Purchase Agreement (PPA) for the purchase of bundled renewable energy and RA capacity from the project. The installation will have a contractually guaranteed nameplate capacity of 7 megawatts (MW). In addition to the incremental impact to the MTR compliance obligation, the contract will make a valuable contribution to MCE's energy and RA portfolio. The negotiated price is competitive within the current market, and the project is well positioned for success.

Rationale:

The project is a good fit for MCE's resource portfolio based on the following considerations:

- Energy and RA capacity produced by the facility would complement MCE's existing portfolio of resources
- The project type, size, specifications and commercial operation date fit the requirements detailed in the CPUC MTR mandated procurement order
- The project is being developed and will be operated by an experienced team, which is currently supplying bundled energy and RA to other Load Serving Entities like Southern California Public Power Authority (SCPPA) and The City of Glendale. OME has also recently executed PPA's for new projects with California Community Power and Lassen Municipal Utility District (LMUD).
- All major pre-construction milestones are complete. OME is awaiting clearance from CAISO to finalize the interconnection process

Additional Information:

Open Mountain Energy (OME)

- Headquartered in Lehi, Utah with 24 full-time employees
- Founded in 2016, OME develops, owns, and operates utility-scale geothermal power generation projects in North America.
- OME currently has two operating geothermal projects in California and Nevada, and has a pipeline of approximately 100 MW of projects in various stages of development.
- OME's parent company Kaishan Energy Group (Kaishan) manufacturers the compressors that are utilized in OME's geothermal power plants. They have invested over $1.2 billion dollars globally into geothermal projects in the US, Indonesia, Turkey, Kenya and Hungary. Kaishan is the world's leading manufacturer of geothermal energy generation equipment and the largest geothermal power operator in the world.

Contract Overview

- Project: 7 MW geothermal generation facility
- Contracted resources: Bundled renewable energy and RA
- Price: Fixed with no escalation for the full delivery term

- Project location: Unincorporated Lake County, California
- Guaranteed commercial operation date: June 1, 2024
- Contract term: 21 contract years (Accounts for start date of 6/1/2024 and end date of 5/31/2044)
- Credit: No credit or collateral obligations for MCE
- Contractual milestone damages: MCE would receive financial compensation in the event of seller's failure to successfully achieve certain development milestones
- Union labor requirement: Contractors are required to enter into union project labor agreements (PLA) for all on-site construction
- Community Benefit Package: Seller pledges to contribute Twenty-One Thousand Dollars ($21,000) to community benefit initiatives that directly benefit stakeholders in MCE's service area and/or communities adjacent to the project location. MCE and seller will identify initiatives that are of mutual interest such as workforce training, environmental stewardship/habitat improvement, education and renewable energy projects.

Fiscal Impacts:

There would be no impact on the Fiscal Year 2022/23 budget. Incremental costs would be accounted for starting in FY 2024/25.

Recommendation:

Authorize execution of the Power Purchase Agreement with Mayacma Geothermal LLC for supply of bundled renewable energy and RA.

Execution Version

RENEWABLE POWER PURCHASE AGREEMENT

COVER SHEET

Seller: Mayacma Geothermal LLC ("**Seller**")

Buyer: Marin Clean Energy, a California joint powers authority ("**Buyer**")

Description of Facility: A geothermal electricity generating facility located in Lake County, California with a generating capacity of 7 MW_{AC}, as further described in Exhibit A.

Milestones:

Milestone	Date for Completion
Evidence of Site Control	Effective Date
CEC Pre-Certification Obtained	03/31/2023
Documentation of Conditional Use Permit if required: [ ] CEQA, [ ] Cat Ex, [ ] Neg Dec, [ ] Mitigated Neg Dec, [ ] EIR	06/30/2023
Seller's receipt of Phase I and Phase II Interconnection study results for Seller's Interconnection Facilities	03/31/2023
Executed Interconnection Agreement	04/30/2023
Expected Construction Start Date	9/30/2023
Expected Date for Full Capacity Deliverability Status	06/01/2023
Initial Synchronization	03/31/2024
Network Upgrades completed	03/31/2024
Expected Commercial Operation Date	6/1/2024

Delivery Term: Twenty-one (21) Contract Years.

Expected Energy:

Contract Years	Expected Energy
1-21	[redacted]

Guaranteed Capacity: 7 MW_{AC}

Contract Price: The Contract Price of the Product shall be:

Contract Year	Contract Price
1 - 21	[redacted]

Product:

- ☒ Facility Energy
- ☒ Green Attributes (Portfolio Content Category 1) associated with Facility Energy
- ☒ Capacity Attributes
- ☒ Ancillary Services

Scheduling Coordinator: Buyer /Buyer Third Party

Development Security and Performance Security:

Development Security: [redacted]

Performance Security: [redacted]

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RENEWABLE POWER PURCHASE AGREEMENT

This Renewable Power Purchase Agreement ("**Agreement**") is entered into as of _____, 2022 (the "**Effective Date**"), between Buyer and Seller. Buyer and Seller are sometimes referred to herein individually as a "**Party**" and jointly as the "**Parties**." All capitalized terms used in this Agreement are used with the meanings ascribed to them in Article 1 to this Agreement.

RECITALS

WHEREAS, Seller intends to develop, design, permit, construct, own, control and operate the Facility; and

WHEREAS, Seller desires to sell, and Buyer desires to purchase, on the terms and conditions set forth in this Agreement, the Product;

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the sufficiency and adequacy of which are hereby acknowledged, the Parties agree to the following:

ARTICLE 1
DEFINITIONS

1.1 **Contract Definitions**. The following terms, when used herein with initial capitalization, shall have the meanings set forth below:

"**AC**" means alternating current.

"**Accepted Compliance Costs**" has the meaning set forth in Section 3.12.

"**Adjusted Energy Production**" has the meaning set forth in Exhibit G.

"**Affiliate**" means, with respect to any Person, each Person that directly or indirectly controls, is controlled by, or is under common control with such designated Person. For purposes of this definition and the definition of "Permitted Transferee", "control" (including, with correlative meanings, the terms, "controlled by", and "under common control with"), as used with respect to any Person, shall mean (a) the direct or indirect right to cast at least fifty percent (50%) of the votes exercisable at an annual general meeting (or its equivalent) of such Person or, if there are no such rights, ownership of at least fifty percent (50%) of the equity or other ownership interest in such Person, or (b) the right to direct the policies or operations of such Person.

"**Agreement**" has the meaning set forth in the Preamble and includes any Exhibits, schedules and any written supplements hereto.

"**Ancillary Services**" means all ancillary services, products and other attributes, if any, associated with the Installed Capacity of the Facility.

"**Available Generating Capacity**" means the capacity of the Facility, expressed in whole MWs, that is mechanically available to generate Energy.

"**Bankrupt**" means with respect to any entity, such entity that (a) files a petition or otherwise commences, authorizes or acquiesces in the commencement of a proceeding or cause of action under any bankruptcy, insolvency, reorganization or similar Law, (b) has any such petition filed or commenced against it which remains unstayed or undismissed for a period of ninety (90) days, (c) makes an assignment or any general arrangement for the benefit of creditors, (d) otherwise becomes bankrupt or insolvent (however evidenced), (e) has a liquidator, administrator, receiver, trustee, conservator or similar official appointed with respect to it or any substantial portion of its property or assets, or (f) is generally unable to pay its debts as they fall due.

"**Bridge Capacity**" has the meaning set forth in Exhibit B.

"**Business Day**" means any day except a Saturday, Sunday, or a Federal Reserve Bank holiday in California. A Business Day begins at 8:00 a.m. and ends at 5:00 p.m. Pacific Prevailing Time (PPT) for the Party sending a Notice, or payment, or performing a specified action.

"**Buyer**" means Marin Clean Energy, a California joint powers authority, a California joint powers authority.

"**Buyer Bid Curtailment**" means any curtailment of the Facility arising out of or resulting from the manner in which Buyer bids, offers or schedules the Facility, the Energy or any Products, or in which Buyer fails to do so, including a situation where all of the following occurs:

(a) the CAISO provides notice, including through ADS, to a Party or the Scheduling Coordinator for the Facility, requiring the Party to deliver less Facility Energy from the Facility than the full amount of energy forecasted to be produced from the Facility for a period of time; and

(b) for the same time period as referenced in (a), the notice referenced in (a) results from the manner in which Buyer or the SC schedules or bids the Facility, Facility Energy or Ancillary Services, including where the Buyer or the SC for the Facility:

(i) did not submit a Self-Schedule or an Energy Supply Bid for the MW subject to the reduction; or

(ii) submitted an Energy Supply Bid and the CAISO notice referenced in (a) is solely a result of CAISO implementing the Energy Supply Bid; or

(iii) submitted a Self-Schedule for less than the full amount of Facility Energy forecasted to be generated or discharged by or delivered from the Facility.

If the Facility is subject to a Planned Outage, Forced Facility Outage, Force Majeure Event or a Curtailment Period during the same time period as referenced in (a), then the calculation of Deemed Delivered Energy during such period shall not include any Facility Energy that was not generated or stored due to such Planned Outage, Forced Facility Outage, Force Majeure Event or Curtailment Period.

"**Buyer Curtailment Order**" means (i) the instruction from Buyer to Seller to reduce Facility Energy from the Facility by the amount, and for the period of time set forth in such instruction, for reasons unrelated to a Planned Outage, Forced Facility Outage, Force Majeure Event or Curtailment Order, (ii) a reduction of Facility Energy directed by CAISO during Settlement Intervals with a Negative LMP, or (iii) a reduction of Facility Energy due to Buyer's participation in the Ancillary Services market.

"**Buyer Curtailment Period**" means the period of time, as measured using current Settlement Intervals, during which Seller reduces generation of Facility Energy from the Facility pursuant to or as a result of (a) Buyer Bid Curtailment, (b) a Buyer Curtailment Order, or (c) Buyer's Default; provided, that the duration of any Buyer Curtailment Period shall be inclusive of the time required for the Facility to ramp down and ramp up.

"**Buyer Default**" means an Event of Default of Buyer.

"**Buyer's WREGIS Account**" has the meaning set forth in Section 4.8(a).

"**CAISO**" means the California Independent System Operator Corporation, or any successor entity performing similar functions.

"**CAISO Approved Meter**" means a CAISO approved revenue quality meter or meters, CAISO approved data processing gateway or remote intelligence gateway, telemetering equipment and data acquisition services sufficient for monitoring, recording and reporting, in real time, all Facility Energy delivered to the Delivery Point.

"**CAISO Grid**" has the same meaning as "CAISO Controlled Grid" as defined in the CAISO Tariff.

"**CAISO Operating Order**" means the "operating order" defined in Section 37.2.1.1 of the CAISO Tariff.

"**CAISO Tariff**" means the California Independent System Operator Corporation Agreement and Tariff, Business Practice Manuals (BPMs), and Operating Procedures, including the rules, protocols, procedures and standards attached thereto, as the same may be amended or modified from time-to-time and approved by FERC.

"**California Renewables Portfolio Standard**" or "**RPS**" means the renewables portfolio standard program and policies established by California State Senate Bills 1038 (2002), 1078 (2002), 107 (2008), X-1 2 (2011), 350 (2015), and 100 (2018) as codified in, *inter alia*, California Public Utilities Code Sections 399.11 through 399.31 and California Public Resources Code Sections 25740 through 25751, as such provisions are amended or supplemented from time to time, and as administered by the CEC as set forth in the CEC RPS Eligibility Guidebook (9th Ed.), as may be subsequently modified by the CEC, and the CPUC as set forth in CPUC Decision ("D") 08-08-028, D.08-04-009, D.10-03-021, D.11-01-025, D.11-12-020, D.11-12-052, D.12-06-038, D.13-11-042, D.14-12-023, D.17-06-026, and D.19-02-007, and as may be modified by subsequent decision of the CPUC or by subsequent legislation, and regulations promulgated with respect thereto.

"**Capacity Attribute**" means any current or future defined characteristic, certificate, tag, credit, or accounting construct associated with the amount of power that the Facility can generate and deliver to the Delivery Point at a particular moment and that can be purchased and sold under CAISO market rules, including Resource Adequacy Benefits. Capacity Attributes are measured in MW and shall exclude Energy, Green Attributes, and any Renewable Energy Incentives now or in the future associated with the construction, ownership or operation of the Facility.

"**Capacity Damages**" has the meaning set forth in Exhibit B.

"**CEC**" means the California Energy Commission, or any successor agency performing similar statutory functions.

"**CEC Certification and Verification**" means that the CEC has certified (or, with respect to periods before the date that is one hundred eighty (180) days following the Commercial Operation Date, that the CEC has pre-certified, as such date may be extended pursuant to Section 3.9) that the Facility is an Eligible Renewable Energy Resource for purposes of the California Renewables Portfolio Standard and that all Facility Energy delivered to the Delivery Point qualifies as generation from an Eligible Renewable Energy Resource.

"**CEC Precertification**" means that the CEC has issued a precertification for the Facility indicating that the planned operations of the Facility would comply with applicable CEC requirements for CEC Certification and Verification.

"**CEQA**" means the California Environmental Quality Act.

"**Change of Control**" means, except in connection with public market transactions of equity interests or capital stock of Seller's Ultimate Parent, any circumstance in which Ultimate Parent ceases to own, directly or indirectly through one or more intermediate entities, at least fifty percent (50%) of the outstanding equity interests in Seller; provided that in calculating ownership percentages for all purposes of the foregoing:

(a) any ownership interest in Seller held by Ultimate Parent indirectly through one or more intermediate entities shall not be counted towards Ultimate Parent's ownership interest in Seller unless Ultimate Parent directly or indirectly owns at least fifty percent (50%) of the outstanding equity interests in each such intermediate entity or entities; and

(b) ownership interests in Seller owned directly or indirectly by any Lender (including any cash equity and tax equity investor directly or indirectly providing financing or refinancing for the Facility or purchasing equity ownership interests of Seller or its Affiliates, and any trustee or agent or similar representative acting on their behalf) or assignee or transferee thereof shall be excluded from the total outstanding equity interests in Seller.

"**Claim**" has the meaning set forth in Section 16.2.

"**COD Certificate**" has the meaning set forth in Exhibit B.

"**Commercial Operation**" has the meaning set forth in Exhibit B.

"**Commercial Operation Date**" has the meaning set forth in Exhibit B.

"**Commercial Operation Delay Damages**" means an amount equal to [redacted]

"**Compliance Actions**" has the meaning set forth in Section 3.12.

"**Compliance Costs**" has the meaning set forth in Section 3.12.

"**Compliance Expenditure Cap**" has the meaning set forth in Section 3.12.

"**Confidential Information**" has the meaning set forth in Section 18.1.

"**Construction Delay Damages**" means an amount equal to [redacted]

"**Construction Start**" has the meaning set forth in Exhibit B.

"**Construction Start Date**" has the meaning set forth in Exhibit B.

"**Contract Price**" has the meaning set forth on the Cover Sheet.

"**Contract Term**" has the meaning set forth in Section 2.1(a).

"**Contract Year**" means a period of twelve (12) consecutive months beginning on January 1st and continuing through December 31st of each calendar year, except that the first Contract Year shall commence on the Commercial Operation Date and end on December 31st of the first full calendar year thereafter and the last Contract Year shall end at midnight at the end of the day prior to the anniversary of the Commercial Operation Date.

"**Costs**" means, with respect to the Non-Defaulting Party, brokerage fees, commissions and other similar third-party transaction costs and expenses reasonably incurred by such Party either in terminating any arrangement pursuant to which it has hedged its obligations or entering into new arrangements which replace the Agreement; and all reasonable attorneys' fees and expenses incurred by the Non-Defaulting Party in connection with terminating the Agreement.

"**Cover Sheet**" means the cover sheet to this Agreement, which is incorporated into this Agreement.

"**CPUC**" means the California Public Utilities Commission or any successor agency performing similar statutory functions.

"**CPUC Filing Guide for System, Local and Flexible Resource Adequacy (RA) Compliance Filings**" or "**CPUC Filing Guide**" means the document issued annually by the CPUC that sets forth the guidelines, requirements and instructions for load serving entities to demonstrate compliance with the CPUC's resource adequacy program as set forth in the Resource Adequacy Rulings.

"**Credit Rating**" means, with respect to any entity, the rating then assigned to such entity's unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by S&P or Moody's.

"**Curtailment Cap**" is the yearly quantity per Contract Year, in MWh, equal to [redacted]

"**Curtailment Order**" means any of the following:

(a) CAISO orders, directs, alerts, or provides notice to a Party, including a CAISO Operating Order, that such Party is required to curtail deliveries of Facility Energy for the following reasons: (i) any System Emergency, or (ii) any warning of an anticipated System Emergency, or warning of an imminent condition or situation, which jeopardizes CAISO's electric system integrity or the integrity of other systems to which CAISO is connected;

(b) a curtailment ordered by the Participating Transmission Owner for reasons including, but not limited to, (i) any situation that affects normal function of the electric system including, but not limited to, any abnormal condition that requires action to prevent circumstances such as equipment damage, loss of load, or abnormal voltage conditions, or (ii) any warning, forecast or anticipation of conditions or situations that jeopardize the Participating Transmission Owner's electric system integrity or the integrity of other systems to which the Participating Transmission Owner is connected;

(c) a curtailment ordered by CAISO or the Participating Transmission Owner due to scheduled or unscheduled maintenance on the Participating Transmission Owner's transmission facilities that prevents (i) Buyer from receiving or (ii) Seller from delivering Facility Energy to the Delivery Point; or

(d) a curtailment in accordance with Seller's obligations under its Interconnection Agreement with the Participating Transmission Owner or distribution operator.

"**Curtailment Period**" means the period of time, as measured using current Settlement Intervals, during which Seller reduces generation from the Facility pursuant to a Curtailment Order; provided that the Curtailment Period shall be inclusive of the time required for the Facility to ramp down and ramp up.

"**Damage Payment**" means [redacted]

"**Day-Ahead Forecast**" has the meaning set forth in Section 4.3(c).

"**Day-Ahead Market**" has the meaning set forth in the CAISO Tariff.

"**Day-Ahead Schedule**" has the meaning set forth in the CAISO Tariff.

"**Dedicated Interconnection Capacity**" has the meaning set forth in Section 4.10.

"**Deemed Delivered Energy**" means the amount of Energy, expressed in MWh, that the Facility would have produced and delivered to the Delivery Point, but that is not delivered to the Delivery Point by the Facility during a Buyer Curtailment Period, which amount shall be calculated as the difference between (a) the product of (i) the arithmetic average of the Facility's metered output rate, in MW, not to exceed the Installed Capacity, immediately before and after such Buyer Curtailment Period, as applicable, by (ii) the duration of such Buyer Curtailment Period, as applicable, less (b) the amount of Facility Energy delivered to the Delivery Point during the Buyer Curtailment Period, if any; *provided*, if the applicable difference is negative, the Deemed Delivered Energy shall be zero (0).

"**Deemed Delivered RA**" means the amount of Net Qualifying Capacity expressed in MW that the Facility would have delivered to the Delivery Point, but for a Force Majeure Event as provided in Section 4.6.

"**Defaulting Party**" has the meaning set forth in Section 11.1(a).

"**Deficient Month**" has the meaning set forth in Section 4.8(d).

"**Delay Damages**" means Construction Delay Damages and Commercial Operation Delay Damages.

"**Delivery Point**" has the meaning set forth in Exhibit A.

"**Delivery Term**" shall mean the period of Contract Years set forth on the Cover Sheet beginning on the Commercial Operation Date, unless terminated earlier in accordance with the terms and conditions of this Agreement.

"**Development Cure Period**" has the meaning set forth in Exhibit B.

"**Development Security**" means (i) cash or (ii) a Letter of Credit in the amount set forth on the Cover Sheet.

"**Disclosing Party**" has the meaning set forth in Section 18.2.

"**Early Termination Date**" has the meaning set forth in Section 11.2(a).

"**Effective Date**" has the meaning set forth on the Preamble.

"**Electrical Losses**" means all transmission or transformation losses or gains between the Facility and the Delivery Point, including losses or gains associated with delivery of Facility Energy to the Delivery Point.

"**Eligible Renewable Energy Resource**" has the meaning set forth in California Public Utilities Code Section 399.12(e) and California Public Resources Code Section 25741(a), as either code provision is amended or supplemented from time to time.

"**Energy**" means electrical energy generated by the Facility.

"**Event of Default**" has the meaning set forth in Section 11.1.

"**Excess Energy**" has the meaning set forth in Exhibit C.

"**Executed Interconnection Agreement Milestone**" means the date for completion of execution of the Interconnection Agreement by Seller and the PTO as set forth on the Cover Sheet.

"**Expected Commercial Operation Date**" is the date set forth on the Cover Sheet by which Seller reasonably expects to achieve Commercial Operation.

"**Expected Construction Start Date**" is the date set forth on the Cover Sheet by which Seller reasonably expects to achieve Construction Start.

"**Expected Energy**" means the quantity of Energy that Seller expects to be able to deliver from the Facility during each Contract Year in the quantity specified on the Cover Sheet.

"**Facility**" means the geothermal generating facility described on the Cover Sheet and in Exhibit A, located at the Site and including mechanical equipment and associated facilities and equipment required to deliver Energy to the Delivery Point.

"**Facility Energy**" means for each hour the as-available electric energy generated by the Facility, which is net of Electrical Losses and Station Use and delivered to the Delivery Point, as measured by the Facility Meter.

"**Facility Meter**" means the CAISO Approved Meter that will measure all electric energy generated by the Facility, including Facility Energy. Without limiting Seller's obligation to deliver Facility Energy to the Delivery Point, the Facility Meter may be located at the low voltage or the high voltage side of the main step up transformer, and Facility Energy will be subject to adjustment in accordance with CAISO meter requirements and Prudent Operating Practices to account for Electrical Losses and Station Use.

"**FERC**" means the Federal Energy Regulatory Commission or any successor government agency.

"**Firm Clean Resource**" means a resource that meets the requirements of CPUC D.21-06-035, Ordering Paragraph 2(b), of CPUC D.21-06-035 as such decision has been interpreted by the CPUC in public guidance documents or other public communications issued prior to the Effective Date, including that such resource (i) is able to deliver firm power with a capacity factor of at least eighty percent (80%), (ii) is not subject to use limitations or weather dependent, (iii) is a generating resource, not storage, (iv) has zero on-site emissions or otherwise qualifies under the California Renewables Portfolio Standard (RPS) program eligibility rules as a PCC-1 resource, (v) is incremental to the CPUC's baseline list, and (vi) is a Resource Adequacy Resource that is eligible to provide RA Capacity as set forth in the Resource Adequacy Rulings.

"**Force Majeure Event**" has the meaning set forth in Section 10.1.

"**Forced Facility Outage**" means an unexpected failure of one or more components of the Facility that prevents Seller from generating Energy or making Facility Energy available at the Delivery Point and that is not the result of a Force Majeure Event.

"**Forward Certificate Transfers**" has the meaning set forth in Section 4.8(a).

"**Full Capacity Deliverability Status**" has the meaning set forth in the CAISO Tariff.

"**Future Environmental Attributes**" shall mean any and all emissions, air quality or other environmental attributes other than Green Attributes or Renewable Energy Incentives under the RPS regulations or under any and all other international, federal, regional, state or other law, rule, regulation, bylaw, treaty or other intergovernmental compact, decision, administrative decision, program (including any voluntary compliance or membership program), competitive market or business method (including all credits, certificates, benefits, and emission measurements, reductions, offsets and allowances related thereto) that are attributable, now, or in the future, to the generation of electrical energy by the Facility and its displacement of conventional energy generation. Future Environmental Attributes do not include (i) any energy, capacity, reliability or other power attributes from the Facility, or (ii) investment tax credits or production tax credits associated with the construction or operation of the Facility, or other financial incentives in the form of credits, reductions, or allowances associated with the Facility that are applicable to a state or federal income taxation obligation.

"**Gains**" means, with respect to any Party, an amount equal to the present value of the economic benefit to it, if any (exclusive of Costs), resulting from the termination of this Agreement for the remaining Contract Term, determined in a commercially reasonable manner. Factors used in determining the economic benefit to a Party may include, without limitation, reference to information supplied by one or more third parties, which shall exclude Affiliates of the Non-Defaulting Party, including without limitation, quotations (either firm or indicative) of relevant rates, prices, yields, yield curves, volatilities, spreads or other relevant market data in the relevant markets, comparable transactions, forward price curves based on economic analysis of the relevant markets, settlement prices for comparable transactions at liquid trading hubs (e.g., SP-15), all of which should be calculated for the remaining Contract Term, and include the value of Green Attributes and Capacity Attributes.

"**Governmental Authority**" means any federal, state, provincial, local or municipal government, any political subdivision thereof or any other governmental, congressional or parliamentary, regulatory, or judicial instrumentality, authority, body, agency, department, bureau, or entity with authority to bind a Party at law, including the CPUC and CAISO; *provided*, *however*, that "Governmental Authority" shall not in any event include any Party.

"**Green Attributes**" means any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, attributable to the generation from the Facility and its avoided emissions of pollutants. Green Attributes include but are not limited to Renewable Energy Credits, as well as: (1) any avoided emissions of pollutants to the air, soil or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO) and other pollutants; (2) any avoided emissions of carbon dioxide (CO2), methane (CH4), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been

determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere; (3) the reporting rights to these avoided emissions, such as Green Tag Reporting Rights. Green Tags are accumulated on a MWh basis and one Green Tag represents the Green Attributes associated with one (1) MWh of Energy. Green Attributes do not include (i) any energy, capacity, reliability or other power attributes from the Facility, (ii) production tax credits associated with the construction or operation of the Facility and other financial incentives in the form of credits, reductions, or allowances associated with the Facility that are applicable to a state or federal income taxation obligation, (iii) fuel-related subsidies or "tipping fees" that may be paid to Seller to accept certain fuels, or local subsidies received by the generator for the destruction of particular preexisting pollutants or the promotion of local environmental benefits, or (iv) emission reduction credits encumbered or used by the Facility for compliance with local, state, or federal operating or air quality permits. If the Facility is a biomass or landfill gas facility and Seller receives any tradable Green Attributes based on the greenhouse gas reduction benefits or other emission offsets attributed to its fuel usage, it shall provide Buyer with sufficient Green Attributes to ensure that there are zero net emissions associated with the production of electricity from the Facility.

"**Green Tag Reporting Rights**" means the right of a purchaser of renewable energy to report the ownership of accumulated "green tags" in compliance with and to the extent permitted by applicable Law to a federal or state agency or any other party at the green tag purchaser's discretion, and include, without limitation, rights under Section 1605(b) of the Energy Policy Act of 1992, and any present or future federal, state or local law, regulation or bill, certification program or international or foreign emissions trading program, including pursuant to the WREGIS Operating Rules.

"**Guaranteed Capacity**" is set forth on the Cover Sheet, as the same may be adjusted pursuant to Section 4 of Exhibit B.

"**Guaranteed Commercial Operation Date**" means the Expected Commercial Operation Date, as such date may be extended by the Development Cure Period pursuant to Section 3 of Exhibit B.

"**Guaranteed Construction Start Date**" means the Expected Construction Start Date, as such date may be extended by the Development Cure Period pursuant to Section 3 of Exhibit B.

"**Guaranteed Energy Production**" means [redacted] of the total Expected Energy, measured in MWh, for the applicable Performance Measurement Period.

"**Guaranteed RA Amount**" is equal to [redacted]

"**Guarantor**" means, with respect to Seller, any Person that (a) Buyer does not already have any material credit exposure to under any other agreements, guarantees, or other arrangements at the time its Guaranty is issued, (b) is an Affiliate of Seller, or other third party reasonably acceptable to Buyer, (c) has a Credit Rating of BBB- or better from S&P or a Credit

Rating of Baa3 or better from Moody's or has a tangible net worth of at least One Hundred Million Dollars ($100,000,000), (d) is incorporated or organized in a jurisdiction of the United States and is in good standing in such jurisdiction, and (e) executes and delivers a Guaranty for the benefit of Buyer.

"**Guaranty**" means a guaranty from a Guarantor provided for the benefit of Buyer substantially in the form attached as Exhibit L.

"**Imbalance Energy**" means the amount of energy in MWh, in any given Settlement Period or Settlement Interval, by which the amount of Facility Energy deviates from the amount of Scheduled Energy.

"**Indemnifiable Loss(es)**" has the meaning set forth in Section 16.1(a).

"**Initial Synchronization**" means the initial delivery of Facility Energy to the Delivery Point.

"**Installed Capacity**" means the actual generating capacity of the Facility, not to exceed the Guaranteed Capacity, as measured in MW(AC) at the Delivery Point, that achieves Commercial Operation, adjusted for ambient conditions on the date of the performance test, and as evidenced by a certificate substantially in the form attached as Exhibit I hereto.

"**Interconnection Agreement**" means the interconnection agreement entered into by Seller pursuant to which the Facility will be interconnected with the Transmission System, and pursuant to which Seller's Interconnection Facilities and any other Interconnection Facilities will be constructed, operated and maintained during the Contract Term.

"**Interconnection Facilities**" means the interconnection facilities, control and protective devices and metering facilities required to connect the Facility with the Transmission System (or Participating Transmission Owner's distribution system, as applicable) in accordance with the Interconnection Agreement.

"**Interest Rate**" has the meaning set forth in Section 8.2.

"**Inter-SC Trade**" or "**IST**" has the meaning set forth in the CAISO Tariff.

"**ITC**" means the investment tax credit established pursuant to Section 48 of the United States Internal Revenue Code of 1986.

"**Joint Powers Act**" means the Joint Exercise of Powers Act of the State of California (Government Code Section 6500 et seq.).

"**Joint Powers Agreement**" means that certain Joint Powers Agreement dated December 19, 2008, as amended from time to time, under which Buyer is organized as a Joint Powers Authority in accordance with the Joint Powers Act.

"**Law**" means any applicable law, statute, rule, regulation, decision, writ, order, decree or judgment, permit or any interpretation thereof, promulgated or issued by a Governmental Authority, and includes the CAISO Tariff.

"**Lender**" means, collectively, any Person (i) providing senior or subordinated construction, interim, back leverage or long-term debt, equity or tax equity financing or refinancing for or in connection with the development, construction, purchase, installation or operation of the Facility, whether that financing or refinancing takes the form of private debt (including back-leverage debt), equity (including tax equity), public debt or any other form (including financing or refinancing provided to a member or other direct or indirect owner of Seller), including any equity or tax equity investor directly or indirectly providing financing or refinancing for the Facility or purchasing equity ownership interests of Seller and/or its Affiliates, and any trustee or agent or similar representative acting on their behalf, (ii) providing interest rate or commodity protection under an agreement hedging or otherwise mitigating the cost of any of the foregoing obligations or (iii) participating in a lease financing (including a sale leaseback or leveraged leasing structure) with respect to the Facility.

"**Letter(s) of Credit**" means one or more irrevocable, standby letters of credit issued by a U.S. commercial bank or a foreign bank with a U.S. branch with such bank (a) having a Credit Rating of at least A- with an outlook designation of "stable" from S&P or A3 with an outlook designation of "stable" from Moody's or (b) being reasonably acceptable to Buyer, in a form substantially similar to the letter of credit set forth in Exhibit K.

"**Licensed Professional Engineer**" means an independent, professional engineer (a) reasonably acceptable to Buyer, (b) who has been retained by, or for the benefit of, the Lenders, or (c) who (i) is licensed to practice engineering in the State of California, (ii) has training and experience in the power industry specific to the technology of the Facility, (iii) is licensed in an appropriate engineering discipline for the required certification being made, and (iv) unless otherwise approved by Buyer, is not a representative of a consultant, engineer, contractor, designer or other individual involved in the development of the Facility or of a manufacturer or supplier of any equipment installed at the Facility.

"**Local Capacity Area**" has the meaning set forth in the CAISO Tariff.

"**Local Capacity Area Resources**" has the meaning set forth in the CAISO Tariff.

"**Locational Marginal Price**" or "**LMP**" has the meaning set forth in the CAISO Tariff.

"**Losses**" means, with respect to any Party, an amount equal to the present value of the economic loss to it, if any (exclusive of Costs), resulting from termination of this Agreement for the remaining Contract Term, determined in a commercially reasonable manner. Factors used in determining economic loss to a Party may include, without limitation, reference to information supplied by one or more third parties, which shall exclude Affiliates of the Non-Defaulting Party, including without limitation, quotations (either firm or indicative) of relevant rates, prices, yields, yield curves, volatilities, spreads or other relevant market data in the relevant markets, comparable transactions, forward price curves based on economic analysis of the relevant markets, settlement prices for comparable transactions at liquid trading hubs (e.g., SP-15), all of which should be

calculated for the remaining Contract Term and must include the value of Green Attributes, Capacity Attributes, and, in the case of Seller as the Non-Defaulting Party, Renewable Energy Incentives and Tax benefits determined on an after-tax basis which Seller has not been able to mitigate after use of reasonable efforts.

"**Lost Output**" has the meaning set forth in Section 4.7.

"**Milestones**" means the development activities for significant permitting, interconnection, financing and construction milestones set forth on the Cover Sheet.

"**Monthly Delivery Forecast**" has the meaning set forth in Section 4.3(b).

"**Moody's**" means Moody's Investors Service, Inc., or its successors.

"**MW**" means megawatts in alternating current, unless expressly stated in terms of direct current.

"**MWh**" means megawatt-hour measured in alternating current, unless expressly stated in terms of direct current.

"**Negative LMP**" means, in any Settlement Period or Settlement Interval, whether in the Day-Ahead Market or Real-Time Market, the LMP at the Delivery Point is less than Zero Dollars ($0).

"**NERC**" means the North American Electric Reliability Corporation or any successor entity performing similar functions.

"**Net Qualifying Capacity**" or "**NQC**" means the net capacity of a resource that can be counted towards system Resource Adequacy Requirements, as identified from time to time by the CAISO Tariff, the Resource Adequacy Rulings, or by another Governmental Authority having jurisdiction.

"**Network Upgrades**" has the meaning set forth in the CAISO Tariff.

"**Non-Defaulting Party**" has the meaning set forth in Section 11.2.

"**Notice**" shall, unless otherwise specified in the Agreement, mean written communications by a Party to be delivered by hand delivery, United States mail, overnight courier service, or electronic messaging (email).

"**Notice of Claim**" has the meaning set forth in Section 16.2.

"**NP 15**" means the Existing Zone Generation Trading Hub for Existing Zone region NP15 as set forth in the CAISO Tariff.

"**Operating Restrictions**" means those rules, requirements, and procedures set forth on Exhibit O.

"**Participating Transmission Owner**" or "**PTO**" means an entity that owns, operates and maintains transmission or distribution lines and associated facilities or has entitlements to use certain transmission or distribution lines and associated facilities where the Facility is interconnected. For purposes of this Agreement, the Participating Transmission Owner is set forth in Exhibit A.

"**Party**" or "**Parties**" has the meaning set forth in the Preamble.

"**Performance Measurement Period**" means each Contract Year during the Delivery Term; provided, that the Performance Measurement Period shall begin on the first 12-month Contract Year, and if the last Contract Year is less than 12 months, Guaranteed Energy Production shall be determined on a pro-rated basis.

"**Performance Security**" means (i) cash or (ii) a Letter of Credit or a (iii) a Guaranty, in the amount set forth on the Cover Sheet.

"**Permitted Transferee**" means (i) any Affiliate of Seller or (ii) any entity that satisfies, or is controlled by another Person that satisfies, the following requirements:

(a) A tangible net worth of [redacted] or a Credit Rating of at least BBB- from S&P or Baa3 from Moody's; and

(b) At least two (2) years of experience in the ownership and operations of power generation facilities similar to the Facility, or has retained a third-party with such experience to operate the Facility.

"**Person**" means any individual, sole proprietorship, corporation, limited liability company, limited or general partnership, joint venture, association, joint-stock company, trust, incorporated organization, institution, public benefit corporation, unincorporated organization, government entity or other entity.

"**Planned Outage**" has the meaning set forth in Section 4.6(a).

"**PMAX**" means the applicable CAISO-certified maximum operating level of the Facility.

"**PNode**" has the meaning set forth in the CAISO Tariff.

"**Portfolio Content Category**" means PCC1, PCC2 or PCC3, as applicable.

"**Portfolio Content Category 1**" or "**PCC1**" means any Renewable Energy Credit associated with the generation of electricity from an Eligible Renewable Energy Resource consisting of the portfolio content set forth in California Public Utilities Code Section 399.16(b)(1) and California Public Utilities Commission Decision 11-12-052, as may be amended from time to time or as further defined or supplemented by Law.

[redacted]

"**Product**" has the meaning set forth on the Cover Sheet.

"**Progress Report**" means a progress report including the items set forth in Exhibit E.

"**Prudent Operating Practice**" means (a) the applicable practices, methods and acts required by or consistent with applicable Laws and reliability criteria, and otherwise engaged in or approved by a significant portion of the electric utility and independent power producer industry during the relevant time period with respect to grid-interconnected, utility-scale geothermal generating facilities in the Western United States, or (b) any of the practices, methods and acts which, in the exercise of reasonable judgement in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Prudent Operating Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather to acceptable practices, methods or acts generally accepted in the industry with respect to grid-interconnected, utility-scale generating facilities in the Western United States. Prudent Operating Practice includes compliance with applicable Laws, applicable safety and reliability criteria, and the applicable criteria, rules and standards promulgated in the National Electric Safety Code and the National Electrical Code, as they may be amended or superseded from time to time, including the criteria, rules and standards of any successor organizations.

"**PTC**" means the production tax credit established pursuant to Section 45 of the United States Internal Revenue Code of 1986.

"**Qualifying Capacity**" has the meaning set forth in the CAISO Tariff.

"**RA Capacity**" has the meaning set forth in the CAISO Tariff.

"**RA Deficiency Amount**" means the liquidated damages payment that Seller shall pay to Buyer for an applicable RA Shortfall Month as calculated in accordance with Section 3.8(b).

"**RA Guarantee Date**" means [redacted]

"**RA Shortfall Month**" means, for purposes of calculating an RA Deficiency Amount under Section 3.8 any Showing Month during which there is an RA Shortfall.

"**Real-Time Forecast**" means any Notice of any change to the Available Generating Capacity or hourly expected Facility Energy delivered by or on behalf of Seller pursuant to Section 4.3(d).

"**Real-Time Market**" has the meaning set forth in the CAISO Tariff.

"**Remedial Action Plan**" has the meaning in Section 2.4.

"**Renewable Energy Credit**" has the meaning set forth in California Public Utilities Code Section 399.12(h) and CPUC D.08-08-028, as may be amended or supplemented from time to time or as further defined or supplemented by Law, is evidenced by a WREGIS Certificate, and is equivalent to one (1) MWh of energy from the Facility which shall be qualified and certified as an ERR.

"**Renewable Energy Incentives**" means: (a) all federal, state, or local Tax credits or other Tax benefits associated with the construction, ownership, or production of electricity from the Facility (including credits under Sections 38, 45, 46 and 48 of the Internal Revenue Code of 1986, as amended); (b) any federal, state, or local grants, subsidies or other like benefits relating in any way to the Facility; and (c) any other form of incentive relating in any way to the Facility that is not a Green Attribute or a Future Environmental Attribute.

"**Replacement RA**" means Resource Adequacy Benefits, if any, equivalent to those that would have been provided by the Facility with respect to the applicable month in which a RA Deficiency Amount is due to. To the extent that the Facility would have qualified as a Local Capacity Area Resource for such month, the Replacement RA must be from a Local Capacity Area Resource located within the same Local Capacity Area as the Facility.

"**Resource Adequacy Benefits**" means the rights and privileges attached to the Facility that satisfy any entity's resource adequacy obligations, as those obligations are set forth in any Resource Adequacy Rulings and includes any local, zonal or otherwise locational attributes associated with the Facility, in addition to flex attributes.

"**Resource Adequacy Rulings**" means CPUC Decisions 04-01-050, 04-10-035, 05-10-042, 06-04-040, 06-06-064, 06-07-031 06-07-031, 07-06-029, 08-06-031, 09-06-028, 10-06-036, 11-06-022, 12-06-025, 13-06-024, 14-06-050, 15-06-063, 16-06-045, 17-06-027, 19-02-022, 19-06-026, 19-10-021, 20-06-002, 20-06-028, 20-06-31, 20-12-006, 21-06-035, and any other existing or subsequent decisions, resolutions, or rulings related to resource adequacy, including, without limitation, in each case as may be amended from time to time by the CPUC, and any other existing or subsequent ruling or decision, or any other resource adequacy Law, however described, as such decisions, rulings, Laws, rules or regulations may be amended or modified from time-to-time throughout the Delivery Term.

"**S&P**" means the Standard & Poor's Financial Services, LLC (a subsidiary of The McGraw-Hill Companies, Inc.) or its successor.

"**Schedule**" has the meaning set forth in the CAISO Tariff, and "**Scheduled**" has a corollary meaning.

"**Scheduled Energy**" means the Facility Energy that clears under the applicable CAISO market based on the final Day-Ahead Schedule, FMM Schedule (as defined in the CAISO Tariff), or any other financially binding Schedule, market instruction or dispatch for the Facility for a given period of time implemented in accordance with the CAISO Tariff.

"**Scheduling Coordinator**" or "**SC**" means an entity certified by the CAISO as qualifying as a Scheduling Coordinator pursuant to the CAISO Tariff for the purposes of undertaking the functions specified in "Responsibilities of a Scheduling Coordinator," of the CAISO Tariff, as amended from time to time.

"**Security Interest**" has the meaning set forth in Section 8.9.

"**Self-Schedule**" has the meaning set forth in the CAISO Tariff.

"**Seller**" has the meaning set forth on the Cover Sheet.

"**Seller's WREGIS Account**" has the meaning set forth in Section 4.8(a).

"**Settlement Amount**" means the Non-Defaulting Party's Costs and Losses, on the one hand, netted against its Gains, on the other. If the Non-Defaulting Party's Costs and Losses exceed its Gains, then the Settlement Amount shall be an amount owing to the Non-Defaulting Party. If the Non-Defaulting Party's Gains exceed its Costs and Losses, then the Settlement Amount shall be Zero Dollars ($0). The Settlement Amount does not include consequential, incidental, punitive, exemplary or indirect or business interruption damages; provided that the Parties agree that Seller's lost revenue under this Agreement resulting from a Buyer Default may be included in the determination of Losses.

"**Settlement Interval**" has the meaning set forth in the CAISO Tariff.

"**Settlement Period**" has the meaning set forth in the CAISO Tariff.

"**Shared Facilities**" means the gen-tie lines, transformers, substations, or other equipment, permits, contract rights, and other assets and property (real or personal), in each case, as necessary to enable generation and delivery of energy from the Facility (which is excluded from Shared Facilities) to the point of interconnection, including the Interconnection Agreement itself, that are used in common with third parties.

"**Showing Month**" means the calendar month of the Delivery Term that is the subject of the compliance showing, as set forth in the Resource Adequacy Rulings and outlined in the CAISO Tariff. For illustrative purposes only, pursuant to the CAISO Tariff and Resource Adequacy Rulings in effect as of the Effective Date, the monthly compliance showing made in June is for the Showing Month of August.

"**Site**" means the real property on which the Facility is or will be located, as further described in Exhibit A, and as may be updated by Seller at the time it provides the Construction Start Date Certificate substantially in the form of Exhibit J; *provided* that any such update to the Site that includes real property that was not originally contained with or contiguous with the Site boundaries described in Exhibit A shall be subject to Buyer's approval of such updates in its sole discretion. "Site" does not include any land rights or interests in the real property constituting the Site that relate to or are used by other projects constructed or owned by any party to any Shared Facility Agreements. Any update provided by Seller in the Construction Start Date Certificate shall be automatically incorporated in Exhibit A upon its receipt by Buyer, unless Buyer's approval is otherwise required, then it shall be incorporated into Exhibit A upon Buyer's approval.

"**Site Control**" means that Seller (or, prior to the Delivery Term, its Affiliate): (a) owns or has the option to purchase the Site; (b) is the lessee or has the option to lease the Site; or (c) is the holder of an easement or an option for an easement, right-of-way grant, or similar instrument with respect to the Site.

"**SP 15**" means the Existing Zone Generation Trading Hub for Existing Zone region SP15 as set forth in the CAISO Tariff.

"**Station Use**" means:

(a) The Energy produced by the Facility that is used within the Facility to power the lights, motors, control systems and other electrical loads that are necessary for operation of the Facility; and

(b) The Energy produced by the Facility that is consumed within the Facility's electric energy distribution system as losses.

"**System Emergency**" means any condition that requires, as determined and declared by CAISO or the PTO, automatic or immediate action to (i) prevent or limit harm to or loss of life or property, (ii) prevent loss of transmission facilities or generation supply in the immediate vicinity of the Facility, or (iii) to preserve Transmission System reliability.

"**Tax**" or "**Taxes**" means all U.S. federal, state and local and any foreign taxes, levies, assessments, surcharges, duties and other fees and charges of any nature imposed by a Governmental Authority, whether currently in effect or adopted during the Contract Term, including ad valorem, excise, franchise, gross receipts, import/export, license, property, sales and use, stamp, transfer, payroll, unemployment, income, and any and all items of withholding, deficiency, penalty, additions, interest or assessment related thereto.

"**Tax Credits**" means the PTC, ITC and any other state, local or federal production tax credit, depreciation benefit, tax deduction or investment tax credit specific to the production of renewable energy or investments in renewable energy facilities.

"**Technology Factor**" means the then-applicable monthly percentage published by the CPUC and used to establish Qualifying Capacity for non-dispatchable geothermal resources that have less than three (3) years of historical production and bidding data. The Parties acknowledge and agree that the Technology Factors vary from year to year and month to month.

"**Terminated Transaction**" has the meaning set forth in Section 11.2(a).

"**Termination Payment**" has the meaning set forth in Section 11.3.

"**Test Energy**" means Facility Energy delivered to the Delivery Point (a) commencing on the later of (i) the first date that the CAISO informs Seller in writing that Seller may deliver Facility Energy to the CAISO and (ii) the first date that the PTO informs Seller in writing that Seller has conditional or temporary permission to parallel and (b) ending upon the occurrence of the Commercial Operation Date.

"**Test Energy Rate**" has the meaning set forth in Section 3.6.

"**Transformer Failure**" means failure of all or part of the main power transformer that results in the Facility being unable to generate Energy during such failure, and such failure was not caused by Seller and could not have been avoided through the exercise of Prudent Operating Practice.

"**Transmission Provider**" means any entity or entities transmitting or transporting the Facility Energy on behalf of Seller or Buyer to or from the Delivery Point.

"**Transmission System**" means the transmission facilities operated by the CAISO, now or hereafter in existence, which provide energy transmission service within the CAISO grid from the Delivery Point.

"**Ultimate Parent**" means Open Mountain Energy, LLC, a Delaware limited liability company.

"**Variable Energy Resource**" or "**VER**" has the meaning set forth in the CAISO Tariff.

"**WREGIS**" means the Western Renewable Energy Generation Information System or any successor renewable energy tracking program.

"**WREGIS Certificate Deficit**" has the meaning set forth in Section 4.8(d).

"**WREGIS Certificates**" has the same meaning as "Certificate" as defined by WREGIS in the WREGIS Operating Rules and are designated as eligible for complying with the California Renewables Portfolio Standard.

"**WREGIS Operating Rules**" means those operating rules and requirements adopted by WREGIS as of January 4, 2021, as subsequently amended, supplemented or replaced (in whole or in part) from time to time.

1.2 **Rules of Interpretation**. In this Agreement, except as expressly stated otherwise or unless the context otherwise requires:

(a) headings and the rendering of text in bold and italics are for convenience and reference purposes only and do not affect the meaning or interpretation of this Agreement;

(b) words importing the singular include the plural and vice versa and the masculine, feminine and neuter genders include all genders;

(c) the words "hereof", "herein", and "hereunder" and words of similar import shall refer to this Agreement as a whole and not to any particular provision of this Agreement;

(d) a reference to an Article, Section, paragraph, clause, Party, or Exhibit is a reference to that Article, Section, paragraph, clause of, or that Party or Exhibit to, this Agreement unless otherwise specified;

(e) a reference to a document or agreement, including this Agreement means such document, agreement or this Agreement including any amendment or supplement to, or replacement, novation or modification of this Agreement, but disregarding any amendment, supplement, replacement, novation or modification made in breach of such document, agreement or this Agreement;

(f) a reference to a Person includes that Person's successors and permitted assigns;

(g) the terms "include" and "including" means "include or including without limitation" (as applicable) and any list of examples following such term shall in no way restrict or limit the generality of the word or provision in respect of which such examples are provided;

(h) references to any statute, code or statutory provision are to be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or reenacted, and include references to all bylaws, instruments, orders and regulations for the time being made thereunder or deriving validity therefrom unless the context otherwise requires;

(i) in the event of a conflict, a mathematical formula or other precise description of a concept or a term shall prevail over words providing a more general description of a concept or a term;

(j) references to any amount of money shall mean a reference to the amount in United States Dollars;

(k) the expression "and/or" when used as a conjunction shall connote "any or all of";

(l) words, phrases or expressions not otherwise defined herein that (i) have a generally accepted meaning in Prudent Operating Practice shall have such meaning in this Agreement or (ii) do not have well known and generally accepted meaning in Prudent Operating Practice but that have well known and generally accepted technical or trade meanings, shall have such recognized meanings; and

(m) each Party acknowledges that it was represented by counsel in connection with this Agreement and that it or its counsel reviewed this Agreement and that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement.

ARTICLE 2
TERM; CONDITIONS PRECEDENT

2.1 **Contract Term**.

(a) The term of this Agreement shall commence on the Effective Date and shall remain in full force and effect until the conclusion of the Delivery Term, subject to any early termination provisions set forth herein ("**Contract Term**"); provided, however, that subject to Buyer's obligations in Section 3.6, Buyer's obligations to pay for or accept any Product are subject to Seller's completion of the conditions precedent pursuant to Section 2.2.

(b) Applicable provisions of this Agreement shall continue in effect after termination, including early termination, to the extent necessary to enforce or complete the duties, obligations or responsibilities of the Parties arising prior to termination. The confidentiality

obligations of the Parties under Article 18 and all indemnity and audit rights shall remain in full force and effect for three (3) years following the termination of this Agreement.

2.2 **Conditions Precedent**. The Delivery Term shall not commence until Seller completes each of the following conditions:

(a) Seller has delivered to Buyer (i) a completion certificate from a Licensed Professional Engineer substantially in the form of Exhibit H and (ii) a certificate from a Licensed Professional Engineer substantially in the form of Exhibit I setting forth the Installed Capacity on the Commercial Operation Date;

(b) A Participating Generator Agreement and a Meter Service Agreement between Seller and CAISO shall have been executed and delivered and be in full force and effect, and a copy of each such agreement delivered to Buyer;

(c) An Interconnection Agreement between Seller and the PTO shall have been executed and delivered and be in full force and effect and a copy of the Interconnection Agreement delivered to Buyer;

(d) All required regulatory authorizations, approvals and permits for the operation of the Facility have been obtained and shall be in full force and effect, and all conditions thereof that are capable of being satisfied on the Commercial Operation Date have been satisfied;

(e) Seller has received CEC Precertification of the Facility (and reasonably expects to receive final CEC Certification and Verification for the Facility in no more than one hundred eighty (180) days from the Commercial Operation Date);

(f) Seller (with the reasonable participation of Buyer) shall have completed all applicable WREGIS registration requirements that are reasonably capable of being completed prior to the Commercial Operation Date under WREGIS rules, including (as applicable) the completion and submittal of all applicable registration forms and supporting documentation, which may include applicable interconnection agreements, informational surveys related to the Facility, QRE service agreements, and other appropriate documentation required to effect Facility registration with WREGIS and to enable Renewable Energy Credit transfers related to the Facility within the WREGIS system;

(g) Seller has provided Buyer with a copy of written notice from CAISO supporting Commercial Operation, in accordance with the CAISO Tariff;

(h) Seller has provided Buyer with a copy of written notice from the CAISO that the Facility has achieved either Full Capacity Deliverability Status or Interim Deliverability Status;

(i) Seller shall have caused the Facility to be included in the Full Network Model and has the ability to offer Bids into the CAISO Day-Ahead and Real-Time markets in respect of the Facility;

(j) Seller (or its Affiliate, if a sharing arrangement permitted by this Agreement is in effect) has obtained all real property rights, including Site Control, required for the operation of the Facility during the Delivery Term, and Seller has provided evidence of such rights to Buyer;

(k) Insurance requirements for the Facility pursuant to Article 17 have been met, with evidence provided in writing to Buyer;

(l) Seller has certified in writing to Buyer that Seller has complied with the Workforce Requirements in Section 13.4 and provided reasonably requested documentation demonstrating such compliance as set forth in Section 13.4;

(m) Seller has certified in writing to Buyer that Seller has satisfied the community benefit-related obligations set forth in Exhibit Q, and provided reasonably requested documentation demonstrating such compliance;

(n) Seller has delivered the Performance Security to Buyer in accordance with Section 8.8; and

(o) Seller has paid Buyer for all undisputed amounts owing under this Agreement as of the Commercial Operation Date, if any, including Construction Delay Damages, and Commercial Operation Delay Damages, in each case, if any and to the extent owed.

2.3 **Development; Construction; Progress Reports**. Following the Effective Date, within fifteen (15) days after the close of (i) each calendar quarter from the first calendar quarter following the Effective Date until the Expected Construction Start Date, and (ii) each calendar month from the first calendar month following the Expected Construction Start Date until the Commercial Operation Date, Seller shall provide a Progress Report to Buyer until the Commercial Operation Date and agrees to regularly scheduled meetings between representatives of Buyer and Seller to review such reports and discuss Seller's construction progress. The form of the Progress Report is set forth in Exhibit E. Seller shall also provide Buyer with any reasonably requested documentation (subject to confidentiality restrictions) directly related to the achievement of Milestones within ten (10) Business Days of receipt of such request by Seller. For the avoidance of doubt, as between Seller and Buyer, Seller is solely responsible for the design and construction of the Facility, including the location of the Site, obtaining all permits and approvals to build the Facility, the Facility layout, and the selection and procurement of the equipment comprising the Facility.

2.4 **Remedial Action Plan**. If Seller misses three (3) or more Milestones, or misses any one (1) by more than ninety (90) days, except as the result of Force Majeure Event or Buyer Default, Seller shall submit to Buyer, within ten (10) Business Days of such missed Milestone completion date, a remedial action plan ("**Remedial Action Plan**"), which will describe in detail any delays (actual or anticipated) beyond the scheduled Milestone dates, including the cause of the delay, if known (e.g., governmental approvals, financing, property acquisition, design activities, equipment procurement, project construction, interconnection, or any other factor), Seller's detailed description of its proposed course of action to achieve the missed Milestones and all subsequent Milestones by the Guaranteed Commercial Operation Date (including any extension thereof); provided, that delivery of any Remedial Action Plan shall not relieve Seller of its

obligation to provide Remedial Action Plans with respect to any subsequent Milestones and to achieve the Guaranteed Commercial Operation Date in accordance with the terms of this Agreement. Subject to the provisions of Exhibit B, so long as Seller complies with its obligations under this Section 2.4, Seller shall not be considered in default of its obligations under this Agreement solely as a result of missing any Milestone.

2.5 **Future Phases; Additional Projects**. Seller grants Buyer the right of first offer to evaluate and negotiate the purchase of the output of any additional phases of the Facility, as well as any separate renewable energy or energy storage projects that are currently under development by, or will be developed by, Seller or affiliates of Seller, and that will use or share infrastructure, land, equipment (including the ability to jointly procure equipment), or other facilities as the Facility ("**Additional Facilities**"). Neither Seller nor Seller's Affiliates may sell, market or deliver any Product associated with or attributable to any Additional Facilities to a party other than Buyer unless prior to selling or marketing the output from any such Additional Facilities, or entering into the agreement to sell, market or deliver any output from such Additional Facilities to a party other than Buyer, Seller or Seller's Affiliates provide Buyer with a written offer to sell the output from such Additional Facilities on terms and conditions that Seller will offer to a third party. If Buyer accepts Seller's offer, subject to negotiation of final documents, by providing written notice of such acceptance to Seller by 5:00 p.m. PPT on or before the thirtieth (30th) day following Buyer's receipt of the offer (or if such thirtieth (30th) day is not a Business Day for Buyer, by 5:00 p.m. PPT on the next Business Day) (the "**Offer Deadline**"), then Seller shall thereafter negotiate in good faith with Buyer to finalize the terms of, and enter into, an agreement for the purchase and sale of such output on substantially the same terms of Seller's offer to Buyer. If Buyer and Seller are unable to finalize the terms of, and enter into, such agreement within forty-five (45) days following the Offer Deadline, Seller's offer shall be deemed rejected and the provisions of Section 2.5 shall no longer apply. If Buyer does not accept the Seller's offer by the Offer Deadline or is deemed to have rejected Seller's offer as provided in the foregoing sentence, then Seller will have the right to solicit offers and enter into one or more agreements for the purchase and sale of such output with Persons other than Buyer on the terms and conditions acceptable to Seller in its sole discretion.

[redacted]

ARTICLE 3
PURCHASE AND SALE

3.1 **Purchase and Sale of Product**. Subject to the terms and conditions of this Agreement, during the Delivery Term, Buyer will purchase and receive all the Product produced by or associated with the Facility at the Contract Price and in accordance with Exhibit C, and Seller

shall supply and deliver to Buyer all the Product produced by or associated with the Facility (net of applicable losses). At its sole discretion but subject to Section 5.2, Buyer may during the Delivery Term re-sell or use for another purpose all or a portion of the Product, provided that no such re-sale or use shall relieve Buyer of any obligations hereunder. During the Delivery Term, subject to and without limiting Seller's right to retain CAISO revenues as described in Exhibit D, Buyer will have exclusive rights to offer, bid, or otherwise submit the Product, or any component thereof, purchased hereunder from the Facility after the Delivery Point for resale into the market or to any third party, and retain and receive any and all related revenues. Subject to Buyer's obligation to pay for Deemed Delivered Energy, Buyer has no obligation to purchase from Seller any Product for which the associated Facility Energy is not or cannot be delivered to the Delivery Point as a result of an outage of the Facility, a Force Majeure Event, or a Curtailment Order.

3.2 **Sale of Green Attributes**. During the Delivery Term, Seller shall sell and deliver to Buyer, and Buyer shall purchase and receive from Seller, all Green Attributes attributable to the Facility Energy generated by the Facility.

3.3 **Imbalance Energy**. Buyer and Seller recognize that in any given Settlement Period there may be Imbalance Energy. To the extent there is any Imbalance Energy, any payments or charges related to such Imbalance Energy shall be for the account of Buyer.

3.4 **Ownership of Renewable Energy Incentives**. Seller shall have all right, title and interest in and to all Renewable Energy Incentives. Buyer acknowledges that any Renewable Energy Incentives belong to Seller. If any Renewable Energy Incentives, or values representing the same, are initially credited or paid to Buyer, Buyer shall cause such Renewable Energy Incentives or values relating to same to be assigned or transferred to Seller without delay. Buyer shall reasonably cooperate with Seller, at Seller's sole expense, in Seller's efforts to meet the requirements for any certification, registration, or reporting program relating to Renewable Energy Incentives.

3.5 **Future Environmental Attributes**.

(a) The Parties acknowledge and agree that as of the Effective Date, environmental attributes sold under this Agreement are restricted to Green Attributes; however, Future Environmental Attributes may be created by a Governmental Authority through Laws enacted after the Effective Date. Subject to the final sentence of this Section 3.5(a), and Sections 3.5(b) and 3.12, in such event, Buyer shall bear all costs and risks associated with the transfer, qualification, verification, registration and ongoing compliance for such Future Environmental Attributes, but there shall be no increase in the Contract Price. Upon Seller's receipt of Notice from Buyer of Buyer's intent to claim such Future Environmental Attributes, the Parties shall determine the necessary actions and additional costs associated with such Future Environmental Attributes. Seller shall have no obligation to alter the Facility or the operation of the Facility, including reduction of delivery of Energy to the Delivery Point, unless the Parties have agreed on all necessary terms and conditions relating to such alteration or change in operation and Buyer has agreed to reimburse Seller for all costs, losses, and liabilities associated with such alteration or change in operation or reduction.

(b) If Buyer elects to receive Future Environmental Attributes pursuant to Section 3.5(a), the Parties agree to negotiate in good faith with respect to the development of further agreements and documentation necessary to effectuate the transfer of such Future Environmental Attributes, including agreement with respect to (i) appropriate transfer, delivery and risk of loss mechanisms, and (ii) appropriate allocation of any additional costs to Buyer, as set forth above (in any event subject to Section 3.12); *provided*, that the Parties acknowledge and agree that such terms are not intended to alter the other material terms of this Agreement.

3.6 **Test Energy**. No less than fourteen (14) days prior to the first day on which Test Energy is expected to be available from the Facility, Seller shall notify Buyer of the availability of the Test Energy. If and to the extent the Facility generates Test Energy, Seller shall sell and Buyer shall purchase from Seller all Test Energy and any associated Products on an as-available basis for up to ninety (90) days from the first delivery of Test Energy. As compensation for such Test Energy and associated Product, Buyer shall pay Seller an amount equal to [redacted] (the "**Test Energy Rate**"). For the avoidance of doubt, the conditions precedent in Section 2.2 are not applicable to the Parties' obligations under this Section 3.6.

3.7 **Capacity Attributes**. Seller shall request Full Capacity Deliverability Status in pursuant to the CAISO Tariff. As between Buyer and Seller, Seller shall be responsible for the cost and installation of any Network Upgrades associated with obtaining such Full Capacity Deliverability Status.

(a) Throughout the Delivery Term, Seller grants, pledges, assigns and otherwise commits to Buyer all of the Capacity Attributes from the Facility.

(b) On and after the RA Guarantee Date and thereafter throughout the Delivery Term, the following provisions shall apply:

(i) Seller shall use commercially reasonable efforts to maintain eligibility for Full Capacity Deliverability Status or Interim Deliverability Status for the Facility from the CAISO and shall perform all actions necessary to ensure that the Facility qualifies to provide Resource Adequacy Benefits to Buyer.

(ii) Seller hereby covenants and agrees to transfer all of the Resource Adequacy Benefits and other Capacity Attributes of the Facility to Buyer.

(iii) Seller shall take all reasonable actions, including complying with all applicable registration and reporting requirements, and execute all documents or instruments necessary to enable Buyer to use all of the Capacity Attributes committed by Seller to Buyer pursuant to this Agreement.

3.8 **Resource Adequacy Failure**.

(a) RA Deficiency Determination. For each RA Shortfall Month, Seller shall pay to Buyer the RA Deficiency Amount as liquidated damages or provide Replacement RA, in each case, as the sole and exclusive remedy for the Capacity Attributes Seller failed to convey to Buyer.

(b) RA Deficiency Amount Calculation. For each RA Shortfall Month occurring after the RA Guarantee Date, Seller shall pay to Buyer an amount (the "**RA Deficiency Amount**") equal to the product of (i) the difference, expressed in kW, of (A) the then-applicable Guaranteed RA Amount for such month, minus (B) the then-applicable Net Qualifying Capacity of the Facility for such month able to be shown on Buyer's monthly or annual RA Plan to the CAISO and CPUC and counted as System Resource Adequacy Benefits and, if applicable, any Deemed Delivered RA (the "**RA Shortfall Amount**"), *multiplied by* [redacted] *provided* that Seller may, as an alternative to paying RA Deficiency Amounts, deliver Replacement RA to Buyer in an amount equal to all or a portion of the RA Shortfall Amount, provided that the Replacement RA capacity is communicated by Seller to Buyer with Replacement RA product information in a written notice substantially in the form of Exhibit M at least seventy-five (75) days before the applicable CPUC Showing Month for the purpose of monthly RA reporting.

3.9 **CEC Certification and Verification**. Seller shall take all necessary steps including, but not limited to, making or supporting timely filings with the CEC to obtain and maintain CEC Certification and Verification for the Facility throughout the Delivery Term, including compliance with all applicable requirements for certified facilities set forth in the current version of the *RPS Eligibility Guidebook* (or its successor). Seller shall obtain CEC Precertification by the Commercial Operation Date. Within thirty (30) days after the Commercial Operation Date, Seller shall apply with the CEC for final CEC Certification and Verification. Within [redacted] after the Commercial Operation Date, which deadline will be extended on a day-for-day basis if there is a delay in CEC Certification and Verification and that delay is caused by any reason other than an act or omission of Seller, Seller shall obtain and maintain throughout the remainder of the Delivery Term the final CEC Certification and Verification. Seller must promptly notify Buyer and the CEC of any changes to the information included in Seller's application for CEC Certification and Verification for the Facility.

3.10 **CPUC Mid-Term Reliability Requirements**.

(a) Seller acknowledges that Buyer intends to use this Agreement to comply with mandatory procurement obligations for incremental capacity pursuant to CPUC D.21-06-035. Seller represents and warrants to Buyer that commencing on the Effective Date and continuing throughout the Contract Term:

(i) The Product includes the exclusive right to claim the Guaranteed Capacity of the Facility as an incremental resource for purposes of CPUC D.21-06-035;

(ii) Seller has not and will not sell, assign or transfer the right to claim the output of the Facility as an incremental resource for purposes of CPUC D.21-06-035 to any other person or entity; and

(iii) Seller will reasonably cooperate with Buyer to support Buyer's use of the Product to meet the procurement mandates set forth in CPUC D.21-06-035.

(b) Seller further acknowledges that Buyer intends to use this Agreement to comply with mandatory procurement obligations for incremental Firm Clean Resource capacity pursuant to CPUC D.21-06-035, Ordering Paragraph 2(b). In accordance with such requirements, as such decision has been interpreted by the CPUC in public guidance documents or other public communications issued prior to the Effective Date, Seller represents that the Facility shall meet the following requirements, subject to the terms of this Agreement:

(i) The Facility shall have zero on-site emissions or otherwise be eligible under the Renewables Portfolio Standard Program as a PCC1 resource;

(ii) The Facility shall have a capacity factor of at least eighty percent (80%);

(iii) The Facility shall be able to deliver every day, year-round;

(iv) The Facility shall not be use-limited;

(v) The Facility shall not be weather dependent;

(vi) The Facility is a generating resource, not storage;

(vii) The Facility is incremental to the CPUC's baseline list; and

(viii) The Facility shall be eligible to provide RA Capacity as set forth in the Resource Adequacy Rulings.

(c) In furtherance of Buyer's compliance and reporting obligations related to the foregoing, and without limiting Seller's obligations under any other provision of this Agreement, Seller agrees to provide documentation reasonably requested by Buyer in connection with such compliance obligations (subject to redaction of commercially sensitive information), including but not limited to the following:

(i) Evidence of interconnection, site control, notice to proceed with construction, and other evidence of construction status and progress towards Commercial Operation;

(ii) Engineering assessments demonstrating that the Facility satisfies the foregoing requirements; and

(iii) Any other engineering assessments, contractual support, or relevant information required or requested by the CPUC pursuant to CPUC D.21-06-035.

3.11 **Non-Modifiable Standard Terms and Conditions**.

(a) Eligibility: Seller, and, if applicable, its successors, represents and warrants that throughout the Delivery Term of this Agreement that: (i) the Project qualifies and is certified by the CEC as an Eligible Renewable Energy Resource ("ERR") as such term is defined in Public Utilities Code Section 399.12 or Section 399.16; and (ii) the Project's output delivered to Buyer

qualifies under the requirements of the California Renewables Portfolio Standard. To the extent a change in law occurs after execution of this Agreement that causes this representation and warranty to be materially false or misleading, it shall not be an Event of Default if Seller has used commercially reasonable efforts to comply with such change in law. [STC 6].

(b) Transfer of Renewable Energy Credits: Seller and, if applicable, its successors, represents and warrants that throughout the Delivery Term of this Agreement the Renewable Energy Credits transferred to Buyer conform to the definition and attributes required for compliance with the California Renewables Portfolio Standard, as set forth in California Public Utilities Commission Decision 08-08-028, and as may be modified by subsequent decision of the California Public Utilities Commission or by subsequent legislation. To the extent a change in law occurs after execution of this Agreement that causes this representation and warranty to be materially false or misleading, it shall not be an Event of Default if Seller has used commercially reasonable efforts to comply with such change in law. [STC REC-1].

(c) Tracking of RECs in WREGIS: Seller warrants that all necessary steps to allow the Renewable Energy Credits transferred to Buyer to be tracked in the Western Renewable Energy Generation Information System will be taken prior to the first delivery under the contract. [STC REC-2].

(d) Applicable Law: Governing Law. This Agreement and the rights and duties of the Parties hereunder shall be governed by and construed, enforced and performed in accordance with the laws of the state of California, without regard to principles of conflicts of law. To the extent enforceable at such time, each Party waives its respective right to any jury trial with respect to any litigation arising under or in connection with this Agreement. [STC 17].

3.12 **Compliance Expenditure Cap**.

(a) The Parties acknowledge that an essential purpose of this Agreement is to provide renewable generation that meets the requirements of the California Renewables Portfolio Standard and Capacity Attributes to meet various compliance requirements, and that this Agreement is being used by Buyer to comply with mandatory procurement obligations of the CPUC including but not limited to CPUC D.21-06-035, and that Governmental Authorities, including the CEC, CPUC, CAISO and WREGIS, may undertake actions from time to time to implement a change in Law. Seller agrees to use commercially reasonable efforts to cooperate with Buyer with respect to any subsequently requested changes, modifications, or amendments to this Agreement needed to satisfy requirements of Governmental Authorities associated with changes in Law, including changes, modifications, or amendments to this Agreement to: (i) amend the Agreement to reflect any mandatory contractual language required by Governmental Authorities, including changes to the definition of Green Attributes and Capacity Attributes, or as may be required pursuant to CPUC D.21-06-035; (ii) require submission of any reports, data, or other information required by Governmental Authorities; (iii) provide additional documentation or information to respond to data requests from the CPUC or other Governmental Authorities; (iv) satisfy new compliance requirements of Governmental Authorities; or (v) take any other actions that may be requested by Buyer to assure that the Generating Facility is an Eligible Renewable Energy Resource under the California Renewables Portfolio Standard, that the Facility is eligible for and can provide Capacity Attributes to Buyer and that the Facility qualifies under the Mid-

Term Reliability Requirements; provided that Seller shall have no obligation to modify this Agreement, or take other actions not required under this Agreement, if such modifications or actions would materially adversely affect, or could reasonably be expected to have or result in a material adverse effect on, any of Seller's rights, benefits, risks and/or obligations under this Agreement.

(b) If a change in Laws occurring after the Effective Date has increased Seller's known or reasonably expected costs and expenses to comply with Seller's obligations under this Agreement with respect to obtaining, maintaining, conveying or effectuating Buyer's use of (as applicable) any Product (any action required to be taken by Seller to comply with such change in Law, a "**Compliance Action**"), then the Parties agree that the maximum aggregate amount of costs and expenses Seller shall be required to bear during the Delivery Term to comply with all such Compliance Actions shall be capped at [redacted] per MW of Guaranteed Capacity (the "**Compliance Expenditure Cap**"). Seller's internal administrative costs associated with obtaining, maintaining, conveying or effectuating Buyer's use of (as applicable) any Product are excluded from the Compliance Expenditure Cap.

(c) If Seller reasonably anticipates the need to incur costs and expenses in excess of the Compliance Expenditure Cap in order to take any Compliance Action, Seller shall provide Notice to Buyer of such anticipated costs and expenses.

(d) Buyer will have sixty (60) days to evaluate such Notice (during which time period Seller is not obligated to take any Compliance Actions described in the Notice) and shall, within such time, either (1) agree to reimburse Seller for all or some portion of the Compliance Costs that exceed the Compliance Expenditure Cap, as applicable (such Buyer-agreed upon costs, the "**Accepted Compliance Costs**"), or (2) waive Seller's obligation to take such Compliance Actions, or any part thereof for which Buyer has not agreed to reimburse Seller. If Buyer does not respond to a Notice given by Seller under this Section 3.12 within sixty (60) days after Buyer's receipt of same, Buyer shall be deemed to have waived its rights to require Seller to take the Compliance Actions that are the subject of the Notice, and Seller shall have no further obligation to take, and no liability for any failure to take, the Compliance Actions that are the subject of the Notice for the remainder of the Term.

(e) If Buyer agrees to reimburse Seller for the Accepted Compliance Costs, then Seller shall take such Compliance Actions covered by the Accepted Compliance Costs as agreed upon by the Parties and Buyer shall reimburse Seller for Seller's actual costs to effect the Compliance Actions, not to exceed the Accepted Compliance Costs, within sixty (60) days from the time that Buyer receives an invoice and documentation of such costs from Seller.

ARTICLE 4
OBLIGATIONS AND DELIVERIES

4.1 **Delivery**.

(a) Energy. Subject to the provisions of this Agreement, commencing on the Commercial Operation Date and through the end of the Contract Term, Seller shall supply and deliver the Product to Buyer at the Delivery Point, and Buyer shall take delivery of the Product at

the Delivery Point in accordance with the terms of this Agreement. Seller will be responsible for paying or satisfying when due any costs or charges imposed in connection with the delivery of Facility Energy to the Delivery Point, including without limitation, Station Use, Electrical Losses, and any operation and maintenance charges imposed on Seller by the Transmission Provider directly relating to the Facility's operations. Buyer will be responsible for paying or satisfying any such costs or charges imposed in connection with Facility Energy at and after the Delivery Point. The Facility Energy will be scheduled to the CAISO by Buyer (or Buyer's designated Scheduling Coordinator) in accordance with Exhibit D.

(b) Green Attributes. All Green Attributes associated with the Facility Energy during the Delivery Term are exclusively dedicated to and will be conveyed to and purchased by Buyer. Seller represents and warrants that Seller holds the rights to all Green Attributes associated with the Facility Energy and has not sold the Green Attributes to any other person or entity, and Seller agrees to convey and hereby conveys all such Green Attributes to Buyer as included in the delivery of the Product from the Facility.

4.2 **Title and Risk of Loss**.

(a) Energy. Title to and risk of loss related to the Facility Energy, shall pass and transfer from Seller to Buyer at the Delivery Point. Seller warrants that all Product delivered to Buyer is free and clear of all liens, security interests, claims and encumbrances of any kind.

(b) Green Attributes. Title to and risk of loss related to the Green Attributes shall pass and transfer from Seller to Buyer upon the transfer of such Green Attributes in accordance with WREGIS.

4.3 **Forecasting**. Unless otherwise agreed by the Parties, Seller shall provide the forecasts described below at its sole expense and in a format reasonably acceptable to Buyer (or Buyer's designee). Seller shall use reasonable efforts to provide forecasts that are accurate and, to the extent not inconsistent with the requirements of this Agreement, shall prepare such forecasts, or cause such forecasts to be prepared, in accordance with Prudent Operating Practices.

(a) Annual Forecast of Energy. No less than forty-five (45) days before (i) the first day of the first Contract Year of the Delivery Term and (ii) at the beginning of each calendar year for every subsequent Contract Year during the Delivery Term, Seller shall provide to Buyer and the SC (if applicable) a non-binding forecast of each month's average-day expected Facility Energy, by hour, for the following calendar year in a form substantially similar to the table found in Exhibit F-1, or as reasonably requested by Buyer.

(b) Monthly Forecast of Energy and Available Generating Capacity. No less than thirty (30) days before the beginning of Commercial Operation, and thereafter ten (10) Business Days before the beginning of each month during the Delivery Term, Seller shall provide to Buyer and the SC (if applicable) a non-binding forecast of the hourly expected Facility Energy, Available Generating Capacity for each day of the following month in a form substantially similar to the table found in Exhibit F-2 ("**Monthly Delivery Forecast**").

(c) Day-Ahead Forecast. By 5:30 AM PPT on the Business Day immediately preceding the date of delivery, or as otherwise specified by Buyer consistent with

Prudent Operating Practice, Seller shall provide Buyer or its Scheduling Coordinator with a non-binding forecast of (i) Available Generating Capacity and (ii) hourly expected Facility Energy, in each case, for each hour of the immediately succeeding day ("**Day-Ahead Forecast**"). A Day-Ahead Forecast provided in a day prior to any non-Business Day(s) shall include non-binding forecasts for the immediate day, each succeeding non-Business Day and the next Business Day. Each Day-Ahead Forecast shall clearly identify, for each hour, Seller's best estimate of (i) the Available Generating Capacity and (ii) the hourly expected Facility Energy. Seller shall provide the Day-Ahead Forecast in the form of a CSV file or other mutually agreed file format delivered to Buyer's Scheduling Coordinator and Buyer's File Transfer Protocol (FTP) site as set forth in Exhibit N.

(d) Real-Time Forecasts. During the Delivery Term, Seller shall notify the Scheduling Coordinator of any changes from the Day-Ahead Forecast of one (1) MW or more in (i) Available Generating Capacity or (ii) hourly expected Facility Energy, in each case, whether due to ambient condition change, Forced Facility Outage, Force Majeure Event or other cause, as soon as reasonably possible, but no later than one (1) hour prior to the deadline for submitting Schedules to the CAISO in accordance with the rules for participation in the Real-Time Market. If the Available Generating Capacity, or hourly expected Facility Energy changes by at least one (1) MW as of a time that is less than one (1) hour prior to the Real-Time Market deadline, but before such deadline, then Seller must notify Buyer or its Scheduling Coordinator as soon as reasonably possible. Such Real-Time Forecasts of Facility Energy shall contain information regarding the beginning date and time of the event resulting in the change in Available Generating Capacity, or hourly expected Facility Energy, as applicable, the expected end date and time of such event, and any other information required by the CAISO or reasonably requested by Buyer. These Real-Time Forecasts shall be communicated in a method acceptable to Buyer or its Scheduling Coordinator; provided that Buyer or its Scheduling Coordinator specifies the method no later than five (5) Business Days prior to the effective date of such requirement. In the event Buyer or its Scheduling Coordinator fails to provide Notice of an acceptable method for communications under this Section 4.3(d), then Seller shall send such communications by telephone and email to Buyer or its Scheduling Coordinator. At Buyer's request, Seller shall arrange for Buyer to be provided real-time data via an interface with the Facility's plant information system or equivalent (i) with respect to the Available Generating Capacity, and (ii) with respect to hourly expected Facility Energy quantities. Buyer shall be notified if, past the deadlines for Day-Ahead Forecasts provided in Section 4.3(c), there are change(s) in such Day-Ahead Forecasts of one (1) MW or (1) MWh per hour or more, as applicable, in (A) Available Generating Capacity or (B) hourly expected Facility Energy, in each case, whether due to Forced Facility Outage, Transmission System Outage, Force Majeure or other cause including (as appropriate) information regarding the beginning date and time of the event resulting in the change in Available Generating Capacity or hourly expected Facility Energy, as applicable, the expected end date and time of such event, and any other information required by the CAISO or reasonably requested by Buyer.

(e) Forced Facility Outages. Notwithstanding anything to the contrary herein, Seller shall notify the Scheduling Coordinator of Forced Facility Outages promptly but no later than the time periods required by the CAISO Tariff and the CAISO's outage management rules and Seller shall keep the Scheduling Coordinator informed of any developments that will affect either the duration of the outage or the availability of the Facility during or after the end of the outage.

(f) Forecasting Penalties. Subject to a Force Majeure Event, in the event Seller does not provide the notification required in Section 4.3(e) and Buyer incurs a loss or penalty resulting from its scheduling activities with respect to Facility Energy due to the failure of Seller to provide such notification, Seller shall be responsible for a Forecasting Penalty. Settlement of Forecasting Penalties shall occur as set forth in Article 8 of this Agreement.

(g) CAISO Tariff Requirements. To the extent such obligations are applicable to the Facility, Seller will comply with all applicable obligations for Variable Energy Resources under the CAISO Tariff and the Eligible Intermittent Resource Protocol, including providing appropriate operational data and meteorological data, and will fully cooperate with Buyer, Buyer's SC, and CAISO, in providing all data, information, and authorizations required thereunder.

4.4 **Dispatch Down/Curtailment**.

(a) General. Seller agrees to reduce the amount of Facility Energy, by the amount and for the period set forth in any Curtailment Order, Buyer Curtailment Order, or notice received from CAISO in respect of a Buyer Bid Curtailment, provided that Seller is not required to reduce such amount to the extent it would be inconsistent with the limitations of the Facility set out in the Operating Restrictions.

(b) Buyer Curtailment. Buyer shall have the right to order Seller to curtail deliveries of Facility Energy through Buyer Curtailment Orders, provided that Buyer shall pay Seller for all Deemed Delivered Energy associated with a Buyer Curtailment Period in excess of the Curtailment Cap at the Contract Price, in accordance with Exhibit C.

(c) Failure to Comply. Subject to Section 4.4(a), if Seller fails to comply with a Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order, then, for each MWh of Facility Energy that is delivered by the Facility to the Delivery Point in contradiction to the Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order, Seller shall pay Buyer for each such MWh at an amount equal to the sum of (A) + (B) + (C), where: (A) is the amount, if any, paid to Seller by Buyer for delivery of such excess MWh and, (B) is the sum, for all Settlement Intervals with a Negative LMP during the Buyer Curtailment Period or Curtailment Period, of the absolute value of the product of (i) such excess MWh in each such Settlement Interval and (ii) the Negative LMP for such Settlement Interval, and (C) is any penalties assessed to Buyer by the CAISO or other charges assessed by the CAISO resulting from Seller's failure to comply with the Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order.

(d) Seller Equipment Required for Curtailment Instruction Communications. Subject to the last sentence of this Section 4.4(d), Seller shall acquire, install, and maintain such facilities, communications links and other equipment, and implement such protocols and practices, as necessary to respond and follow instructions, including an electronic signal conveying real time and intra-day instructions, to operate the Facility in accordance with this Agreement or a Governmental Authority, including to implement a Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order in accordance with the then-current methodology used to transmit such instructions as it may change from time to time. If at any time during the Delivery Term Seller's facilities, communications links or other equipment, protocols or practices are not

in compliance with then-current methodologies, Seller shall take the steps necessary to become compliant as soon as reasonably possible. Seller shall be liable pursuant to Section 4.4(c) for failure to comply with a Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order, during the time that Seller's facilities, communications links or other equipment, protocols or practices are not in compliance with then-current methodologies. For the avoidance of doubt, a Buyer Curtailment Order, Buyer Bid Curtailment or Curtailment Order communication via such systems and facilities shall have the same force and effect on Seller as any other form of communication. If Seller is directed by Buyer to install or implement facilities, communications links or other equipment, protocols or practices facilities pursuant to this Section 4.4(d) that are not otherwise required for the Facility pursuant to the CAISO Tariff, then the installation or implementation of such facilities, communications links or other equipment, protocols or practices facilities will be deemed Compliance Actions subject to the Compliance Expenditure Cap as set forth in Section 3.12.

4.5 **Station Use**. Seller will be responsible for procuring and paying for all Station Use. Station Use will be provided by the Facility, other renewable resources installed by Seller, or retail service from the applicable utility. Seller shall indemnify and hold harmless Buyer from any and all costs, penalties, charges or other adverse consequences that result from Facility Energy supplied for Station Use.

4.6 **Reduction in Delivery Obligation**. For the avoidance of doubt, and in no way limiting Section 3.1 or Exhibit G:

(a) Facility Maintenance. Seller shall provide to Buyer written schedules for scheduled maintenance for the Facility for each Contract Year no later than thirty (30) days prior to the first day of the applicable Contract Year. Buyer may provide comments no later than ten (10) Business Days after receiving any such schedule, and Seller will in good faith take into account any such comments. Seller will deliver to Buyer the final updated schedule of scheduled maintenance no later than ten (10) Business Days after receiving Buyer's comments. Subject to the foregoing, and except as otherwise agreed by the Parties in writing, Seller shall be permitted to reduce deliveries of Product during any such period of scheduled maintenance on the Facility so long as (i) such reduction in deliveries for scheduled maintenance does not conflict with the availability requirements required pursuant to CPUC D.21-06-035, OP 6, and (ii) between June 1st and September 30th, Seller shall not schedule non-emergency maintenance that reduces the Energy generation of the Facility by more than ten percent (10%), unless (A) such outage is required to avoid damage to the Facility, (B) such maintenance is necessary to maintain equipment warranties and cannot be scheduled outside the period of June 1st to September 30th, (C) such outage is required in accordance with Prudent Operating Practice, and (D) the Parties mutually agree otherwise in writing (each of the foregoing, a "**Planned Outage**").

(b) Forced Facility Outage. Seller shall be permitted to reduce deliveries of Product during any Forced Facility Outage. Seller shall provide Buyer with Notice and expected duration (if known) of any Forced Facility Outage.

(c) System Emergencies and other Interconnection Events. Seller shall be permitted to reduce deliveries of Product during any period of System Emergency, Buyer

Curtailment Period or upon Notice of a Curtailment Order pursuant to the terms of this Agreement, the Interconnection Agreement or applicable tariff.

(d) Force Majeure Event. Seller shall be permitted to reduce deliveries of Product during any Force Majeure Event.

(e) Buyer Default. Seller shall be permitted to reduce deliveries of Product during any period in which there is Buyer Default.

(f) Health and Safety. Seller shall be permitted to reduce deliveries of Product as necessary to maintain health and safety pursuant to Section 6.2.

4.7 **Guaranteed Energy Production**. Seller shall be required to deliver to Buyer no less than the Guaranteed Energy Production in each Performance Measurement Period. Seller shall be excused from achieving the Guaranteed Energy Production during any Performance Measurement Period only to the extent of any Force Majeure Events, System Emergency, Transformer Failure, Buyer's Default or other failure to perform, Curtailment Periods, or Buyer Curtailment Periods. For purposes of determining whether Seller has achieved the Guaranteed Energy Production, in addition to the Facility Energy and Replacement Product delivered by Seller during the applicable Performance Measurement Period, Seller shall be deemed to have delivered to Buyer (1) any Deemed Delivered Energy and (2) Energy in the amount it could reasonably have delivered to Buyer but was prevented from delivering to Buyer by reason of any Force Majeure Events, System Emergency, Transformer Failure, Buyer Default, and Curtailment Periods ("**Lost Output**"). If Seller fails to achieve the Guaranteed Energy Production amount in any Performance Measurement Period, Seller shall pay Buyer damages calculated in accordance with Exhibit G.

4.8 **WREGIS**. Seller shall, at its sole cost and expense, take all actions and execute all documents or instruments necessary to ensure that all WREGIS Certificates associated with all Renewable Energy Credits corresponding to all Facility Energy are issued and tracked for purposes of satisfying the requirements of the California Renewables Portfolio Standard and transferred in a timely manner to Buyer for Buyer's sole benefit. Seller shall transfer the Renewable Energy Credits to Buyer. Seller shall comply with all Laws, including the WREGIS reporting protocols and the WREGIS Operating Rules, regarding the certification and transfer of such WREGIS Certificates to Buyer and Buyer shall be given sole title to all such WREGIS Certificates. Seller shall be deemed to have satisfied its warranty under Section 3.11(c) to the extent Seller fulfills its obligations under Section 4.8(a) through (f). In addition:

(a) Prior to the Commercial Operation Date, Seller shall register the Facility with WREGIS and establish an account with WREGIS ("**Seller's WREGIS Account**"), which Seller shall maintain until the end of the Delivery Term. Seller shall transfer the WREGIS Certificates using "**Forward Certificate Transfers**" (as described in the WREGIS Operating Rules) from Seller's WREGIS Account to the WREGIS account(s) of Buyer or the account(s) of a designee that Buyer identifies by Notice to Seller ("**Buyer's WREGIS Account**"). Seller shall be responsible for all expenses associated with registering the Facility with WREGIS, establishing and maintaining Seller's WREGIS Account, paying WREGIS Certificate issuance and transfer fees, and transferring WREGIS Certificates from Seller's WREGIS Account to Buyer's WREGIS Account.

(b) Seller shall cause Forward Certificate Transfers to occur on a monthly basis in accordance with the certification procedure established by the WREGIS Operating Rules. Since WREGIS Certificates will only be created for whole MWh amounts of Facility Energy generated, any fractional MWh amounts (i.e., kWh) will be carried forward until sufficient generation is accumulated for the creation of a WREGIS Certificate.

(c) Seller shall, at its sole expense, ensure that the WREGIS Certificates for a given calendar month correspond with the Facility Energy for such calendar month as evidenced by the Facility's metered data.

(d) Due to the ninety (90) day delay in the creation of WREGIS Certificates relative to the timing of invoice payment under Section 8.2, Buyer shall make an invoice payment for a given month in accordance with Section 8.2 before the WREGIS Certificates for such month are formally transferred to Buyer in accordance with the WREGIS Operating Rules and this Section 4.8. Notwithstanding this delay, Buyer shall have all right and title to all such WREGIS Certificates upon payment to Seller in accordance with Section 8.2.

(e) A "**WREGIS Certificate Deficit**" means any deficit or shortfall in WREGIS Certificates delivered to Buyer for a calendar month as compared to the Facility Energy invoiced by Seller to Buyer for the same calendar month ("**Deficient Month**") caused by an error or omission of Seller. If any WREGIS Certificate Deficit is caused, or the result of any action or inaction by Seller, then the amount of Energy in the Deficient Month shall be reduced by the amount of the WREGIS Certificate Deficit for purposes of calculating Buyer's payment to Seller under Article 8 and the Guaranteed Energy Production for the applicable Performance Measurement Period; provided, however, that such adjustment shall not apply to the extent that Seller either (x) resolves the WREGIS Certificate Deficit within ninety (90) days after the Deficient Month or (y) provides Replacement Product (as defined in Exhibit G) delivered to NP 15 EZ Gen Hub as Scheduled Energy within ninety (90) days after the Deficient Month (i) upon a schedule reasonably acceptable to Buyer and (ii) provided that such deliveries do not impose additional costs upon Buyer for which Seller refuses to provide reimbursement. Without limiting Seller's obligations under this Section 4.8, if a WREGIS Certificate Deficit is caused solely by an error or omission of WREGIS, the Parties shall cooperate in good faith to cause WREGIS to correct its error or omission.

(f) If WREGIS changes the WREGIS Operating Rules after the Effective Date or applies the WREGIS Operating Rules in a manner inconsistent with this Section 4.8 after the Effective Date, the Parties promptly shall modify this Section 4.8 as reasonably required to cause and enable Seller to transfer to Buyer's WREGIS Account a quantity of WREGIS Certificates for each given calendar month that corresponds to the Facility Energy in the same calendar month.

4.9 **Green-e Certification**. Seller shall execute all documents or instruments reasonably required by Buyer in order for the Facility to be eligible for Green-E certification.

4.10 **Interconnection Capacity**. Seller shall be responsible for all costs of interconnecting the Facility to the Transmission System. Seller shall ensure during the Test Energy period and throughout the Delivery Term that (a) the Facility will have and maintain interconnection capacity available or allocable to the Facility under the Interconnection Agreement

that is no less than the Guaranteed Capacity and (b) Seller shall have sufficient interconnection capacity and rights under the Interconnection Agreement to interconnect the Facility with the CAISO Grid and to allow Buyer to dispatch the Facility in accordance with the CAISO Tariff and as contemplated under this Agreement, including with respect to Resource Adequacy, and to allow Buyer's dispatch rights of the Facility to be fully reflected in the CAISO's market optimization and not result in CAISO market awards that are not physically feasible (collectively, the "**Dedicated Interconnection Capacity**"). Buyer shall be entitled to all rights and benefits associated with the Dedicated Interconnection Capacity, including any associated deliverability rights. Seller shall hold Buyer harmless from any penalties, imbalance energy charges, or other costs from CAISO or under the Agreement resulting from Seller's inability to provide the Dedicated Interconnection Capacity.

4.11 **Ancillary Services**. If, at any time during the Delivery Term, Buyer requests Seller to provide Ancillary Services that, are not currently available as of the Effective Date, but which may become recognized at a future date in the CAISO market (such as reactive power), and Seller is able to provide any such Product from the Facility without material adverse effect (including any obligation to incur more than *de minimis* costs or liabilities) on Seller or the Facility or Seller's obligations or liabilities under this Agreement, then Seller shall use commercially reasonable efforts to coordinate with Buyer to provide such Product. If provision of any such new Product would have a material adverse effect (including any obligation to incur more than *de minimis* costs or liabilities) on Seller or the Facility or Seller's obligations or liabilities under this Agreement, then Seller shall be obligated to provide such Product only if the Parties first execute an amendment to the Agreement with respect to such Product that reasonably addresses such material adverse effects. For the avoidance of doubt, provision of any Ancillary Services that results in an uncompensated reduction to the Facility Energy shall be deemed a material adverse effect on Seller's obligations or liabilities under this Agreement.

ARTICLE 5
TAXES

5.1 **Allocation of Taxes and Charges**. Seller shall pay or cause to be paid all Taxes on or with respect to the Facility or on or with respect to the sale and making available of Product to Buyer, that are imposed on Product prior to its delivery to Buyer at the time and place contemplated under this Agreement. Buyer shall pay or cause to be paid all Taxes on or with respect to the delivery to and purchase by Buyer of Product that are imposed on Product at and after its delivery to Buyer at the time and place contemplated under this Agreement (other than withholding or other Taxes imposed on Seller's income, revenue, receipts or employees), if any. If a Party is required to remit or pay Taxes that are the other Party's responsibility hereunder, such Party shall promptly pay the Taxes due and then seek and receive reimbursement from the other for such Taxes. In the event any sale of Product hereunder is exempt from or not subject to any particular Tax, Buyer shall provide Seller with all necessary documentation to evidence such exemption or exclusion within thirty (30) days after the Effective Date or Seller's request, as the case may be. If Buyer does not provide such documentation, then Buyer shall indemnify, defend, and hold Seller harmless from any liability with respect to Taxes from which Buyer claims it is exempt.

5.2 **Cooperation**. Each Party shall use reasonable efforts to implement the provisions of and administer this Agreement in accordance with the intent of the Parties to minimize all Taxes, so long as no Party is materially adversely affected by such efforts. The Parties shall cooperate to minimize Tax exposure; *provided*, *however*, that neither Party shall be obligated to incur any financial or operational burden to reduce Taxes for which the other Party is responsible hereunder without receiving due compensation therefor from the other Party. All Product delivered by Seller to Buyer hereunder shall be a sale made at wholesale, with Buyer reselling such Product.

ARTICLE 6
MAINTENANCE OF THE FACILITY

6.1 **Maintenance of the Facility**. Seller shall comply with Law and Prudent Operating Practice relating to the operation and maintenance of the Facility and the generation and sale of Product.

6.2 **Maintenance of Health and Safety**. Seller shall take reasonable safety precautions with respect to the operation, maintenance, repair and replacement of the Facility. If Seller becomes aware of any circumstances relating to the Facility that create an imminent risk of damage or injury to any Person or any Person's property, Seller shall take prompt, reasonable action to prevent such damage or injury and shall give Notice to Buyer's emergency contact identified on Exhibit N of such condition. Such action may include, to the extent reasonably necessary, disconnecting and removing all or a portion of the Facility, or suspending the supply of Facility Energy to Buyer.

6.3 **Shared Facilities**. The Parties acknowledge and agree that the Facility is a phased portion of a geothermal resource, and as a result, certain of the Shared Facilities and Interconnection Facilities (including a transformer, substation and associated equipment and real property), and Seller's rights and obligations under the Interconnection Agreement, may be subject to certain shared facilities or co-tenancy agreements ("**Shared Facilities Agreements**") to be entered into among Seller, the Participating Transmission Owner, Seller's Affiliates, or third parties pursuant to which certain Interconnection Facilities may be subject to joint ownership and shared maintenance and operation arrangements; *provided* that such Shared Facilities Agreements (i) shall permit Seller to perform or satisfy, and shall not purport to limit, its obligations hereunder, including providing the Dedicated Interconnection Capacity, (ii) continue to provide for separate metering and a separate Resource ID for the Facility, and (iii) shall not allow any Affiliate of Seller or third party to use the Dedicated Interconnection Capacity if such use would have an adverse impact on Buyer's dispatch rights of the Facility. Seller shall hold Buyer harmless from any penalties, imbalance energy charges, or other costs or losses from CAISO or under the Agreement resulting from a third party's use of the Dedicated Interconnection Capacity.

ARTICLE 7
METERING

7.1 **Metering**. Seller shall measure the amount of Facility Energy using the Facility Meter. All meters will be operated pursuant to applicable CAISO-approved calculation methodologies and maintained as Seller's cost. Subject to meeting any applicable CAISO requirements, the Facility Meter shall be programmed to adjust for Electrical Losses and Station

Use from the Facility to the Delivery Point in a manner subject to Buyer's prior written approval, not to be unreasonably withheld. Metering will be consistent with the Metering Diagram to be set forth as Exhibit P, an updated version of which shall be provided by Seller to Buyer at least thirty (30) days prior to Commercial Operation. Each meter shall be kept under seal, such seals to be broken only when the meters are to be tested, adjusted, modified or relocated. In the event Seller breaks a seal, Seller shall notify Buyer as soon as practicable. In addition, Seller hereby agrees to provide all meter data to Buyer in a form reasonably acceptable to Buyer, and consents to Buyer obtaining from CAISO the CAISO meter data directly relating to the Facility and all inspection, testing and calibration data and reports. Seller and Buyer, or Buyer's Scheduling Coordinator, shall cooperate to allow both Parties to retrieve the meter reads from the CAISO Operational Meter Analysis and Reporting (OMAR) web or directly from the CAISO meter(s) at the Facility.

7.2 **Meter Verification**. If Buyer or Seller has reason to believe there may be a meter malfunction, Seller shall test the meter. In addition, upon Buyer's reasonable request, Seller shall test the meter on an annual basis. The tests shall be conducted by independent third parties qualified to conduct such tests. Buyer shall be notified seven (7) days in advance of such tests and have a right to be present during such tests. If a meter is inaccurate, it shall be promptly repaired or replaced. If a meter is inaccurate by more than one percent (1%) and it is not known when the meter inaccuracy commenced (if such evidence exists such date will be used to adjust prior invoices), then the invoices covering the period of time since the last meter test shall be adjusted for the amount of the inaccuracy on the assumption that the inaccuracy persisted during one-half of such period so long as such adjustments are accepted by CAISO and WREGIS; *provided*, such period may not exceed twelve (12) months.

ARTICLE 8
INVOICING AND PAYMENT; CREDIT

8.1 **Invoicing**. Seller shall use commercially reasonable efforts to deliver an invoice to Buyer for Product no later than ten (10) Business Days after the end of the prior monthly delivery period. Each invoice shall reflect (a) records of metered data, including CAISO metering and transaction data sufficient to document and verify the amount of Product delivered by the Facility for any Settlement Period during the preceding month, including the amount of Facility Energy produced by the Facility as read by the Facility Meter, the amount of Replacement RA and Replacement Product delivered to Buyer (if any), the calculation of Facility Energy, Deemed Delivered Energy, Lost Output, and Adjusted Energy Production, the LMP prices at the Delivery Point for each Settlement Period, and the Contract Price applicable to such Product in accordance with Exhibit C (such amounts, the "**Monthly Product Payments**"); (b) access to any records, including invoices or settlement data from the CAISO, necessary to verify the accuracy of any amount and the Monthly Product Payments; and (c) be in a format reasonably specified by Buyer, covering the services provided in the preceding month determined in accordance with the applicable provisions of this Agreement. Buyer shall, and shall cause its Scheduling Coordinator to, provide Buyer with all reasonable access (including, in real time, to the maximum extent reasonably possible) to any records, including invoices or settlement data from the CAISO, forecast data and other information, all as may be necessary from time to time for Seller to prepare and verify the accuracy of all invoices.

8.2 **Payment**. Buyer shall make payment to Seller of Monthly Product Payments for

Product (and any other amounts) by wire transfer or ACH payment to the bank account designated by Seller in Exhibit N, which may be updated by Seller by Notice hereunder; provided, however, that changes to invoice, payment, wire transfer and other banking information in the Agreement must be made in writing and delivered via certified mail and shall include contact information for an authorized person who is available by telephone to verify the authenticity of such requested changes to the Agreement. Buyer shall pay undisputed invoice amounts within thirty (30) days after Buyer's receipt of Seller's invoice, or the end of the prior monthly billing period, whichever is later. If such due date falls on a weekend or legal holiday, such due date shall be the next Business Day. Payments made after the due date will be considered late and will bear interest on the unpaid balance. If the amount due is not paid on or before the due date or if any other payment that is due and owing from one Party to another is not paid on or before its applicable due date, a late payment charge shall be applied to the unpaid balance and shall be added to the next billing statement. Such late payment charge shall be calculated based on the annualized prime rate published on the date of the invoice in The Wall Street Journal or, if The Wall Street Journal is not published on that day, the next succeeding date of publication, plus two percent (2%) (the "**Interest Rate**"). If the due date occurs on a day that is not a Business Day, the late payment charge shall begin to accrue on the next succeeding Business Day.

8.3 **Books and Records**. To facilitate payment and verification, each Party shall maintain all books and records necessary for billing and payments, including copies of all invoices under this Agreement, for a period of at least two (2) years or as otherwise required by Law. Upon ten (10) Business Days' Notice to the other Party, either Party shall be granted reasonable access to the accounting books and records within the possession or control of the other Party pertaining to all invoices generated pursuant to this Agreement. Seller acknowledges that in accordance with California Government Code Section 8546.7, Seller may be subject to audit by the California State Auditor with regard to Seller's performance of this Agreement because the compensation under this Agreement exceeds Ten Thousand Dollars ($10,000).

8.4 **Payment Adjustments; Billing Errors**. Payment adjustments shall be made if Buyer or Seller discovers there have been good faith inaccuracies in invoicing that are not otherwise disputed under Section 8.5, an adjustment to an amount previously invoiced or paid is required due to a correction of data by the CAISO, or there is determined to have been a meter inaccuracy sufficient to require a payment adjustment; provided, however, that except to the extent recognized by and resulting in an adjustment by CAISO, there shall be no adjustments to prior invoices based upon meter inaccuracies. If the required adjustment is in favor of Buyer, Buyer's next monthly payment shall be credited in an amount equal to the adjustment. If the required adjustment is in favor of Seller, Seller shall add the adjustment amount to Buyer's next monthly invoice. Adjustments in favor of either Buyer or Seller shall bear interest, until settled in full, in accordance with Section 8.2, accruing from the date on which the adjusted amount should have been due. Unless otherwise agreed by the Parties, no adjustment of invoices shall be permitted after twenty-four (24) months from the date of the invoice.

8.5 **Billing Disputes**. A Party may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice rendered under this Agreement or adjust any invoice for any arithmetic or computational error within twelve (12) months of the date the invoice, or adjustment to an invoice, was rendered. In the event an invoice or portion thereof, or any other claim or adjustment arising hereunder, is disputed, payment of the undisputed portion of the invoice shall

be required to be made when due. Any invoice dispute or invoice adjustment shall be in writing and shall state the basis for the dispute or adjustment. Payment of the disputed amount shall not be required until the dispute is resolved. Upon resolution of the dispute, any required payment shall be made within five (5) Business Days of such resolution along with interest accrued at the Interest Rate from and including the original due date to but excluding the date paid. Inadvertent overpayments shall be returned upon request or via adjustments in accordance with Section 8.4. Any dispute with respect to an invoice is waived if the other Party is not notified in accordance with this Section 8.5 within twelve (12) months after the invoice is rendered or subsequently adjusted, except to the extent any misinformation was from a third party not affiliated with the Party seeking the adjustment and such third party corrects its information after the twelve-month period. If an invoice is not rendered within twelve (12) months after the close of the month during which performance occurred, the right to payment for such performance is waived.

8.6 **Netting of Payments**. The Parties hereby agree that they shall discharge mutual debts and payment obligations due and owing to each other on the same date through netting, in which case all amounts owed by each Party to the other Party for the purchase and sale of Product during the monthly billing period under this Agreement or otherwise arising out of this Agreement, including any related damages calculated pursuant to Exhibit B, interest, and payments or credits, shall be netted so that only the excess amount remaining due shall be paid by the Party who owes it.

8.7 **Seller's Development Security**. To secure its obligations under this Agreement prior to the Commercial Operation Date, Seller shall deliver the Development Security to Buyer within thirty (30) days after the Effective Date. Seller shall maintain the Development Security in full force and effect and shall within five (5) Business Days after any draw thereon, replenish the Development Security in the event Buyer collects or draw down any portion of the Development Security for any reason permitted under this Agreement, other than to satisfy a Damage Payment or a Termination Payment; provided that Seller will have no obligation to replenish the Development Security in an aggregate amount greater than the limitation of liability set forth in Section 12.3. Except to the extent Seller elects to apply the Development Security to the Performance Security, upon the earlier of (i) Seller's delivery of the Performance Security, or (ii) sixty (60) days after termination of this Agreement, Buyer shall return the Development Security to Seller, less the amounts drawn in accordance with this Agreement.

8.8 **Seller's Performance Security**. To secure its obligations under this Agreement, Seller shall deliver Performance Security to Buyer on or before the Commercial Operation Date. If the Performance Security is a Guaranty, it shall be substantially in the form set forth in Exhibit L. Seller shall maintain the Performance Security in full force and effect, subject to any draws made by Buyer in accordance with this Agreement, in which event Seller shall within five (5) Business Days after any such draw replenish the Performance Security, until the following have occurred (the "**Performance Security End Date**"): (a) the Delivery Term has expired or terminated early; and (b) all payment obligations of the Seller arising under this Agreement, including compensation for penalties, Termination Payment, indemnification payments or other damages are paid in full (whether directly or indirectly such as through set-off or netting). Following the occurrence of the Performance Security End Date, Buyer shall promptly return to Seller the unused portion of the Performance Security.

8.9 **First Priority Security Interest in Cash or Cash Equivalent Collateral**. To secure its obligations under this Agreement, and until released as provided herein, Seller hereby grants to Buyer a present and continuing first-priority security interest ("**Security Interest**") in, and lien on (and right to net against), and assignment of the Development Security, Performance Security, any other cash collateral and cash equivalent collateral posted pursuant to Sections 8.7 and 8.8 and any and all interest thereon or proceeds resulting therefrom or from the liquidation thereof, whether now or hereafter held by, on behalf of, or for the benefit of Buyer, and Seller agrees to take all action as Buyer reasonably requires in order to perfect Buyer's Security Interest in, and lien on (and right to net against), such collateral and any and all proceeds resulting therefrom or from the liquidation thereof.

Upon or any time after the occurrence and continuance of an Event of Default caused by Seller, an Early Termination Date resulting from an Event of Default caused by Seller, or an occasion provided for in this Agreement where Buyer is authorized to retain all or a portion of the Development Security or Performance Security, Buyer may do any one or more of the following (in each case subject to the final sentence of this Section 8.9):

(a) Exercise any of its rights and remedies with respect to the Development Security and Performance Security, including any such rights and remedies under Law then in effect;

(b) Draw on any outstanding Letter of Credit issued for its benefit and retain any cash held by Buyer as Development Security or Performance Security; and

(c) Liquidate all Development Security or Performance Security (as applicable) then held by or for the benefit of Buyer free from any claim or right of any nature whatsoever of Seller, including any equity or right of purchase or redemption by Seller.

Buyer shall apply the proceeds of the collateral realized upon the exercise of any such rights or remedies to reduce Seller's obligations under this Agreement (Seller remains liable for any amounts owing to Buyer after such application), subject to Buyer's obligation to return any surplus proceeds remaining after these obligations are satisfied in full.

8.10 **Financial Statements**. In the event a Guaranty is provided as Performance Security in lieu of cash or a Letter of Credit, Seller shall provide to Buyer, or cause the Guarantor to provide to Buyer, unaudited quarterly and annual audited financial statements of the Guarantor (including a balance sheet and statements of income and cash flows), all prepared in accordance with generally accepted accounting principles in the United States, consistently applied.

ARTICLE 9
NOTICES

9.1 **Addresses for the Delivery of Notices**. Any Notice required, permitted, or contemplated hereunder shall be in writing, shall be addressed to the Party to be notified at the address set forth on Exhibit N or at such other address or addresses as a Party may designate for itself from time to time by Notice hereunder.

9.2 **Acceptable Means of Delivering Notice**. Each Notice required, permitted, or

contemplated hereunder shall be deemed to have been validly served, given or delivered as follows: (a) if sent by United States mail with proper first class postage prepaid, three (3) Business Days following the date of the postmark on the envelope in which such Notice was deposited in the United States mail; (b) if sent by a regularly scheduled overnight delivery carrier with delivery fees either prepaid or an arrangement with such carrier made for the payment of such fees, the next Business Day after the same is delivered by the sending Party to such carrier; (c) if sent by electronic communication (including electronic mail or other electronic means) , at the time indicated by the time stamp upon delivery, and, if after 5:00 p.m. Pacific Prevailing Time, on the next Business Day; or (d) if delivered in person, upon receipt by the receiving Party. Notwithstanding the foregoing, Notices of outages or other scheduling or dispatch information or requests, may be sent by electronic communication and shall be considered delivered upon successful completion of such transmission.

ARTICLE 10
FORCE MAJEURE

10.1 **Definition**.

(a) "**Force Majeure Event**" means any act or event that delays or prevents a Party from timely performing all or a portion of its obligations under this Agreement or from complying with all or a portion of the conditions under this Agreement if such act or event, despite the exercise of reasonable efforts, cannot be avoided by and is beyond the reasonable control (whether direct or indirect) of and without the fault or negligence of the Party relying thereon as justification for such delay, nonperformance, or noncompliance.

(b) Without limiting the generality of the foregoing, so long as the following events otherwise satisfy the requirements of a Force Majeure Event as defined above, a Force Majeure Event may include an act of God or the elements, such as flooding, lightning, hurricanes, tornadoes, or ice storms; explosion; fire; volcanic eruption; flood; epidemic or pandemic, including in connection with efforts occurring after the Effective Date to combat the epidemic disease designated COVID-19 and the related virus designated SARS-CoV-2 and any mutations thereof ("**COVID-19**"); landslide; mudslide; sabotage; terrorism; earthquake; or other cataclysmic events; an act of public enemy; war; blockade; civil insurrection; riot; civil disturbance; or strikes or other labor difficulties caused or suffered by a Party or any third party except as set forth below.

(c) Notwithstanding the foregoing, the term "**Force Majeure Event**" does not include (i) economic conditions that render a Party's performance of this Agreement at the Contract Price unprofitable or otherwise uneconomic (including an increase in component costs for any reason, including foreign or domestic tariffs, Buyer's ability to buy electric energy or any other Product at a lower price, or Seller's ability to sell the Product, or any component thereof, at a higher price, than under this Agreement); (ii) Seller's inability to obtain permits or approvals of any type for the construction, operation, or maintenance of the Facility, except to the extent such inability is caused by a Force Majeure Event; (iii) the inability of a Party to make payments when due under this Agreement, unless the cause of such inability is an event that would otherwise constitute a Force Majeure Event as described above that disables physical or electronic facilities necessary to transfer funds to the payee Party; (iv) a Curtailment Period, unless such Curtailment Period is caused by a Force Majeure Event; (v) Seller's inability to obtain sufficient labor,

equipment, materials, or other resources to build or operate the Facility except to the extent such inability is caused by a Force Majeure Event; or (vi) any equipment failure except if such equipment failure is caused by a Force Majeure Event.

10.2 **No Liability If a Force Majeure Event Occurs**. Neither Seller nor Buyer shall be liable to the other Party in the event it is prevented from performing its obligations hereunder in whole or in part due to a Force Majeure Event. The Party rendered unable to fulfill any obligation by reason of a Force Majeure Event shall take reasonable actions necessary to remove such inability. Nothing herein shall be construed as permitting that Party to continue to fail to perform after said cause has been removed. Neither Party shall be considered in breach or default of this Agreement if and to the extent that any failure or delay in the Party's performance of one or more of its obligations hereunder is caused by a Force Majeure Event. Notwithstanding the foregoing, the occurrence and continuation of a Force Majeure Event shall not (a) suspend or excuse the obligation of a Party to make any payments due hereunder, (b) suspend or excuse the obligation of Seller to achieve the Guaranteed Construction Start Date or the Guaranteed Commercial Operation Date beyond the extensions provided in Exhibit B, or (c) limit Buyer's right to declare an Event of Default pursuant to Section 11.1(b)(ii) or Section 11.1(b)(iv) and receive a Damage Payment upon exercise of Buyer's rights pursuant to Section 11.2.

10.3 **Notice**. Within five (5) Business Days of knowledge of commencement of a Force Majeure Event, the non-performing Party shall provide the other Party with oral notice of the event of Force Majeure, and within two (2) weeks of the commencement of the Force Majeure Event the non-performing Party shall provide the other Party with Notice in the form of a letter describing in detail the particulars of the occurrence giving rise to the Force Majeure claim. Failure to provide timely Notice as described in the preceding sentence constitutes a waiver of a Force Majeure claim for all periods of time prior to delivery of such notice. The suspension of performance due to a claim of Force Majeure must be of no greater scope and of no longer duration than is required by the Force Majeure.

10.4 **Termination Following Force Majeure Event**. If a Force Majeure Event has occurred after the Commercial Operation Date that has caused either Party to be wholly or partially unable to perform its obligations hereunder, and the impacted Party has claimed and received relief from performance of its obligations for a consecutive twelve (12) month period, then the non-claiming Party may terminate this Agreement upon written Notice to the other Party with respect to the Facility experiencing the Force Majeure Event. Upon any such termination, neither Party shall have any liability to the other Party, save and except for those obligations specified in Section 2.1(b), and Buyer shall promptly return to Seller any Development Security or Performance Security then held by Buyer, less any amounts drawn in accordance with this Agreement.

ARTICLE 11
DEFAULTS; REMEDIES; TERMINATION

11.1 **Events of Default**. An "**Event of Default**" shall mean,

(a) with respect to a Party (the "**Defaulting Party**") that is subject to the Event of Default the occurrence of any of the following:

(i) the failure by such Party to make, when due, any payment required pursuant to this Agreement and such failure is not remedied within ten (10) Business Days after Notice thereof;

(ii) any representation or warranty made by such Party herein is false or misleading in any material respect when made or when deemed made or repeated, and such default is not remedied within thirty (30) days after Notice thereof (or such longer additional period, not to exceed an additional sixty (60) days, if the Defaulting Party is unable to remedy such default within such initial thirty (30) days period despite exercising commercially reasonable efforts);

(iii) the failure by such Party to perform any material covenant or obligation set forth in this Agreement (except to the extent constituting a separate Event of Default set forth in this Section 11.1) and such failure is not remedied within thirty (30) days after Notice thereof (or such longer additional period, not to exceed an additional ninety (90) days, if the Defaulting Party is unable to remedy such default within such initial thirty (30) days period despite exercising commercially reasonable efforts);

(iv) such Party becomes Bankrupt;

(v) such Party assigns this Agreement or any of its rights hereunder other than in compliance with Section 14.2 or 14.3, as applicable; or

(vi) such Party consolidates or amalgamates with, or merges with or into, or transfers all or substantially all of its assets to, another entity and, at the time of such consolidation, amalgamation, merger or transfer, the resulting, surviving or transferee entity fails to assume all the obligations of such Party under this Agreement to which it or its predecessor was a party by operation of Law or pursuant to an agreement reasonably satisfactory to the other Party.

(b) with respect to Seller as the Defaulting Party, the occurrence of any of the following:

(i) if at any time during the Delivery Term, Seller delivers or attempts to deliver electric energy to the Delivery Point for sale under this Agreement that was not generated by the Facility, except for Replacement Product;

(ii) the failure by Seller to achieve Commercial Operation within [redacted] days after the Guaranteed Commercial Operation Date, as such date may be extended by a Development Cure Period pursuant to Section 3 of Exhibit B;

(iii) if not remedied within ten (10) days after Notice thereof, the failure by Seller to deliver a Remedial Action Plan on the timeframe set forth under Section 2.4;

(iv) the failure by Seller to achieve Construction Start within [redacted] days after the Guaranteed Construction Start Date, as such date may be extended by a Development Cure Period pursuant to Section 3 of Exhibit B;

(v) if, in any consecutive six (6) month period after the Commercial Operation Date, the Adjusted Energy Production amount (calculated in accordance with Exhibit G)

for such period is not at least ten percent (10%) of the Expected Energy amount for such period, and Seller fails to either (x) demonstrate to Buyer's reasonable satisfaction, within ten (10) Business Days after Notice from Buyer, a legitimate reason (which may include a Force Majeure Event or Transformer Failure) for the failure to meet the ten percent (10%) minimum; or (y) deliver to Buyer within fifteen (15) Business Days after Notice from Buyer a plan or report developed by Seller that describes the cause of the failure to meet the ten percent (10%) and the actions that Seller has taken, is taking, or proposes to take in an effort to cure such condition along with the written confirmation of a Licensed Professional Engineer that such plan or report is in accordance with Prudent Operating Practices and capable of cure within a reasonable period of time, not to exceed one hundred eighty (180) days;

(vi) if, beginning in the second Contract Year, the Adjusted Energy Production amount is not at least [redacted] of the total Expected Energy amount for such Contract Year; *provided* that if the cause of any such shortfall is a Transformer Failure, and such failure was not caused by Seller and could not have been avoided through the exercise of Prudent Operating Practice, then the energy not generated and delivered during such failure will be treated as Lost Output solely for purposes of this subsection, for a cumulative period not to exceed one-hundred eighty (180) days during such Contract Year;

(vii) if, in any two (2) consecutive Contract Year period during the Delivery Term, the Adjusted Energy Production amount is not at least [redacted] of the total Expected Energy amount for such period; *provided* that if the cause of any such shortfall is a Transformer Failure, and such failure was not caused by Seller and could not have been avoided through the exercise of Prudent Operating Practice, then the energy not generated and delivered during such failure will be treated as Lost Output solely for purposes of this subsection, for a cumulative period not to exceed one-hundred eighty (180) days during such Contract Year;

(viii) failure by Seller to satisfy the collateral requirements pursuant to Sections 8.7 or 8.8 within five (5) Business Days after Notice and expiration of the cure periods set forth therein, including the failure to replenish the Development Security or Performance Security amount in accordance with this Agreement in the event Buyer draws against either for any reason other than to satisfy a Damage Payment or a Termination Payment;

(ix) with respect to any Guaranty provided for the benefit of Buyer, the failure by Seller to provide for the benefit of Buyer either (1) cash, (2) a replacement Guaranty from a different Guarantor meeting the criteria set forth in the definition of Guarantor, or (3) a replacement Letter of Credit from an issuer meeting the criteria set forth in the definition of Letter of Credit, in each case, in the amount required hereunder within ten (10) Business Days after Seller receives Notice of the occurrence of any of the following events:

(A) if any representation or warranty made by the Guarantor in connection with this Agreement is false or misleading in any material respect when made or when deemed made or repeated, and such default is not remedied within thirty (30) days after Notice thereof;

(B) the failure of the Guarantor to make any payment required or to perform any other material covenant or obligation in any Guaranty;

(C) the Guarantor becomes Bankrupt;

(D) the Guarantor shall fail to meet the criteria for an acceptable Guarantor as set forth in the definition of Guarantor;

(E) the failure of the Guaranty to be in full force and effect (other than in accordance with its terms) prior to the indefeasible satisfaction of all obligations of Seller hereunder; or

(F) the Guarantor shall repudiate, disaffirm, disclaim, or reject, in whole or in part, or challenge the validity of any Guaranty; or

(x) with respect to any outstanding Letter of Credit provided for the benefit of Buyer that is not then required under this Agreement to be canceled or returned, the failure by Seller to provide for the benefit of Buyer either (1) cash, or (2) a substitute Letter of Credit from a different issuer meeting the criteria set forth in the definition of Letter of Credit, in each case, in the amount required hereunder within ten (10) Business Days after Seller receives Notice of the occurrence of any of the following events:

(A) the issuer of the outstanding Letter of Credit shall fail to maintain a Credit Rating of at least A- by S&P or A3 by Moody's;

(B) the issuer of such Letter of Credit becomes Bankrupt;

(C) the issuer of the outstanding Letter of Credit shall fail to comply with or perform its obligations under such Letter of Credit and such failure shall be continuing after the lapse of any applicable grace period permitted under such Letter of Credit;

(D) the issuer of the outstanding Letter of Credit shall fail to honor a properly documented request to draw on such Letter of Credit;

(E) the issuer of the outstanding Letter of Credit shall disaffirm, disclaim, repudiate or reject, in whole or in part, or challenge the validity of, such Letter of Credit;

(F) such Letter of Credit fails or ceases to be in full force and effect at any time; or

(G) Seller shall fail to renew or cause the renewal of each outstanding Letter of Credit on a timely basis as provided in the relevant Letter of Credit and as provided in accordance with this Agreement, and in no event less than sixty (60) days prior to the expiration of the outstanding Letter of Credit.

11.2 **Remedies; Declaration of Early Termination Date**. If an Event of Default with respect to a Defaulting Party shall have occurred and be continuing, the other Party ("**Non-Defaulting Party**") shall have the following rights:

(a) to send Notice, designating a day, no earlier than the day such Notice is deemed to be received and no later than twenty (20) days after such Notice is deemed to be received, as an early termination date of this Agreement ("**Early Termination Date**") that terminates this Agreement (the "**Terminated Transaction**") and ends the Delivery Term effective as of the Early Termination Date;

(b) to accelerate all amounts owing between the Parties, and to collect as liquidated damages (i) the Damage Payment (in the case of an Event of Default by Seller occurring before the Commercial Operation Date under Section 11.1(b)(ii) and Section 11.1(b)(iv)) or (ii) the Termination Payment calculated in accordance with Section 11.3 below (in the case of any other Event of Default by either Party);

(c) to withhold any payments due to the Defaulting Party under this Agreement;

(d) to suspend performance; or

(e) to exercise any other right or remedy available at law or in equity, including specific performance or injunctive relief, except to the extent such remedies are expressly limited under this Agreement;

provided, that payment by the Defaulting Party of the Damage Payment or Termination Payment, as applicable, shall constitute liquidated damages and the Non-Defaulting Party's sole and exclusive remedy for any Terminated Transaction and the Event of Default related thereto.

11.3 **Damage Payment; Termination Payment**.

(a) For an Early Termination Date designated as a result of a Seller Event of Default prior to the Commercial Operation Date under Section 11.1(b)(ii) or Section 11.1(b)(iv), Buyer shall be entitled to the Damage Payment pursuant to Section 11.2(b)(i), and any interest accrued thereon. Buyer shall be entitled to immediately retain for its own benefit those funds held as Development Security and any interest accrued thereon, and any amount of Development Security that Seller has not yet posted with Buyer shall be immediately due and payable by Seller to Buyer. There will be no amounts owed to Seller. The Parties agree that Buyer's damages in the event of an Early Termination Date prior to the Commercial Operation Date caused by Seller's default under Section 11.1(b)(ii) or Section 11.1(b)(iv) would be difficult or impossible to determine and that the damages set forth in this Section 11.3(a) are a reasonable approximation of Buyer's harm or loss [redacted]

(b) For all other Events of Default, the termination payment ("**Termination Payment**") for a Terminated Transaction shall be the aggregate of all Settlement Amounts plus any or all other amounts due to or from the Non-Defaulting Party (as of the Early Termination Date) netted into a single amount. If the Non-Defaulting Party's aggregate Gains exceed its aggregate Losses and Costs, if any, resulting from the termination of this Agreement, the net Settlement Amount shall be zero. The Non-Defaulting Party shall calculate, in a commercially reasonable manner, a Settlement Amount for the Terminated Transaction as of the Early Termination Date. Third parties supplying information for purposes of the calculation of Gains or Losses may include, without limitation, dealers in the relevant markets, end-users of the relevant

product, information vendors and other sources of market information. The Settlement Amount shall not include consequential, incidental, punitive, exemplary, indirect or business interruption damages. Without prejudice to the Non-Defaulting Party's duty to mitigate, the Non-Defaulting Party shall not have to enter into replacement transactions to establish a Settlement Amount. Seller's liabilities and Buyer's remedies under this Section 11.3(b) in the event of an Early Termination Date prior to the Commercial Operation Date are subject to the limitations set forth in Section 12.3.

(c) Each Party agrees and acknowledges that (a) the actual damages that the Non-Defaulting Party would incur in connection with a Terminated Transaction would be difficult or impossible to predict with certainty, (b) the Damage Payment or Termination Payment described in Section 11.3 or this Section 11.3 (as applicable) is a reasonable and appropriate approximation of such damages, and (c) the Damage Payment or Termination Payment described in Section 11.2 or this Section 11.3 (as applicable) is the exclusive remedy of the Non-Defaulting Party in connection with a Terminated Transaction but shall not otherwise act to limit any of the Non-Defaulting Party's rights or remedies if the Non-Defaulting Party does not elect the Damage Payment or Termination Payment (as applicable) as its remedy for an Event of Default by the Defaulting Party.

11.4 **Notice of Payment of Termination Payment**. As soon as practicable after a Terminated Transaction, Notice shall be given by the Non-Defaulting Party to the Defaulting Party of the amount of the Damage Payment or Termination Payment and whether the Termination Payment is due to or from the Non-Defaulting Party. The Notice shall include a written statement explaining in reasonable detail the calculation of such amount and the sources for such calculation. The Damage Payment or Termination Payment, as applicable, shall be made to or from the Non-Defaulting Party, as applicable, within ten (10) Business Days after such Notice is effective.

11.5 **Disputes With Respect to Termination Payment**. If the Defaulting Party disputes the Non-Defaulting Party's calculation of the Termination Payment, in whole or in part, the Defaulting Party shall, within five (5) Business Days of receipt of the Non-Defaulting Party's calculation of the Termination Payment, provide to the Non-Defaulting Party a detailed written explanation of the basis for such dispute. Disputes regarding the Termination Payment shall be determined in accordance with Article 15.

11.6 **Rights And Remedies Are Cumulative**. Except where an express and exclusive remedy or measure of liquidated damages is provided, the rights and remedies of a Party pursuant to this Article 11 shall be cumulative and in addition to the rights of the Parties otherwise provided in this Agreement.

ARTICLE 12
LIMITATION OF LIABILITY AND EXCLUSION OF WARRANTIES.

12.1 **No Consequential Damages**. EXCEPT TO THE EXTENT PART OF AN EXPRESS REMEDY OR MEASURE OF DAMAGES HEREIN, OR PART OF AN ARTICLE 16 INDEMNITY CLAIM BY A THIRD PARTY, OR INCLUDED IN A LIQUIDATED DAMAGES CALCULATION, OR ARISING FROM FRAUD OR INTENTIONAL MISREPRESENTATION, NEITHER PARTY SHALL BE LIABLE TO THE OTHER OR ITS

INDEMNIFIED PERSONS FOR ANY SPECIAL, PUNITIVE, EXEMPLARY, INDIRECT, OR CONSEQUENTIAL DAMAGES, OR LOSSES OR DAMAGES FOR LOST REVENUE OR LOST PROFITS, WHETHER FORESEEABLE OR NOT, ARISING OUT OF, OR IN CONNECTION WITH THIS AGREEMENT, BY STATUTE, IN TORT OR CONTRACT.

12.2 **Waiver and Exclusion of Other Damages.** EXCEPT AS EXPRESSLY SET FORTH HEREIN, THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL IMPLIED WARRANTIES ARE DISCLAIMED. THE PARTIES CONFIRM THAT THE EXPRESS REMEDIES AND MEASURES OF DAMAGES PROVIDED IN THIS AGREEMENT SATISFY THE ESSENTIAL PURPOSES HEREOF. ALL LIMITATIONS OF LIABILITY CONTAINED IN THIS AGREEMENT, INCLUDING, WITHOUT LIMITATION, THOSE PERTAINING TO SELLER'S LIMITATION OF LIABILITY AND THE PARTIES' WAIVER OF CONSEQUENTIAL DAMAGES, SHALL APPLY EVEN IF THE REMEDIES FOR BREACH OF WARRANTY PROVIDED IN THIS AGREEMENT ARE DEEMED TO "FAIL OF THEIR ESSENTIAL PURPOSE" OR ARE OTHERWISE HELD TO BE INVALID OR UNENFORCEABLE.

FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS AND EXCLUSIVE REMEDY OR MEASURE OF DAMAGES IS PROVIDED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, THE OBLIGOR'S LIABILITY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT DAMAGES ONLY. THE VALUE OF ANY RENEWABLE ENERGY INCENTIVES AND TAX BENEFITS, DETERMINED ON AN AFTER-TAX BASIS, LOST DUE TO BUYER'S DEFAULT (WHICH SELLER HAS NOT BEEN ABLE TO MITIGATE AFTER USE OF REASONABLE EFFORTS) AND AMOUNTS DUE IN CONNECTION WITH THE RECAPTURE OF ANY RENEWABLE ENERGY INCENTIVES AND TAX CREDITS, IF ANY, SHALL BE DEEMED TO BE DIRECT DAMAGES.

TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, INCLUDING UNDER SECTIONS 3.8, 4.7, 4.8, 11.2 AND 11.3, AND AS PROVIDED IN EXHIBIT B AND EXHIBIT G THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, THAT OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT, AND THAT THE LIQUIDATED DAMAGES CONSTITUTE A REASONABLE APPROXIMATION OF THE ANTICIPATED HARM OR LOSS AND (UNLESS EXPRESSLY STATED TO THE CONTRARY), AN EXCLUSIVE REMEDY. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE. THE PARTIES HEREBY WAIVE ANY RIGHT TO CONTEST SUCH PAYMENTS AS AN UNREASONABLE PENALTY.

THE PARTIES ACKNOWLEDGE AND AGREE THAT MONEY DAMAGES AND THE EXPRESS REMEDIES PROVIDED FOR HEREIN ARE AN ADEQUATE REMEDY FOR THE BREACH BY THE OTHER OF THE TERMS OF THIS AGREEMENT, AND EACH PARTY WAIVES ANY RIGHT IT MAY HAVE TO SPECIFIC PERFORMANCE WITH RESPECT TO ANY OBLIGATION OF THE OTHER PARTY UNDER THIS AGREEMENT.

ARTICLE 13
REPRESENTATIONS AND WARRANTIES; AUTHORITY

13.1 **Seller's Representations and Warranties**. As of the Effective Date, Seller represents and warrants as follows:

(a) Seller is a Delaware limited liability company, duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation and is qualified to conduct business in the state of California and each jurisdiction where the failure to so qualify would have a material adverse effect on the business or financial condition of Seller.

(b) Seller has the power and authority to enter into and perform this Agreement and is not prohibited from entering into this Agreement or discharging and performing all covenants and obligations on its part to be performed under and pursuant to this Agreement, except where such failure does not have a material adverse effect on Seller's performance under this Agreement. The execution, delivery and performance of this Agreement by Seller has been duly authorized by all necessary limited liability company action on the part of Seller and does not and will not require the consent of any trustee or holder of any indebtedness or other obligation of Seller or any other party to any other agreement with Seller.

(c) The execution and delivery of this Agreement, consummation of the transactions contemplated herein, and fulfillment of and compliance by Seller with the provisions of this Agreement will not conflict with or constitute a breach of or a default under any Law presently in effect having applicability to Seller, subject to any permits that have not yet been obtained by Seller, the documents of formation of Seller or any outstanding trust indenture, deed of trust, mortgage, loan agreement or other evidence of indebtedness or any other agreement or instrument to which Seller is a party or by which any of its property is bound.

(d) This Agreement has been duly executed and delivered by Seller. This Agreement is a legal, valid and binding obligation of Seller enforceable in accordance with its terms, except as limited by laws of general applicability limiting the enforcement of creditors' rights or by the exercise of judicial discretion in accordance with general principles of equity.

(e) The Facility will be located in the State of California.

(f) As between Buyer and Seller, Seller will be responsible for obtaining all permits necessary to construct and operate the Facility, including to the extent applicable, Seller or an Affiliate will be the applicant on any CEQA documents.

(g) Seller shall maintain site control of the Facility throughout the Delivery Term.

(h) Seller represents and warrants that it has not and will not knowingly utilize equipment or resources for the construction, operation or maintenance of the Facility that rely on work or services exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily ("**Forced Labor**"). The Parties acknowledge that pursuant to the business advisory jointly issued by the U.S. Departments of State, Treasury, Commerce and Homeland Security on July 1, 2020, equipment or resources sourced from the Xinjiang region of China are presumed to involve Forced Labor.

13.2 **Buyer's Representations and Warranties**. As of the Effective Date, Buyer represents and warrants as follows:

(a) Buyer is a joint powers authority and a validly existing community choice aggregator, duly organized, validly existing and in good standing under the laws of the State of California and the rules, regulations and orders of the California Public Utilities Commission, and is qualified to conduct business in each jurisdiction of the Joint Powers Agreement members. All Persons making up the governing body of Buyer are the elected or appointed incumbents in their positions and hold their positions in good standing in accordance with the Joint Powers Agreement and other Law.

(b) Buyer has the power and authority to enter into and perform this Agreement and is not prohibited from entering into this Agreement or discharging and performing all covenants and obligations on its part to be performed under and pursuant to this Agreement, except where such failure does not have a material adverse effect on Buyer's performance under this Agreement. The execution, delivery and performance of this Agreement by Buyer has been duly authorized by all necessary action on the part of Buyer and does not and will not require the consent of any trustee or holder of any indebtedness or other obligation of Buyer or any other party to any other agreement with Buyer.

(c) The execution and delivery of this Agreement, consummation of the transactions contemplated herein, and fulfillment of and compliance by Buyer with the provisions of this Agreement will not conflict with or constitute a breach of or a default under any Law presently in effect having applicability to Buyer, including but not limited to community choice aggregation, the Joint Powers Act, competitive bidding, public notice, open meetings, election, referendum, or prior appropriation requirements, the documents of formation of Buyer or any outstanding trust indenture, deed of trust, mortgage, loan agreement or other evidence of indebtedness or any other agreement or instrument to which Buyer is a party or by which any of its property is bound.

(d) This Agreement has been duly executed and delivered by Buyer. This Agreement is a legal, valid and binding obligation of Buyer enforceable in accordance with its terms, except as limited by laws of general applicability limiting the enforcement of creditors' rights or by the exercise of judicial discretion in accordance with general principles of equity.

(e) Buyer warrants and covenants that with respect to its contractual obligations under this Agreement, it will not claim, and affirmatively waives, immunity on the grounds of sovereignty or similar grounds with respect to itself or its revenues or assets from (1) suit, (2) jurisdiction of court (provided that such court is located within a venue permitted in law and under the Agreement), (3) relief by way of injunction, order for specific performance or recovery of property, (4) attachment of assets, or (5) execution or enforcement of any judgment; provided, however that nothing in this Agreement shall waive the obligations or rights set forth in the California Tort Claims Act (Government Code Section 810 et seq.).

(f) Buyer is a "local public entity" as defined in Section 900.4 of the Government Code of the State of California.

13.3 **General Covenants**. Each Party covenants that commencing on the Effective Date and continuing throughout the Contract Term:

(a) It shall continue to be duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation and to be qualified to conduct business in California and each jurisdiction where the failure to so qualify would have a material adverse effect on its business or financial condition;

(b) It shall maintain (or obtain from time to time as required) all regulatory authorizations, approvals, and permits necessary for it to legally perform its obligations under this Agreement; and

(c) It shall perform its obligations under this Agreement in compliance with all terms and conditions in its governing documents and in material compliance with any Law.

13.4 **Workforce Requirements**. Seller shall comply with all applicable federal, state and local laws, statutes, ordinances, rules and regulations, and orders and decrees of any courts or administrative bodies or tribunals, including without limitation employment discrimination laws and prevailing wage laws. Although the Facility is not a public work as defined by California Labor Code section 1720, with respect to any construction work contracted by Seller in furtherance of this Agreement, Seller shall use commercially reasonable efforts to: (a) comply with California prevailing wage provisions applicable to public works projects, including but not limited to those set forth in California Labor Code sections 1770, 1771, 1771.1, 1772, 1773, 1773.1, 1774, 1775, 1776, 1777.5, and 1777.6, as they may be amended from time to time ("**Prevailing Wage Requirement**"); (b) encourage the participation and use of (i) contractors, subcontractors and businesses owned by disabled veterans, (ii) contractors, subcontractors and businesses that are located in or employ workers living in a Disadvantaged Community (DAC Zone) as identified by the CalEPA CalEnviroScreen Tool, and (iii) if applicable, the participation of local residents in the construction of the Facility, as well as the ongoing operations and maintenance of the Facility after COD, including permanent residents who live within the applicable county where the Facility is

located and within a 100-mile radius of the installation, and to the extent not inconsistent with the foregoing requirements of this subsection (b); and (c) cause the majority of the construction work to the extent feasible in light of Seller's deadlines and other terms and conditions set forth herein, to be conducted using union labor (together with the Prevailing Wage Requirement, the "**Workforce Requirements**"). As a condition precedent to commencement of the Delivery Term, Seller must certify that it complied with the Workforce Requirements, and be able to demonstrate, upon request, compliance with this requirement by providing documentation reasonably requested by Buyer.

Nothing herein shall require Seller, its contractors and subcontractors to comply with, or assume liability created by other inapplicable provisions of any California labor laws. Buyer agrees that Seller's obligations under this Section 13.4 with shall be satisfied upon the execution of a project labor agreement related to construction of the Facility.

13.5 **Diversity Reporting**. Seller agrees to complete the Supplier Diversity and Labor Practices questionnaire available at https://forms.gle/4VahoVD3h7pvE4dF6, as may be updated from time to time, or a similar questionnaire, at the reasonable request of Buyer and to comply with similar regular reporting requirements related to diversity and labor practices from time to time. A current example of the Supplier Diversity and Labor Practices questionnaire is attached as Exhibit R.

ARTICLE 14
ASSIGNMENT

14.1 **General Prohibition on Assignments**. Except as provided in this Article 14, neither Party may voluntarily assign this Agreement or its rights or obligations under this Agreement, without the prior written consent of the other Party, which consent shall not be unreasonably withheld. Except as provided in this Article 14, any Change of Control of Seller, or direct or indirect change of control of Buyer (whether voluntary or by operation of law), will be deemed an assignment and will require the prior written consent of the other Party, which consent shall not be unreasonably withheld. Any assignment made in violation of the conditions to assignment set out in this Article 14 shall be null and void. Buyer shall have no obligation to provide any consent, or enter into any agreement, that materially and adversely affects any of Buyer's rights, benefits, risks or obligations under this Agreement. Seller shall be responsible for Buyer's reasonable costs associated with the preparation, review, execution and delivery of documents in connection with any assignment of this Agreement by Seller, including without limitation reasonable attorneys' fees.

14.2 **Collateral Assignment**. Subject to the provisions of this Section 14.2, Seller has the right to assign this Agreement as collateral for any financing or refinancing of the Facility. In connection with any financing or refinancing of the Facility by Seller, Buyer shall in good faith work with Seller and Lenders to agree upon a consent to collateral assignment of this Agreement ("**Collateral Assignment Agreement**"). Each Collateral Assignment Agreement must be in form and substance agreed to by Buyer, Seller and the applicable Lender, such agreement not to be unreasonably withheld. Buyer will not be subject to obligations under more than one Collateral Assignment Agreement at any time. Each Collateral Assignment Agreement must include, among

others, the following provisions unless otherwise agreed to by Buyer, Seller and the applicable Lender:

(a) Buyer shall give notice of an Event of Default by Seller to the Person(s) to be specified by Lender in the Collateral Assignment Agreement before exercising its right to terminate this Agreement as a result of such Event of Default; provided that such notice shall be provided to Lender at the time such notice is provided to Seller and any additional cure period of Lender agreed to in the Collateral Assignment Agreement shall not commence until Lender has received notice of such Event of Default;

(b) Lender will have the right to cure an Event of Default on behalf of Seller if Lender sends a written notice to Buyer before the later of (i) the expiration of any cure period, and (ii) five (5) Business Days after Lender's receipt of notice of such Event of Default from Buyer, indicating Lender's intention to cure. Lender must remedy or cure such Event of Default within the cure period under this Agreement and any additional cure periods agreed in the Collateral Assignment Agreement up to a maximum of ninety (90) days (or, in the event of a bankruptcy of Seller or any foreclosure or similar proceeding if required by Lender to cure any Event of Default, an additional reasonable period of time to complete such proceedings and effect such cure not to exceed one hundred eighty (180) days without the written consent of Buyer, which consent shall not be unreasonably withheld), provided that if Lender is prohibited by any court order or bankruptcy or insolvency proceedings from curing the Event of Default or from commencing or prosecuting foreclosure proceedings, the foregoing time periods shall be extended by the period of such prohibition;

(c) Following an Event of Default by Seller under this Agreement, Buyer may require Seller (or Lender, if Lender has provided the notice set forth in subsection (b) above) to provide to Buyer a report concerning:

(i) The status of efforts by Seller or Lender to develop a plan to cure the Event of Default;

(ii) Impediments to the cure plan or its development;

(iii) If a cure plan has been adopted, the status of the cure plan's implementation (including any modifications to the plan as well as the expected timeframe within which any cure is expected to be implemented); and

(iv) Any other information which Buyer may reasonably require related to the development, implementation and timetable of the cure plan.

Seller or Lender must provide the report to Buyer within ten (10) Business Days after Notice from Buyer requesting the report. Buyer will have no further right to require the report with respect to a particular Event of Default after that Event of Default has been cured;

(d) Lender will have the right to consent before any termination of this Agreement which does not arise out of an Event of Default;

(e) Lender will receive prior notice of and the right to approve material

amendments to this Agreement, which approval will not be unreasonably withheld, delayed or conditioned;

(f) If this Agreement is transferred to Lender pursuant to subsection (b) above, Lender must assume all of Seller's obligations arising under this Agreement on and after the date of such assumption; *provided*, before such assumption, if Buyer advises Lender that Buyer will require that Lender cure (or cause to be cured) any Event of Default existing as of the transfer date in order to avoid the exercise by Buyer (in its sole discretion) of Buyer's right to terminate this Agreement with respect to such Event of Default, then Lender at its option, and in its sole discretion, may elect to either:

(i) Cause such Event of Default to be cured (other than any Events of Default which relate to Seller's bankruptcy or similar insolvency proceedings, to representations and warranties made by Seller or to Seller's failure to perform obligations under other agreements, or which are otherwise personal to Seller), or

(ii) Not assume this Agreement.

(g) If Lender elects to transfer this Agreement, then Lender must cause the transferee to assume all of Seller's obligations arising under this Agreement arising after the date of such assumption as a condition of the sale or transfer. Such sale or transfer may be made only to an entity that meets the definition of Permitted Transferee;

(h) Subject to Lender's cure of any Events of Defaults under the Agreement in accordance with Section 14.2(f), if (i) this Agreement is rejected in Seller's Bankruptcy or otherwise terminated in connection therewith Lender or its designee shall have the right to elect within ninety (90) days after such rejection or termination, to enter into a replacement agreement with Buyer having substantially the same terms as this Agreement for the remaining term thereof, and, promptly after Lender's written request, Buyer must enter into such replacement agreement with Lender or Lender's designee, or (ii) if Lender or its designee, directly or indirectly, takes possession of, or title to, the Facility after any such rejection or termination of this Agreement, promptly after Buyer's written request, Lender must itself or must cause its designee to promptly enter into a new agreement with Buyer having substantially the same terms as this Agreement for the remaining term thereof, provided that in the event a designee of Lender, directly or indirectly, takes possession of, or title to, the Facility (including possession by a receiver or title by foreclosure or deed in lieu of foreclosure), if such designee is not an entity that meets the definition of Permitted Transferee then such designee shall be subject to the prior written approval of Buyer, such approval not to be unreasonably withheld; and

(i) The Parties shall negotiate any Collateral Assignment Agreement in good faith, including variations to the provisions set forth in this Section 14.2, and to the extent the Collateral Assignment Agreement executed by Buyer and Lender varies from such provisions, the terms of such Collateral Assignment Agreement shall be controlling. In addition, Buyer shall cooperate with Seller or any Lender to execute or arrange for delivery of estoppels reasonably requested by Seller or Lender.

14.3 **Buyer Limited Assignment**. Notwithstanding anything to the contrary, Buyer may make a limited assignment to an entity ("**Limited Assignee**") that has, or provides a parent guaranty, in form and substance reasonably acceptable to Seller from an entity with, a Credit Rating of at least A from S&P or Baa2 from Moody's of Buyer's right to receive Product (which shall not be for retail sale) and its obligation to make payments to Seller, which assignment shall be expressly subject to Limited Assignee's timely payment of amounts due under this Agreement, at any time upon not less than thirty (30) days' Notice by delivering a written request for such assignment, which request must include a proposed assignment agreement substantially in the form attached to this Agreement as Exhibit S. Provided that Buyer delivers a proposed assignment agreement complying with the previous sentence, Seller agrees to (i) comply with Limited Assignee's reasonable requests for know-your-customer and similar account opening information and documentation with respect to Seller, including but not limited to information related to forecasted generation, credit rating, and compliance with anti-money laundering rules, the Dodd-Frank Act, the Commodity Exchange Act, the Patriot Act and similar rules, regulations, requirements and corresponding policies, and (ii) promptly execute such assignment agreement and implement such assignment as contemplated thereby, subject only to the countersignature of Limited Assignee and Buyer and Seller's ability to make the representations and warranties contained therein. Limited Assignee and Buyer shall comply with all reasonable requests received by any Lender in connection with such limited assignment, including providing any requested acknowledgments in any Collateral Assignment Agreement.

ARTICLE 15
DISPUTE RESOLUTION

15.1 **Venue**. The Parties agree that any suit, action or other legal proceeding by or against any party (or its Affiliates or designees) with respect to or arising out of this Agreement shall be brought in the federal courts of the United States or the courts of the State of California sitting in San Francisco County, California.

15.2 **Dispute Resolution**. In the event of any dispute arising under this Agreement, within ten (10) days following the receipt of a written Notice from either Party identifying such dispute, the Parties shall meet, negotiate and attempt, in good faith, to resolve the dispute quickly, informally and inexpensively. If the Parties are unable to resolve a dispute arising hereunder within the earlier of either thirty (30) days of initiating such discussions, or within forty (40) days after Notice of the dispute, the Parties shall submit the dispute to mediation prior to seeking any and all remedies available to it at Law in or equity. The Parties will cooperate in selecting a qualified neutral mediator selected from a panel of neutrals and in scheduling the time and place of the mediation as soon as reasonably possible, but in no event later than thirty (30) days after the request for mediation is made. The Parties agree to participate in the mediation in good faith and to share the costs of the mediation, including the mediator's fee, equally, but such shared costs shall not include each Party's own attorneys' fees and costs, which shall be borne solely by such Party. If the mediation is unsuccessful, then either Party may seek any and all remedies available to it at law or in equity, subject to the limitations set forth in this Agreement.

ARTICLE 16
INDEMNIFICATION

16.1 **Indemnity**. Each Party (the "**Indemnifying Party**") agrees to defend, indemnify and hold harmless the other Party, its directors, officers, agents, attorneys, employees and representatives (each an "**Indemnified Party**" and collectively, the "**Indemnified Group**") from and against all third party claims, demands, losses, liabilities, penalties, and expenses, including reasonable attorneys' and expert witness fees, for personal injury or death to Persons and damage to the property of any third party to the extent arising out of, resulting from, or caused by the negligent or willful misconduct of the Indemnifying Party, its Affiliates, its directors, officers, employees or agents (collectively, "**Indemnifiable Losses**"). Nothing in this Section shall enlarge or relieve Seller or Buyer of any liability to the other for any breach of this Agreement. Neither Party shall be indemnified for its damages resulting from its sole negligence, intentional acts, or willful misconduct. These indemnity provisions shall not be construed to relieve any insurer of its obligations to pay claims consistent with the provisions of a valid insurance policy.

16.2 **Notice of Claim**. Subject to the terms of this Agreement and upon obtaining knowledge of an Indemnifiable Loss for which it is entitled to indemnity under this Article 16, the Indemnified Party will promptly provide Notice to the Indemnifying Party in writing of any damage, claim, loss, liability or expense which Indemnified Party has determined has given or could give rise to an Indemnifiable Loss under Section 16.1 ("**Claim**"). The Notice is referred to as a "**Notice of Claim**". A Notice of Claim will specify, in reasonable detail, the facts known to Indemnified Party regarding the Indemnifiable Loss.

16.3 **Failure to Provide Notice**. A failure to give timely Notice or to include any specified information in any Notice as provided in this Section 16.3 will not affect the rights or obligations of any Party hereunder except and only to the extent that, as a result of such failure, any Party which was entitled to receive such Notice was deprived of its right to recover any payment under its applicable insurance coverage or was otherwise materially damaged as a direct result of such failure and, provided further, Indemnifying Party is not obligated to indemnify any member of the Indemnified Group for the increased amount of any Indemnifiable Loss which would otherwise have been payable to the extent that the increase resulted from the failure to deliver timely a Notice of Claim.

16.4 **Defense of Claims**. If, within ten (10) Business Days after giving a Notice of Claim regarding a Claim to Indemnifying Party pursuant to Section 16.2, Indemnified Party receives Notice from Indemnifying Party that Indemnifying Party has elected to assume the defense of such Claim, Indemnifying Party will not be liable for any legal expenses subsequently incurred by Indemnified Party in connection with the defense thereof; provided, however, that if Indemnifying Party fails to take reasonable steps necessary to defend diligently such Claim within ten (10) Business Days after receiving Notice from Indemnifying Party that Indemnifying Party believes Indemnifying Party has failed to take such steps, or if Indemnifying Party has not undertaken fully to indemnify Indemnified Party in respect of all Indemnifiable Losses relating to the matter, Indemnified Party may assume its own defense, and Indemnifying Party will be liable for all reasonable costs or expenses, including attorneys' fees, paid or incurred in connection therewith. Without the prior written consent of Indemnified Party, Indemnifying Party will not enter into any settlement of any Claim which would lead to liability or create any financial or other obligation on

the part of Indemnified Party for which Indemnified Party is not entitled to indemnification hereunder; provided, however, that Indemnifying Party may accept any settlement without the consent of Indemnified Party if such settlement provides a full release to Indemnified Party and no requirement that Indemnified Party acknowledge fault or culpability. If a firm offer is made to settle a Claim without leading to liability or the creation of a financial or other obligation on the part of Indemnified Party for which Indemnified Party is not entitled to indemnification hereunder and Indemnifying Party desires to accept and agrees to such offer, Indemnifying Party will give Notice to Indemnified Party to that effect. If Indemnified Party fails to consent to such firm offer within ten (10) calendar days after its receipt of such Notice, Indemnified Party may continue to contest or defend such Claim and, in such event, the maximum liability of Indemnifying Party to such Claim will be the amount of such settlement offer, plus reasonable costs and expenses paid or incurred by Indemnified Party up to the date of such Notice.

16.5 **Subrogation of Rights**. Upon making any indemnity payment, Indemnifying Party will, to the extent of such indemnity payment, be subrogated to all rights of Indemnified Party against any third party in respect of the Indemnifiable Loss to which the indemnity payment relates; provided that until Indemnified Party recovers full payment of its Indemnifiable Loss, any and all claims of Indemnifying Party against any such third party on account of said indemnity payment are hereby made expressly subordinated and subjected in right of payment to Indemnified Party's rights against such third party. Without limiting the generality or effect of any other provision hereof, Buyer and Seller shall execute upon request all instruments reasonably necessary to evidence and perfect the above-described subrogation and subordination rights.

16.6 **Rights and Remedies are Cumulative**. Except for express remedies already provided in this Agreement, the rights and remedies of a Party pursuant to this Article 16 are cumulative and in addition to the rights of the Parties otherwise provided in this Agreement.

ARTICLE 17
INSURANCE

17.1 **Insurance**.

(a) General Liability. Seller shall maintain, or cause to be maintained, at Seller's sole expense, (i) commercial general liability insurance, which shall be written on an "occurrence" basis (and not a "claims-made" or "claims reported" basis), and which shall include products and completed operations and personal injury insurance, in a minimum amount of Two Million Dollars ($2,000,000) per occurrence, and an annual aggregate of not less than Four Million Dollars ($4,000,000), and which shall provide contractual liability insurance in said amount; and (ii) umbrella or excess liability insurance policy that has at least as broad coverage as the commercial general liability insurance described in section 17.1(a)(i) hereto with a limit of liability of Five Million Dollars ($5,000,000). Defense costs shall be provided as an additional benefit and not included within the limits of liability. Such insurance shall contain standard cross-liability and severability of interest provisions. Seller shall cause Buyer to be an additional insured on all of the insurance policies described in this Section 17.1(a).

(b) Employer's Liability Insurance. Seller, if it has employees, shall maintain Employers' Liability insurance with a limit of One Million Dollars ($1,000,000) for injury or death

occurring as a result of each accident. With regard to bodily injury by disease, the One-Million-Dollar ($1,000,000) policy limit will apply to each employee.

(c) Workers Compensation Insurance. Seller, if it has employees, shall also maintain at all times during the Contract Term workers' compensation and employers' liability insurance coverage in accordance with applicable requirements of California Law.

(d) Business Auto Insurance. Seller shall maintain at all times during the Contract Term business auto insurance for bodily injury and property damage with a combined single limit of Two Million Dollars ($2,000,000) per occurrence. Such insurance shall cover liability arising out of Seller's use of all owned (if any), non-owned and hired vehicles, including trailers or semi-trailers in the performance of the Agreement.

(e) Construction All-Risk Insurance. Seller shall maintain or cause to be maintained during the construction of the Facility prior to the Commercial Operation Date, construction all-risk form property insurance covering the Facility during such construction periods and naming the Seller (and Lender if any) as the loss payee.

(f) Contractor's Pollution Liability. Seller shall maintain or cause to be maintained during the construction of the Facility prior to the Commercial Operation Date, Pollution Legal Liability Insurance in the amount of Two Million Dollars ($2,000,000) per occurrence and in the aggregate, naming the Seller (and Lender if any) as additional named insured.

(g) Umbrella Liability Insurance. Seller may choose any combination of primary, excess or umbrella liability policies to meet the insurance requirements under Sections 17.1(a), (b) and (d) above.

(h) Contractor Insurance. Seller shall require all contractors under its engineering, procurement, and construction contract for the Facility to carry insurance of at least the same types and with at least the same limits as described in Sections 17.1(a-f). Such insurance must be procured and fully in place before commencement of any work by contractor. The contractor shall include Seller as an additional insured to insurance carried pursuant to this Section 17.1(h). The contractor shall provide a primary and non-contributory endorsement and a waiver of subrogation to Seller for the required coverage pursuant to this Section 17.1(g).

(i) Evidence of Insurance and Other Insurance Requirements. Within thirty (30) days after execution of the Agreement and upon annual renewal thereafter (except insurance required in Section 17.1(h)), Seller shall deliver to Buyer certificates of insurance evidencing such coverage. Regarding insurance required in Section 17.1(h), within ten (10) days after placement of such insurance and upon annual renewal thereafter, Seller shall deliver to Buyer certificates of insurance evidencing such coverage. Seller shall provide to Buyer a copy of any insurance policy required under this Article 17 within ten calendar days of a request by Buyer. Seller shall require all insurance policies required under this Article 17 obligate the insurer to provide Buyer at least thirty (30) days' prior Notice in the event of any cancellation or termination of coverage, and Seller shall not cancel or terminate any policy required under this Article 17 without prior written consent from Buyer. All insurance required under this Article 17 shall be primary coverage without right

of contribution from any insurance of Buyer. The insurance requirements of this Article 17 do not affect, cap or limit Seller's obligations or liability to Buyer as provided under other provisions of this Agreement or applicable law, including any and all of Seller's indemnification obligations under the Agreement.

ARTICLE 18
CONFIDENTIAL INFORMATION

18.1 **Definition of Confidential Information**. The following constitutes "**Confidential Information**," whether oral or written which is delivered by Seller to Buyer or by Buyer to Seller including: (a) pricing and other commercially sensitive terms and conditions of, and proposals and negotiations related to, this Agreement, and (b) information that either Seller or Buyer stamps or otherwise identifies as "confidential" or "proprietary" before disclosing it to the other. Confidential Information does not include (i) information that was publicly available at the time of the disclosure, other than as a result of a disclosure in breach of this Agreement; (ii) information that becomes publicly available through no fault of the recipient after the time of the delivery; (iii) information that was rightfully in the possession of the recipient (without confidential or proprietary restriction) at the time of delivery or that becomes available to the recipient from a source not subject to any restriction against disclosing such information to the recipient; and (iv) information that the recipient independently developed without a violation of this Agreement. Notwithstanding the foregoing, the Parties acknowledge and agree that Buyer intends to make publicly available a version of this Agreement with certain pricing and commercially sensitive provisions removed or redacted.

18.2 **Duty to Maintain Confidentiality**. Confidential Information will retain its character as Confidential Information but may be disclosed by the recipient (the "**Receiving Party**") if and to the extent such disclosure is required (a) to be made by any requirements of Law, (b) pursuant to an order of a court or (c) in order to enforce this Agreement. If the Receiving Party becomes legally compelled (by interrogatories, requests for information or documents, subpoenas, summons, civil investigative demands, or similar processes or otherwise in connection with any litigation or to comply with any applicable law, order, regulation, ruling, regulatory request, accounting disclosure rule or standard or any exchange, control area or independent system operator request or rule) to disclose any Confidential Information of the disclosing Party (the "**Disclosing Party**"), Receiving Party shall provide Disclosing Party with prompt notice so that Disclosing Party, at its sole expense, may seek an appropriate protective order or other appropriate remedy. If the Disclosing Party takes no such action after receiving the foregoing notice from the Receiving Party, the Receiving Party is not required to defend against such request and shall be permitted to disclose such Confidential Information of the Disclosing Party, with no liability for any damages that arise from such disclosure. Each Party hereto acknowledges and agrees that information and documentation provided in connection with this Agreement may be subject to the California Public Records Act (Government Code Section 6250 et seq.). The provisions of this Article 18 shall survive and shall continue to be binding upon the Parties for period of one (1) year following the date of termination of this Agreement.

18.3 **Irreparable Injury; Remedies**. Receiving Party acknowledges that its obligations hereunder are necessary and reasonable in order to protect Disclosing Party and the business of Disclosing Party, and expressly acknowledges that monetary damages would be inadequate to

compensate Disclosing Party for any breach or threatened breach by Receiving Party of any covenants and agreements set forth in this Article 18. Accordingly, Receiving Party acknowledges that any such breach or threatened breach will cause irreparable injury to Disclosing Party and that, in addition to any other remedies that may be available, in law, in equity or otherwise, Disclosing Party will be entitled to obtain injunctive relief against the threatened breach of this Article 18 or the continuation of any such breach, without the necessity of proving actual damages.

18.4 **Disclosure to Lenders, Etc.**. Notwithstanding anything to the contrary in this Article 18, Confidential Information may be disclosed by Seller to any actual or potential Lender or investor or any of its agents or Affiliates, and Seller's actual or potential agents, consultants, contractors, or trustees, or by Buyer to any actual or potential Limited Assignee, so long as the Person to whom Confidential Information is disclosed either is bound by similarly restrictive confidentiality obligations as those contained in this Agreement, or agrees in writing to be bound by the confidentiality provisions of this Article 18 to the same extent as if it were a Party.

18.5 **Press Releases**. Neither Party shall issue (or cause its Affiliates to issue) a press release regarding the transactions contemplated by this Agreement unless both Parties have agreed upon the contents of any such public statement. A Party's consent shall not be unreasonably withheld, conditioned or delayed.

ARTICLE 19
MISCELLANEOUS

19.1 **Entire Agreement; Integration; Exhibits**. This Agreement, together with the Cover Sheet and Exhibits attached hereto constitutes the entire agreement and understanding between Seller and Buyer with respect to the subject matter hereof and supersedes all prior agreements relating to the subject matter hereof, which are of no further force or effect. The Exhibits attached hereto are integral parts hereof and are made a part of this Agreement by reference. The headings used herein are for convenience and reference purposes only. In the event of a conflict between the provisions of this Agreement and those of the Cover Sheet or any Exhibit, the provisions of first the Cover Sheet, and then this Agreement shall prevail, and such Exhibit shall be corrected accordingly. This Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties and shall not be construed against one Party or the other Party as a result of the preparation, substitution, submission or other event of negotiation, drafting or execution hereof.

19.2 **Amendments**. This Agreement may only be amended, modified or supplemented by an instrument in writing executed by duly authorized representatives of Seller and Buyer; *provided*, that, for the avoidance of doubt, this Agreement may not be amended by electronic mail communications.

19.3 **No Waiver**. Waiver by a Party of any default by the other Party shall not be construed as a waiver of any other default.

19.4 **No Agency, Partnership, Joint Venture or Lease**. Seller and the agents and employees of Seller shall, in the performance of this Agreement, act in an independent capacity and not as officers or employees or agents of Buyer. Under this Agreement, Seller and Buyer

intend to act as energy seller and energy purchaser, respectively, and do not intend to be treated as, and shall not act as, partners in, co-venturers in or lessor/lessee with respect to the Facility or any business related to the Facility. This Agreement shall not impart any rights enforceable by any third party (other than a permitted successor or assignee bound to this Agreement or, to the extent set forth herein, any Lender and/or Indemnified Party).

19.5 **Severability**. In the event that any provision of this Agreement is unenforceable or held to be unenforceable, the Parties agree that all other provisions of this Agreement have force and effect and shall not be affected thereby. The Parties shall, however, use their best endeavors to agree on the replacement of the void, illegal or unenforceable provision(s) with legally acceptable clauses which correspond as closely as possible to the sense and purpose of the affected provision and this Agreement as a whole.

19.6 **Mobile-Sierra**. Notwithstanding any other provision of this Agreement, neither Party shall seek, nor shall they support any third party seeking, to prospectively or retroactively revise the rates, terms or conditions of service of this Agreement through application or complaint to FERC pursuant to the provisions of Section 205, 206 or 306 of the Federal Power Act, or any other provisions of the Federal Power Act, absent prior written agreement of the Parties. Further, absent the prior written agreement in writing by both Parties, the standard of review for changes to the rates, terms or conditions of service of this Agreement proposed by a Party shall be the "public interest" standard of review set forth in United Gas Pipe Line Co. v. Mobile Gas Service Corp., 350 U.S. 332 (1956) and Federal Power Commission v. Sierra Pacific Power Co., 350 U.S. 348 (1956). Changes proposed by a non-Party or FERC acting *sua sponte* shall be subject to the most stringent standard permissible under applicable law.

19.7 **Counterparts; Electronic Signatures**. This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one and the same instrument and each of which shall be deemed an original. The Parties may rely on electronic and scanned signatures as originals. Delivery of an executed signature page of this Agreement by a PDF attachment to an email shall be the same as delivery of an original executed signature page.

19.8 **Binding Effect**. This Agreement shall inure to the benefit of and be binding upon the Parties and their respective successors and permitted assigns.

19.9 **No Recourse to Members of Buyer**. Buyer is organized as a Joint Powers Authority in accordance with the Joint Exercise of Powers Act of the State of California (Government Code Section 6500, et seq.) pursuant to its Joint Powers Agreement and is a public entity separate from its constituent members. Buyer shall solely be responsible for all debts, obligations and liabilities accruing and arising out of this Agreement. Seller shall have no rights and shall not make any claims, take any actions or assert any remedies against any of Buyer's constituent members, or the employees, directors, officers, consultants or advisors or Buyer or its constituent members, in connection with this Agreement.

19.10 **Forward Contract**. The Parties acknowledge and agree that this Agreement constitutes a "forward contract" within the meaning of the U.S. Bankruptcy Code, and Buyer and Seller are "forward contract merchants" within the meaning of the U.S. Bankruptcy Code. Each Party further agrees that, for all purposes of this Agreement, each Party waives and agrees not to

assert the applicability of the provisions of 11 U.S.C. § 366 in any bankruptcy proceeding wherein such Party is a debtor. In any such proceeding, each Party further waives the right to assert that the other Party is a provider of last resort to the extent such term relates to 11 U.S.C. §366 or another provision of 11 U.S.C. § 101-1532.

19.11 **Further Assurances**. Each of the Parties hereto agree to provide such information, execute and deliver any instruments and documents and to take such other actions as may be necessary or reasonably requested by the other Party which are not inconsistent with the provisions of this Agreement and which do not involve the assumptions of obligations other than those provided for in this Agreement, to give full effect to this Agreement and to carry out the intent of this Agreement.

[Signatures on following page]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed as of the Effective Date.

MAYACMA GEOTHERMAL LLC, a Delaware limited liability company

By: _____
Name: _____
Title: _____

MARIN CLEAN ENERGY, a California joint powers authority

By: _____
Name: _____
Title: _____

MARIN CLEAN ENERGY, a California joint powers authority

By: _____
Name: _____
Title: _____

EXHIBIT A

FACILITY DESCRIPTION

Site Name: Bottlerock Geothermal Project

Site includes all or some of the following APNs:

County: Lake County

CEQA Lead Agency:

Type of Facility: Geothermal

Operating Characteristics of Facility:

Guaranteed Capacity: 7 MW

Delivery Point: The PNode designated by the CAISO for the Facility

Participating Transmission Owner:

Interconnection Point: The Facility shall interconnect to Bottlerock Substation near Cobb, California.

EXHIBIT B

FACILITY CONSTRUCTION AND COMMERCIAL OPERATION

1. **Construction of the Facility**.

   a. "**Construction Start**" will occur upon satisfaction of the following: (i) Seller has acquired the applicable regulatory authorizations, approvals and permits required for the commencement of construction of the Facility, (ii) Seller has engaged all contractors and ordered all essential equipment and supplies as, in each case, can reasonably be considered necessary so that physical construction of the Facility may begin and proceed to completion without foreseeable interruption of material duration, and (iii) Seller has executed an engineering, procurement, and construction contract and issued thereunder a full notice to proceed that authorizes the contractor to mobilize to Site and begin physical construction of the Facility at the Site. The date of Construction Start will be evidenced by and subject to Seller's delivery to Buyer of a certificate substantially in the form attached as Exhibit J hereto, and the date certified therein shall be the "**Construction Start Date**." The Seller shall use commercially reasonable efforts to cause Construction Start to occur no later than the Guaranteed Construction Start Date.

   b. If Construction Start is not achieved by the Guaranteed Construction Start Date, Seller shall pay Construction Delay Damages to Buyer for each day for which Construction Start has not begun after the Guaranteed Construction Start Date. Construction Delay Damages. On or before the tenth (10th) day of each month, Buyer shall invoice Seller for Construction Delay Damages, if any, accrued during the prior month and, within ten (10) days following Seller's receipt of such invoice, Seller shall pay Buyer the amount of the Construction Delay Damages set forth in such invoic [redacted] Construction Delay Damages shall be refundable to Seller pursuant to Section 2 b. of this Exhibit B. The Parties agree that Buyer's receipt of Construction Delay Damages shall be Buyer's sole and exclusive remedy for Seller's unexcused delay in achieving the Construction Start Date on or before the Guaranteed Construction Start Date, but shall (x) not be construed as Buyer's declaration that an Event of Default has occurred under any provision of Section 11.1 and (y) not limit Buyer's right to declare an Event of Default pursuant to Section 11.1(b)(ii) or 11.1(b)(iv) and receive a Damage Payment upon exercise of Buyer's default right pursuant to Section 11.2.

2. **Commercial Operation of the Facility**. "**Commercial Operation**" means the condition existing when (i) Seller has fulfilled all of the conditions precedent in Section 2.2 of the Agreement and provided Notice from a Licensed Professional Engineer to Buyer substantially in the form of Exhibit H (the "**COD Certificate**") and (ii) Seller has notified Buyer in writing that it has provided the required documentation to Buyer and met the conditions for achieving Commercial Operation. The "**Commercial Operation Date**"

shall be the later of [redacted] days prior to the Expected Commercial Operation Date, or (y) the date on which Commercial Operation is achieved.

a. Seller shall cause Commercial Operation for the Facility to occur by the Guaranteed Commercial Operation Date. Seller shall notify Buyer that it intends to achieve Commercial Operation at least sixty (60) days before the anticipated Commercial Operation Date.

b. If Seller achieves the Commercial Operation Date by the Guaranteed Commercial Operation Date, all Construction Delay Damages paid by Seller shall be refunded by Buyer.

c. If Seller does not achieve Commercial Operation by the Guaranteed Commercial Operation Date, Seller shall pay Commercial Operation Delay Damages to Buyer for each day after the Guaranteed Commercial Operation Date until the Commercial Operation Date. Commercial Operation Delay Damages shall be payable to Buyer by Seller until the Commercial Operation Date. Commercial Operation Delay Damages shall be paid in advance on a monthly basis by Seller to [redacted] A prorated amount of Commercial Operation Delay Damages will be returned to Seller if the Commercial Operation Date occurs during a month in which the Commercial Operation Delay Damages were paid in advance. The Parties agree that Buyer's receipt of Commercial Operation Delay Damages shall be Buyer's sole and exclusive remedy for Seller's unexcused delay in achieving the Commercial Operation Date on or before the Guaranteed Commercial Operation Date, but shall (x) not be construed as Buyer's declaration that an Event of Default has occurred under any provision of Section 11.1 and (y) not limit Buyer's right to declare an Event of Default under Section 11.2(b)(ii) and receive a Damage Payment upon exercise of Buyer's rights pursuant to Section 11.2.

d. Notwithstanding any provision in this Agreement to the contrary, if the Commercial Operation Date has not occurred by April 1, 2024, upon the prior written request of Buyer, Seller shall use commercially reasonable efforts to deliver to Buyer Resource Adequacy Benefits from a resource other than the Facility in a quantity not to exceed the Guaranteed RA Amount ("**Bridge Capacity**"), subject to the following terms and conditions:

[redacted]

[redacted]

3. **Extension of the Guaranteed Dates**. The Guaranteed Construction Start Date and the Guaranteed Commercial Operation Date shall both, subject to notice and documentation requirements set forth below, be automatically extended on a day-for-day basis for the duration of any and all delays arising out of the following circumstances:

a. a Force Majeure Event occurs; or

b. [redacted]

c. the Interconnection Facilities or Network Upgrades are not complete and ready for the Facility to connect and sell Product at the Delivery Point by the Guaranteed Commercial Operation Date, despite the exercise of commercially reasonable efforts by Seller; or

d. Buyer has not made all necessary arrangements to receive the Facility Energy at the Delivery Point by the Guaranteed Commercial Operation Date.

Day-for-day extensions under subsections (a) through (c) above shall not exceed [redacted] All of the day-for-day extensions allowed under subsections (a) through (d) above, collectively, are the "**Development Cure Period**". Notwithstanding anything to the contrary, no extension shall be given under the Development Cure Period if (i) the delay was the result of Seller's failure to take all commercially reasonable actions to meet its requirements and deadlines, (ii) for extensions for a Force Majeure Event under subsection (a) above, if the delay does not otherwise satisfy the requirements of a Force Majeure Event, including the notice and documentation requirements under Section 10.3, or (iii) for delays that are not claimed as a Force Majeure Event, Seller failed to provide written notice as required in the next sentence. For delays that are not claimed as a Force Majeure Event, Seller shall provide prompt written notice to Buyer of a delay, but in no case more than thirty (30) days after Seller became aware of such delay, except that in the case of a delay occurring within sixty (60) days of the Expected Commercial Operation Date, or after such date, Seller must provide written

notice within five (5) Business Days of Seller becoming aware of such delay. Upon request from Buyer, Seller shall provide documentation demonstrating to Buyer's reasonable satisfaction that and delays described above, including from Force Majeure Events, did not result from Seller's actions or failure to take commercially reasonable actions.

4. **Failure to Reach Guaranteed Capacity**. If, at Commercial Operation, the Installed Capacity is less than one hundred percent (100%) of the Guaranteed Capacity, Seller shall have [redacted] days after the Commercial Operation Date to install additional capacity or Network Upgrades such that the Installed Capacity is equal to (but not greater than) the Guaranteed Capacity, and Seller shall provide to Buyer a new certificate substantially in the form attached as Exhibit I hereto specifying the new Installed Capacity. If Seller fails to construct the Guaranteed Capacity by such date, Seller shall pay "**Capacity Damages**" to Buyer, in an amount equal to [redacted] for each MW that the Guaranteed Capacity exceeds the Installed Capacity, and the Guaranteed Capacity and other applicable portions of the Agreement shall be adjusted accordingly and the Expected Energy shall be reduced to an amount equal to the product of (a) the amount of Expected Energy in effect prior to such adjustment, multiplied by (b) the ratio of the Installed Capacity as of such date to the Guaranteed Capacity.

EXHIBIT C

COMPENSATION

Buyer shall compensate Seller for the Product in accordance with this Exhibit C.

(a) Contract Price. Buyer shall pay Seller the Contract Price for each MWh of Facility Energy plus the amount of Deemed Delivered Energy above the Curtailment Cap, if any, up to [redacted] of the Expected Energy for each Contract Year.

(b) Annual Excess Energy Deliveries.

(i) If, at any point in any Contract Year, the amount of Facility Energy plus the amount of Deemed Delivered Energy above the Curtailment Cap exceeds [redacted] of the Expected Energy for such Contract Year, the price to be paid for additional Facility Energy or Deemed Delivered Energy shall be equal to the lesser of (a) the Delivery Point LMP for the Real-Time Market for the applicable Settlement Interval or (b) [redacted] of the Contract Price, but not less than $0.00/MWh.

(ii) If, at any point in any Contract Year, the amount of Facility Energy plus the amount of Deemed Delivered Energy above the Curtailment Cap exceeds one [redacted] of the Expected Energy for such Contract Year, no payment shall be owed by Buyer for any additional Facility Energy or Deemed Delivered Energy.

(c) Excess Settlement Interval Deliveries. If during any Settlement Interval, Seller delivers Product amounts, as measured by the amount of Facility Energy, in excess of the product of the Guaranteed Capacity and the duration of the Settlement Interval, expressed in hours ("**Excess Energy**"), then the price applicable to all such Excess Energy in such Settlement Interval shall be Zero Dollars ($0), and if there is a Negative LMP during such Settlement Interval, Seller shall pay to Buyer an amount equal to the absolute value of the Negative LMP times such Excess Energy.

(d) Curtailment Payments. Seller shall receive no compensation from Buyer for (i) Facility Energy or Deemed Delivered Energy during any Curtailment Period and (ii) Deemed Delivered Energy in amounts below the Curtailment Cap. Buyer shall pay for Deemed Delivered Energy above the Curtailment Cap in accordance with paragraphs (a) and (b) of this Exhibit C.

(e) Test Energy. Test Energy is compensated at the Test Energy Rate in accordance with Section 3.6.

EXHIBIT D

SCHEDULING COORDINATOR RESPONSIBILITIES

(a) Buyer as Scheduling Coordinator for the Facility. Upon Initial Synchronization of the Facility to the CAISO Grid, Buyer (or its designated qualified third party) shall be the Scheduling Coordinator and provide Scheduling Coordinator services with the CAISO for the Facility for both the delivery and the receipt of Test Energy and the Product at the Delivery Point. At least thirty (30) days prior to the Initial Synchronization of the Facility to the CAISO Grid, (i) Seller shall take all actions and execute and deliver to Buyer and the CAISO all documents necessary to authorize or designate Buyer (or Buyer's designee) as the Scheduling Coordinator for the Facility effective as of the Initial Synchronization of the Facility to the CAISO Grid, and (ii) Buyer shall, and shall cause its designee to, take all actions and execute and deliver to Seller and the CAISO all documents necessary to authorize or designate Buyer or its designee as the Scheduling Coordinator for the Facility effective as of the Initial Synchronization of the Facility to the CAISO Grid. On and after Initial Synchronization of the Facility to the CAISO Grid, Seller shall not authorize or designate any other party to act as the Facility's Scheduling Coordinator, nor shall Seller perform for its own benefit the duties of Scheduling Coordinator, and Seller shall not revoke Buyer's authorization to act as the Facility's Scheduling Coordinator unless agreed to by Buyer. Buyer (as the Facility's SC) shall submit Schedules to the CAISO in accordance with this Agreement and the applicable CAISO Tariff, protocols and Scheduling practices for Product on a day-ahead, hour-ahead, fifteen-minute market or real time basis, as determined by Buyer. Buyer shall cause its Scheduling Coordinator to reasonably cooperate with Seller during the testing and commissioning of the Facility prior to the Commercial Operation Date.

(b) Notices. Buyer (as the Facility's SC) shall provide Seller with access to a web-based system through which Seller shall submit to Buyer (as the Facility's SC) and the CAISO all notices and updates required under the CAISO Tariff regarding the Facility's status, including, but not limited to, all outage requests, forced outages, forced outage reports, clearance requests, or must offer waiver forms. Seller will cooperate with Buyer to provide such notices and updates. If the web-based system is not available, Seller shall promptly submit such information to Buyer (as the Facility's SC) and the CAISO (in order of preference) telephonically, by electronic mail, transmission to the personnel designated to receive such information.

(c) CAISO Costs and Revenues. Except as otherwise set forth below, Buyer (as Scheduling Coordinator for the Facility) shall be responsible for CAISO costs (including penalties, Imbalance Energy costs, and other charges) and shall be entitled to all CAISO revenues (including credits, Imbalance Energy revenues, and other payments), including revenues associated with CAISO dispatches, bid cost recovery, Inter-SC Trade credits, or other credits in respect of the Product Scheduled or delivered from the Facility. Seller shall assume all liability and reimburse Buyer for any and all costs or charges, (i) incurred by Buyer because of Seller's failure to perform its obligations under the Agreement, (ii) incurred by Buyer because of any outages for which notice has not been provided as required, (iii) associated with Resource Adequacy Capacity (as defined by the CAISO) from the Facility (including RAIMM and other Non-Availability Charges (as defined by the CAISO)), and (iv) to the extent arising as a result of Seller's failure to comply with a timely Buyer Curtailment Order if such failure results in incremental costs to Buyer. The Parties agree that any Availability Incentive Payments (as defined in the CAISO Tariff) are for the benefit

of the Seller and for Seller's account and that any Non-Availability Charges (as defined in the CAISO Tariff) are the responsibility of the Seller and for Seller's account. In addition, if during the Delivery Term, the CAISO implements or has implemented any sanction or penalty related to scheduling requirements imposed on Seller as Facility owner (but not in connection with obligations of Buyer hereunder), outage reporting, or generator operation, and any such sanctions or penalties are imposed upon the Facility or to Buyer as Scheduling Coordinator due to failure by Seller to abide by the CAISO Tariff or the outage notification requirements set forth in this Agreement, the cost of the sanctions or penalties shall be the Seller's responsibility.

(d) CAISO Settlements. Buyer (as the Facility's SC) shall be responsible for all settlement functions with the CAISO related to the Facility. Buyer shall render a separate invoice to Seller for any CAISO payments, charges or penalties ("**CAISO Charges Invoice**") for which Seller is responsible under this Agreement. CAISO Charges Invoices shall be rendered after settlement information becomes available from the CAISO that identifies any CAISO charges. Notwithstanding the foregoing, Seller acknowledges that the CAISO will issue additional invoices reflecting CAISO adjustments to such CAISO charges. Buyer will review, validate, and if requested by Seller under paragraph (e) below, dispute any charges that are the responsibility of Seller in a timely manner and consistent with Buyer's existing settlement processes for charges that are Buyer's responsibilities. Subject to Seller's right to dispute and to have Buyer pursue the dispute of any such invoices, Seller shall pay the amount of CAISO Charges Invoices within ten (10) Business Days of Seller's receipt of the CAISO Charges Invoice. If Seller fails to pay such CAISO Charges Invoice within that period, Buyer may net or offset any amounts owing to it for these CAISO Charges Invoices against any future amounts it may owe to Seller under this Agreement. The obligations under this Section with respect to payment of CAISO Charges Invoices shall survive the expiration or termination of this Agreement.

(e) Dispute Costs. Buyer (as the Facility's SC) may be required to dispute CAISO settlements in respect of the Facility. Buyer agrees to pay costs and expenses (including reasonable attorneys' fees) associated with its involvement with such CAISO disputes, except to the extent they relate to CAISO charges payable by Seller under this Agreement with respect to the Facility.

(f) Terminating Buyer's Designation as Scheduling Coordinator. At least thirty (30) days prior to expiration of this Agreement or as soon as reasonably practicable upon an earlier termination of this Agreement, the Parties will take all actions necessary to terminate the designation of Buyer as Scheduling Coordinator for the Facility as of 11:59 p.m. on such expiration date.

(g) Master Data File and Resource Data Template. Seller shall provide the data to the CAISO (and to Buyer) that is required for the CAISO's Master Data File and Resource Data Template (or successor data systems) for the Facility consistent with this Agreement. Neither Party shall change such data without the other Party's prior written consent.

(h) NERC Reliability Standards. Buyer (as Scheduling Coordinator) shall cooperate reasonably with Seller to the extent necessary to enable Seller to comply, and for Seller to demonstrate Seller's compliance with, NERC reliability standards. This cooperation shall include the provision of information in Buyer's possession that Buyer (as Scheduling Coordinator) has provided to the CAISO related to the Facility or actions taken by Buyer (as Scheduling Coordinator) related to Seller's compliance with NERC reliability standards.

EXHIBIT E

PROGRESS REPORTING FORM

Each Progress Report must include the following items:

1. Executive Summary.

2. Facility description.

3. Site plan of the Facility.

4. Description of any material planned changes to the Facility or the Site.

5. Gantt chart schedule showing progress on achieving each of the Milestones.

6. Summary of activities during the previous calendar quarter or month, as applicable, including any OSHA labor hour reports.

7. Forecast of activities scheduled for the current calendar quarter.

8. Written description about Seller's progress towards achieving the Milestones, including whether Seller has met or is on target to meet the Milestones, identification of any missed Milestones, including the cause of delay, and a detailed description of Seller's corrective actions to achieve the missed Milestones and all subsequent Milestones by the Guaranteed Commercial Operation Date.

9. List of issues that are likely to potentially affect Seller's Milestones.

10. A status report of start-up activities including a forecast of activities ongoing and after start-up, a report on Facility performance including performance projections for the next twelve (12) months.

11. Prevailing wage reports as required by Law.

12. Progress and schedule of all major agreements, contracts, permits, approvals, technical studies, financing agreements and major equipment purchase orders showing the start dates, completion dates, and completion percentages.

13. Pictures, in sufficient quantity and of appropriate detail, in order to document construction and startup progress of the Facility, the interconnection into the Transmission System and all other interconnection utility services.

14. Supplier Diversity Reporting (if applicable). Format to be provided by Buyer.

15. Any other documentation reasonably requested by Buyer.

EXHIBIT F-1

FORM OF AVERAGE EXPECTED ENERGY REPORT

Average Expected Energy (in MWh)

	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
JAN																								
FEB																								
MAR																								
APR																								
MAY																								
JUN																								
JUL																								
AUG																								
SEP																								
OCT																								
NOV																								
DEC																								

The foregoing table is provided for informational purposes only, and it shall not constitute, or be deemed to constitute, an obligation of any of the Parties to this Agreement.

EXHIBIT F-2

FORM OF MONTHLY AVAILABLE CAPACITY FORECAST

Available Generating Capacity (in MWh) – [*Insert Month*]

	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Day 1																								
Day 2																								
Day 3																								
Day 4																								
Day 5																								
[insert additional rows for each day in the month]																								
Day 29																								
Day 30																								
Day 31																								

The foregoing table is provided for informational purposes only, and it shall not constitute, or be deemed to constitute, an obligation of any of the Parties to this Agreement.

EXHIBIT G

GUARANTEED ENERGY PRODUCTION DAMAGES CALCULATION

In accordance with Section 4.7, if Seller fails to achieve the Guaranteed Energy Production during any Performance Measurement Period, a liquidated damages payment shall be due from Seller to Buyer, calculated as follows:

[(A – B) * (C – D)]

where:

A = the Guaranteed Energy Production amount for the Performance Measurement Period, in MWh

B = the Adjusted Energy Production amount for the Performance Measurement Period, in MWh

C = Price for Replacement Product for the Contract Year, in $/MWh, which shall be calculated by Buyer in a commercially reasonable manner. Buyer is not required to enter into a replacement transaction in order to determine this amount.

D = the Contract Price for the Contract Year, in $/MWh

No payment shall be due if the calculation of (A - B) or (C - D) yields a negative number.

Buyer will send Seller Notice of the amount of damages owing, if any, and such amount shall be payable to Buyer within thirty (30) days from the date of such Notice.

As used above:

"**Adjusted Energy Production**" shall mean the sum of the following: Facility Energy + Deemed Delivered Energy + Lost Output + Replacement Product.

"**Lost Output**" has the meaning given in Section 4.7 of the Agreement. The Lost Output shall be calculated in the same manner as Deemed Delivered Energy is calculated, in accordance with the definition thereof.

"**Replacement Energy**" means energy produced by a facility other than the Facility that, at the time delivered to Buyer, qualifies under Public Utilities Code 399.16(b)(1), and has Green Attributes that have the same or comparable value, including with respect to the timeframe for retirement of such Green Attributes, if any, as the Green Attributes that would have been generated by the Facility during the Contract Year for which the Replacement Energy is being provided, and that is scheduled as an Inter-SC Trade to Buyer and delivered to a delivery point and upon a schedule that is reasonably acceptable to Buyer.

"**Replacement Green Attributes**" means Renewable Energy Credits of the same Portfolio Content Category (i.e., PCC1) as the Green Attributes portion of the Product and of the same

timeframe for retirement as the Renewable Energy Credits that would have been generated by the Facility during the Performance Measurement Period for which the Replacement Green Attributes are being provided.

"**Replacement Product**" means (a) Replacement Energy and (b) Replacement Green Attributes.

EXHIBIT H

FORM OF COMMERCIAL OPERATION DATE CERTIFICATE

This certification ("**Certification**") of Commercial Operation is delivered by [*Licensed Professional Engineer*] ("**Engineer**") to Marin Clean Energy, a California joint powers authority ("**Buyer**") in accordance with the terms of that certain Renewable Power Purchase Agreement dated [*date*] ("**Agreement**") by and between Mayacma Geothermal LLC, a Delaware limited liability company ("**Seller**"), and Buyer. All capitalized terms used in this Certification but not otherwise defined herein shall have the respective meanings assigned to such terms in the Agreement.

As of [*date*], Engineer hereby certifies and represents to Buyer the following:

1. Seller has installed equipment for the Facility with a nameplate capacity of no less than ninety-five percent (95%) of the Guaranteed Capacity.

2. The Facility's testing included a performance test demonstrating peak electrical output of no less than ninety-five percent (95%) of the Guaranteed Capacity for the Facility at the Delivery Point, as adjusted for ambient conditions on the date of the Facility testing, and such peak electrical output, as adjusted, was [*peak output in MW*].

3. The Facility is fully operational, reliable and interconnected, fully integrated and synchronized with the Transmission System.

4. Seller has demonstrated functionality of the Facility's communication systems and automatic generation control (AGC) interface to operate the Facility as necessary to respond and follow instructions, including an electronic signal conveying real time and intra-day instructions, directed by the Buyer in accordance with the Agreement and/or the CAISO.

5. Seller has commissioned all equipment in accordance with its respective manufacturer's specifications,

6. Authorization to parallel the Facility was obtained by the Participating Transmission Provider, [*Name of Participating Transmission Owner as appropriate*] on [*date*].

7. The Transmission Provider has provided documentation supporting full unrestricted release for Commercial Operation by [*Name of Participating Transmission Owner as appropriate*] on [*date*].

8. The CAISO has provided notification supporting Commercial Operation, in accordance with the CAISO Tariff on [*date*].

EXECUTED by [*Licensed Professional Engineer*]

this _____ day of _____, 20__.

[*LICENSED PROFESSIONAL ENGINEER*]

By: _____

Printed Name: _____

Title: _____

EXHIBIT I

FORM OF INSTALLED CAPACITY CERTIFICATE

This certification ("**Certification**") of Installed Capacity is delivered by [*Licensed Professional Engineer*] ("**Engineer**") to Marin Clean Energy, a California joint powers authority ("**Buyer**") in accordance with the terms of that certain Renewable Power Purchase Agreement dated [*date*] ("**Agreement**") by and between Mayacma Geothermal LLC, a Delaware limited liability company ("**Seller**") and Buyer. All capitalized terms used in this Certification but not otherwise defined herein shall have the respective meanings assigned to such terms in the Agreement.

I hereby certify that the performance test for the Facility demonstrated peak electrical output of __ MW AC at the Delivery Point, as adjusted for ambient conditions on the date of the performance test ("**Installed Capacity**").

EXECUTED by [*Licensed Professional Engineer*]

this _____ day of _____, 20__.

[*LICENSED PROFESSIONAL ENGINEER*]

By: _____

Printed Name: _____

Title: _____

EXHIBIT J

FORM OF CONSTRUCTION START DATE CERTIFICATE

This certification of Construction Start Date ("**Certification**") is delivered by Mayacma Geothermal LLC, a Delaware limited liability company ("**Seller**") to Marin Clean Energy, a California joint powers authority ("**Buyer**") in accordance with the terms of that certain Renewable Power Purchase Agreement dated [*date*] ("**Agreement**") by and between Seller and Buyer. All capitalized terms used in this Certification but not otherwise defined herein shall have the respective meanings assigned to such terms in the Agreement.

Seller hereby certifies and represents to Buyer the following:

1. Construction Start (as defined in Exhibit B of the Agreement) has occurred, and a copy of the notice to proceed that Seller issued to its contractor as part of Construction Start is attached hereto;

2. the Construction Start Date occurred on [*date*] (the "**Construction Start Date**"); and

3. the precise Site on which the Facility is located is, which must be within the boundaries of the previously identified Site: _____.

IN WITNESS WHEREOF, the undersigned has executed this Certification on behalf of Seller this _____ day of _____, 20__.

[_____]

By: _____

Printed Name: _____

Title: _____

EXHIBIT K

FORM OF LETTER OF CREDIT

[Issuing Bank Letterhead and Address]

IRREVOCABLE STANDBY LETTER OF CREDIT NO. [XXXXXXX]

Date: _____
Bank Ref.: _____
Amount: US$_____
Expiration Date: _____

APPLICANT DETAILS TO BE PROVIDED

Beneficiary:

Marin Clean Energy
1125 Tamalpais Avenue
San Rafael, CA 94901
Attn: Director of Finance

Ladies and Gentlemen:

By the order of _____ ("Applicant"), we, [insert bank name and address] ("Issuer") hereby issue our Irrevocable Standby Letter of Credit No. [XXXXXXX] (the "Letter of Credit") in favor of Marin Clean Energy, a California joint powers authority ("Beneficiary"), for an amount not to exceed the aggregate sum of U.S. $[XXXXXX] (United States Dollars [XXXXX] and 00/100), pursuant to that certain Renewable Power Purchase Agreement dated as of [Date of Contract / Agreement should be in the past or on the date of issuance. In case of future contract date the Letter of Credit text will be adjusted to reflect this change] and as amended (the "Agreement") between Applicant and Beneficiary. This Letter of Credit shall become effective immediately and shall expire on [XXXXXX] which is one year after the issue date of this Letter of Credit, or any expiration date extended in accordance with the terms hereof (the "Expiration Date").

Funds under this Letter of Credit are available to Beneficiary by presentation on or before the Expiration Date of a dated statement purportedly signed by your duly authorized representative, in the form attached hereto as Exhibit A, containing one of the two alternative paragraphs set forth in paragraph 2 therein, referencing our Letter of Credit No. [XXXXXXX] ("Drawing Certificate").

The Drawing Certificate may be presented by (a) physical delivery, (b) email to [*bank email address*], or (c) facsimile to [*bank fax number*] [*optional if bank needs fax confirmation* -, confirmed by [email to [*bank email address*]] [telephone confirmation to the Issuer at [*phone number*]. Transmittal by facsimile or email shall be deemed delivered when received.

The original of this Letter of Credit (and all amendments, if any) is not required to be presented in connection with any presentment of a Drawing Certificate by Beneficiary hereunder in order to

receive payment.

We hereby agree with the Beneficiary that documents presented under and in compliance with the terms of this Letter of Credit will be duly honored upon presentation to the Issuer on or before the Expiration Date. All payments made under this Letter of Credit shall be made with Issuer's own immediately available funds by means of wire transfer in immediately available United States dollars to Beneficiary's account as indicated by Beneficiary in its Drawing Certificate or in a communication accompanying its Drawing Certificate.

Partial draws are permitted under this Letter of Credit, and this Letter of Credit shall remain in full force and effect with respect to any continuing balance.

It is a condition of this Letter of Credit that the Expiration Date shall be deemed automatically extended without an amendment for a one year period beginning on the present Expiration Date hereof and upon each anniversary for such date, unless at least one hundred twenty (120) days prior to any such Expiration Date we have sent to you written notice by registered mail or overnight courier service that we elect not to extend this Letter of Credit, in which case it will expire on the date specified in such notice. No presentation made under this Letter of Credit after such Expiration Date will be honored.

Notwithstanding any reference in this Letter of Credit to any other documents, instruments or agreements, this Letter of Credit contains the entire agreement between Beneficiary and Issuer relating to the obligations of Issuer hereunder.

This Letter of Credit is issued subject to the rules of the 'International Standby Practices 1998', International Chamber of Commerce Publication No. 590 ("ISP98") and, as to matters not addressed by ISP98, shall be governed and construed in accordance with the laws of state of California.

Please address all correspondence regarding this Letter of Credit to the attention of the Letter of Credit Department at [*insert bank address information*], referring specifically to Issuer's Letter of Credit No. [XXXXXXX]. For telephone assistance, please contact Issuer's Standby Letter of Credit Department at [XXX-XXX-XXXX] and have this Letter of Credit available.

All notices to Beneficiary shall be in writing and are required to be sent by certified letter, overnight courier, or delivered in person to: Marin Clean Energy, Attn: Director of Finance, 1125 Tamalpais Avenue San Rafael, CA 94901. Only notices to Beneficiary meeting the requirements of this paragraph shall be considered valid. Any notice to Beneficiary which is not in accordance with this paragraph shall be void and of no force or effect.

[Bank Name]

_____

[Insert officer name]
[Insert officer title]

Exhibit A: (DRAW REQUEST SHOULD BE ON BENEFICIARY'S LETTERHEAD)

Drawing Certificate

[Insert Bank Name and Address]

Ladies and Gentlemen:

The undersigned, a duly authorized representative of Marin Clean Energy, a California joint powers authority, as beneficiary (the "Beneficiary") of the Irrevocable Letter of Credit No. [XXXXXXX] (the "Letter of Credit") issued by [insert bank name] (the "Bank") by order of _____ (the "Applicant"), hereby certifies to the Bank as follows:

1. Applicant and Beneficiary are party to that certain Renewable Power Purchase Agreement dated as of _____, 2022 (the "Agreement").

2. Beneficiary is making a drawing under this Letter of Credit in the amount of U.S. $_____ because a Seller Event of Default (as such term is defined in the Agreement) or other occasion provided for in the Agreement where Beneficiary is authorized to draw on the Letter of Credit has occurred.

OR

Beneficiary is making a drawing under this Letter of Credit in the amount of U.S. $_____, which equals the full available amount under the Letter of Credit, because Applicant is required to maintain the Letter of Credit in force and effect beyond the Expiration Date of the Letter of Credit but has failed to provide Beneficiary with a replacement Letter of Credit or other acceptable instrument within forty-five (45) days prior to such Expiration Date.

3. The undersigned is a duly authorized representative of Marin Clean Energy, a California joint powers authority and is authorized to execute and deliver this Drawing Certificate on behalf of Beneficiary.

You are hereby directed to make payment of the requested amount to Marin Clean Energy, a California joint powers authority by wire transfer in immediately available funds to the following account:

[Specify account information]

Marin Clean Energy

_____
Name and Title of Authorized Representative

Date_____

EXHIBIT L

FORM OF GUARANTY

This Guaranty (this "Guaranty") is entered into as of [*date*] (the "Effective Date") by and between [_____], a [_____] ("Guarantor"), and Marin Clean Energy, a California joint powers authority (together with its successors and permitted assigns, "Buyer").

Recitals

A. Buyer and Mayacma Geothermal LLC, a Delaware limited liability company ("Seller"), entered into that certain Renewable Power Purchase Agreement (as amended, restated or otherwise modified from time to time, the "PPA") dated as of [____], 2022.

B. Guarantor is entering into this Guaranty as Performance Security to secure Seller's obligations under the PPA, as required by Section 8.8 of the PPA.

C. It is in the best interest of Guarantor to execute this Guaranty inasmuch as Guarantor will derive substantial direct and indirect benefits from the execution and delivery of the PPA.

D. Initially capitalized terms used but not defined herein have the meaning set forth in the PPA.

Agreement

1. **Guaranty**. For value received, Guarantor does hereby unconditionally, absolutely and irrevocably guarantee, as primary obligor and not as a surety, to Buyer the full, complete and prompt payment by Seller of any and all amounts and payment obligations now or hereafter owing from Seller to Buyer under the PPA, including, without limitation, compensation for penalties, the Termination Payment, indemnification payments or other damages, as and when required pursuant to the terms of the PPA (the "Guaranteed Amount"), provided, that Guarantor's aggregate liability under or arising out of this Guaranty shall not exceed _____ Dollars ($_____). The Parties understand and agree that any payment by Guarantor or Seller of any portion of the Guaranteed Amount shall thereafter reduce Guarantor's maximum aggregate liability hereunder on a dollar-for-dollar basis. This Guaranty is an irrevocable, absolute, unconditional and continuing guarantee of the full and punctual payment and performance, and not of collection, of the Guaranteed Amount and, except as otherwise expressly addressed herein, is in no way conditioned upon any requirement that Buyer first attempt to collect the payment of the Guaranteed Amount from Seller, any other guarantor of the Guaranteed Amount or any other Person or entity or resort to any other means of obtaining payment of the Guaranteed Amount. In the event Seller shall fail to duly, completely or punctually pay any Guaranteed Amount as required pursuant to the PPA, Guarantor shall promptly pay such amount as required herein.

2. **Demand Notice**. For avoidance of doubt, a payment shall be due for purposes of this Guaranty only when and if a payment is due and payable by Seller to Buyer under the terms and conditions of the Agreement. If Seller fails to pay any Guaranteed Amount as required pursuant

to the PPA for five (5) Business Days following Seller's receipt of Buyer's written notice of such failure (the "Demand Notice"), then Buyer may elect to exercise its rights under this Guaranty and may make a demand upon Guarantor (a "Payment Demand") for such unpaid Guaranteed Amount. A Payment Demand shall be in writing and shall reasonably specify in what manner and what amount Seller has failed to pay and an explanation of why such payment is due and owing, with a specific statement that Buyer is requesting that Guarantor pay under this Guaranty. Guarantor shall, within five (5) Business Days following its receipt of the Payment Demand, pay the Guaranteed Amount to Buyer.

3. **Scope and Duration of Guaranty**. This Guaranty applies only to the Guaranteed Amount. This Guaranty shall continue in full force and effect from the Effective Date until the earlier of the following: (x) all Guaranteed Amounts have been paid in full (whether directly or indirectly through set-off or netting of amounts owed by Buyer to Seller), or (y) replacement Performance Security is provided in an amount and form required by the terms of the PPA. Further, this Guaranty (a) shall remain in full force and effect without regard to and shall not be affected or impaired by any invalidity, irregularity or unenforceability in whole or in part of this Guaranty, and (b) subject to the preceding sentence, shall be discharged only by complete performance of the undertakings herein. Without limiting the generality of the foregoing, the obligations of the Guarantor hereunder shall not be released, discharged, or otherwise affected and this Guaranty shall not be invalidated or impaired or otherwise affected for the following reasons:

(i) the extension of time for the payment of any Guaranteed Amount, or

(ii) any amendment, modification or other alteration of the PPA, or

(iii) any indemnity agreement Seller may have from any party, or

(iv) any insurance that may be available to cover any loss, except to the extent insurance proceeds are used to satisfy the Guaranteed Amount, or

(v) any voluntary or involuntary liquidation, dissolution, receivership, insolvency, bankruptcy, assignment for the benefit of creditors, reorganization, arrangement, composition or readjustment of, or other similar proceeding affecting, Seller or any of its assets, including but not limited to any rejection or other discharge of Seller's obligations under the PPA imposed by any court, trustee or custodian or any similar official or imposed by any law, statue or regulation, in each such event in any such proceeding, or

(vi) the release, modification, waiver or failure to pursue or seek relief with respect to any other guaranty, pledge or security device whatsoever, or

(vii) any payment to Buyer by Seller that Buyer subsequently returns to Seller pursuant to court order in any bankruptcy or other debtor-relief proceeding, or

(viii) those defenses based upon (A) the legal incapacity or lack of power or authority of any Person, including Seller and any representative of Seller to enter into the PPA or perform its obligations thereunder, (B) lack of due execution, delivery, validity or enforceability, including of the PPA, or (C) Seller's inability to pay any Guaranteed Amount or perform its obligations under the PPA, or

(ix) any other event or circumstance that may now or hereafter constitute a defense to payment of the Guaranteed Amount, including, without limitation, statute of frauds and accord and satisfaction;

provided that, subject to Guarantor's payment of a Guaranteed Amount in accordance with Paragraph 2, Guarantor reserves the right to assert for itself in a subsequent proceeding any defenses, setoffs or counterclaims that Seller is or may be entitled to assert against Buyer (except for such defenses, setoffs or counterclaims that may be asserted by Seller with respect to the PPA, but that are expressly waived under any provision of this Guaranty).

4. **Waivers by Guarantor**. Guarantor hereby unconditionally waives as a condition precedent to the performance of its obligations hereunder, with the exception of the requirements in Paragraph 2, (a) notice of acceptance, presentment or protest with respect to the Guaranteed Amounts and this Guaranty, (b) notice of any action taken or omitted to be taken by Buyer in reliance hereon, (c) any requirement that Buyer exhaust any right, power or remedy or proceed against Seller under the PPA, and (d) any event, occurrence or other circumstance which might otherwise constitute a legal or equitable discharge of a surety. Without limiting the generality of the foregoing waiver of surety defenses, it is agreed that the occurrence of any one or more of the following shall not affect the liability of Guarantor hereunder:

(i) at any time or from time to time, without notice to Guarantor, the time for payment of any Guaranteed Amount shall be extended, or such performance or compliance shall be waived;

(ii) the obligation to pay any Guaranteed Amount shall be modified, supplemented or amended in any respect in accordance with the terms of the PPA;

(iii) subject to Paragraph 9, any (a) sale, transfer or consolidation of Seller into or with any other entity, (b) sale of substantial assets by, or restructuring of the corporate existence of, Seller or (c) change in ownership of any membership interests of, or other ownership interests in, Seller; or

(iv) the failure by Buyer or any other Person to create, preserve, validate, perfect or protect any security interest granted to, or in favor of, Buyer or any Person.

5. **Subrogation**. Notwithstanding any payments that may be made hereunder by the Guarantor, Guarantor hereby agrees that until the earlier of payment in full of all Guaranteed Amounts or expiration of the Guaranty in accordance with Paragraph 3, it shall not be entitled to, nor shall it seek to, exercise any right or remedy arising by reason of its payment of any Guaranteed Amount under this Guaranty, whether by subrogation or otherwise, against Seller or seek contribution or reimbursement of such payments from Seller.

6. **Representations and Warranties**. Guarantor hereby represents and warrants that (a) it has all necessary and appropriate [***limited liability company***][***corporate***] powers and authority and the legal right to execute and deliver, and perform its obligations under, this Guaranty, (b) this Guaranty constitutes its legal, valid and binding obligations enforceable against it in accordance with its terms, except as enforceability may be limited by bankruptcy, insolvency, moratorium and other similar laws affecting enforcement of creditors' rights or general principles of equity, (c) the

execution, delivery and performance of this Guaranty does not and will not contravene Guarantor's organizational documents, any applicable Law or any contractual provisions binding on or affecting Guarantor, (d) there are no actions, suits or proceedings pending before any court, governmental agency or arbitrator, or, to the knowledge of the Guarantor, threatened, against or affecting Guarantor or any of its properties or revenues which may, in any one case or in the aggregate, adversely affect the ability of Guarantor to enter into or perform its obligations under this Guaranty, and (e) no consent or authorization of, filing with, or other act by or in respect of, any arbitrator or Governmental Authority, and no consent of any other Person (including, any stockholder or creditor of the Guarantor), that has not heretofore been obtained is required in connection with the execution, delivery, performance, validity or enforceability of this Guaranty by Guarantor.

7. **Notices**. Notices under this Guaranty shall be deemed received if sent to the address specified below: (i) on the day received if served by overnight express delivery, and (ii) four Business Days after mailing if sent by certified, first-class mail, return receipt requested. If transmitted by facsimile, such notice shall be deemed received when the confirmation of transmission thereof is received by the party giving the notice. Any party may change its address or facsimile to which notice is given hereunder by providing notice of the same in accordance with this Paragraph 7.

If delivered to Buyer, to it at [____]
Attn: [____]
Fax: [____]

If delivered to Guarantor, to it at [____]
Attn: [____]
Fax: [____]

8. **Governing Law and Forum Selection**. This Guaranty shall be governed by and construed, enforced and performed in accordance with the laws of the State of California, without regard to principles of conflicts of law. The Parties agree that any suit, action or other legal proceeding by or against any party (or its affiliates or designees) with respect to or arising out of this Guaranty shall be brought in the federal courts of the United States or the courts of the State of California sitting in the City and County of San Francisco, California.

9. **Miscellaneous**. This Guaranty shall be binding upon Guarantor and its successors and assigns and shall inure to the benefit of Buyer and its successors and permitted assigns pursuant to the PPA. No provision of this Guaranty may be amended or waived except by a written instrument executed by Guarantor and Buyer. This Guaranty is not assignable by Guarantor without the prior written consent of Buyer. No provision of this Guaranty confers, nor is any provision intended to confer, upon any third party (other than Buyer's successors and permitted assigns) any benefit or right enforceable at the option of that third party. This Guaranty embodies the entire agreement and understanding of the parties hereto with respect to the subject matter hereof and supersedes all prior or contemporaneous agreements and understandings of the parties hereto, verbal or written, relating to the subject matter hereof. If any provision of this Guaranty is determined to be illegal or

unenforceable (i) such provision shall be deemed restated in accordance with applicable Laws to reflect, as nearly as possible, the original intention of the parties hereto and (ii) such determination shall not affect any other provision of this Guaranty and all other provisions shall remain in full force and effect. This Guaranty may be executed in any number of separate counterparts, each of which when so executed shall be deemed an original, and all of said counterparts taken together shall be deemed to constitute one and the same instrument. This Guaranty may be executed and delivered by electronic means with the same force and effect as if the same was a fully executed and delivered original manual counterpart.

[*Signature on next page*]

IN WITNESS WHEREOF, the undersigned has caused this Guaranty to be duly executed and delivered by its duly authorized representative on the date first above written.

GUARANTOR:

[_____]

By: _____

Printed Name: _____

Title: _____

BUYER:

[_____]

By: _____

Printed Name: _____

Title: _____

By: _____

Printed Name: _____

Title: _____

EXHIBIT M

FORM OF REPLACEMENT RA NOTICE

This Replacement RA Notice (this "**Notice**") is delivered by Mayacma Geothermal LLC, a Delaware limited liability company ("**Seller**") to Marin Clean Energy, a California joint powers authority ("**Buyer**") in accordance with the terms of that certain Renewable Power Purchase Agreement dated [*date*] ("**Agreement**") by and between Seller and Buyer. All capitalized terms used in this Notice but not otherwise defined herein shall have the respective meanings assigned to such terms in the Agreement.

Pursuant to Section 3.8(b) of the Agreement, Seller hereby provides the below Replacement RA product information:

Unit Information[1]

Name	
Location	
CAISO Resource ID	
Unit SCID	
Prorated Percentage of Unit Factor	
Resource Type	
Point of Interconnection with the CAISO Controlled Grid ("substation or transmission line")	
Path 26 (North or South)	
LCR Area (if any)	
Deliverability restrictions, if any, as described in most recent CAISO deliverability assessment	
Run Hour Restrictions	
Delivery Period	

Month	Unit CAISO NQC (MW)	Unit Contract Quantity (MW)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

[1] To be repeated for each unit if more than one.

[ ]

By: _____

Printed Name: _____

Title: _____

EXHIBIT N

NOTICES

Mayacma Geothermal LLC ("Seller")	**Marin Clean Energy** ("Buyer")
All Notices: 3451 N. Triumph Blvd., Suite 201 Lehi, UT 84043 Attn: Manager Phone: 385-352-8858 Email: brady@openmountainenergy.com	**All Notices:** Marin Clean Energy 1125 Tamalpais Avenue San Rafael, CA 94901 Attn: Contract Administration Phone: (415) 464-6010 Email: Procurement@mcecleanenergy.org
Reference Numbers: Duns: Federal Tax ID Number: [redacted]	**Reference Numbers:** Duns: [redacted] Federal Tax ID Number: [redacted]
Invoices: Attn: Accounting Phone: 385-352-8858 Email: accounting@openmountainenergy.com	**Invoices:** Attn: Power Settlements and Analytics Phone: (415) 464-6683 Email: Settlements@mcecleanenergy.org
Scheduling: Attn: Manager Phone: 385-352-8858 Email: brady@openmountainenergy.com	**Scheduling:** Attn: ZGlobal Phone: (916) 458-4080 Email: dascheduler@zglobal.biz
Confirmations: Attn: Manager Phone:385-352-8858 Email: brady@openmountainenergy.com	**Confirmations:** Attn: Director of Power Resources Phone: (415) 464-6685 Email: Procurement@mcecleanenergy.org
Payments: Attn: Accounting Phone: 385-352-8858 Email: accounting@openmountainenergy.com	**Payments:** Attn: Power Settlements and Analytics Phone: (415) 464-6683 Email: Settlements@mcecleanenergy.org
Wire Transfer: [redacted]	**Wire Transfer:** [redacted]
With additional Notices of an Event of Default to: Stoel Rives LLP Attn: Jennifer Martin Phone: (503) 294-9852 Email: jennifer.martin@stoel.com	**With additional Notices of an Event of Default to:** Hall Energy Law PC Attn: Stephen Hall Phone: (503) 313-0755 Email: steve@hallenergylaw.com
Emergency Contact: Attn: Phone: Email:	**Emergency Contact:** Attn: Phone: Email:

EXHIBIT O

OPERATING RESTRICTIONS

- Nameplate capacity of the Project: 7 MW
- Minimum capacity: 1 MW
- Ramp rate: 1 MW/minute

EXHIBIT P

METERING DIAGRAM

[*To be provided by Seller*]

EXHIBIT Q

COMMUNITY BENEFIT

Seller agrees to contribute [redacted] in furtherance of Buyer-directed community clean energy education, job training, and clean energy infrastructure ("**Community Benefit Fund**"). Seller shall cause these funds to be deposited in a distinct and separate account established and maintained at a bank or financial institution selected by Buyer within sixty (60) days prior to the Commercial Operation Date.

The Community Benefit Fund will be administered by Buyer, with the collaboration and input of Seller, and utilized for community clean energy education, job training, and clean energy infrastructure.

EXHIBIT R

DIVERSITY REPORTING

MCE Supplier Diversity Survey

Please note that not all questions may apply to your business. For the questions that do not apply, please skip them or answer "not applicable."

*Pursuant to Proposition 209, MCE does not give preferential treatment based on race, sex, color, ethnicity, or national origin. Providing information in these categories is optional and will not impact the selection process. Responses are collected for informational and reporting purposes only pursuant to Senate Bill (SB) 255.

amcgee@mcecleanenergy.org Switch account

* Required

Email *

Your email

Business Name *

Your answer

Where is your business located/headquartered?

Your answer

Is your business certified under General Order 156 (GO 156)?

General Order 156 (GO 156) is a California Public Utilities Commission ruling that requires utility entities to report annually on their contracts with majority women-owned, minority-owned, disabled veteran-owned, disabled-owned, and LGBT-owned business enterprises (WMDVLGBTBEs) in all categories. Qualified businesses become GO 156 Certified through the GO 156 Clearinghouse database at www.thesupplierclearinghouse.com

- ○ Yes
- ○ No
- ○ Qualified as a WMDVLGBTBE but not GO 156 Certified

If certified, when does your certification expire?

Date

mm/dd/yyyy

If you answered "yes" or "qualified but not certified", under which categories? Please choose all that apply.

*Pursuant to Proposition 209, MCE does not give preferential treatment based on race, sex, color, ethnicity, or national origin. Providing information in these categories is optional and will not impact the selection process.

- ☐ Minority Owned
- ☐ Woman owned
- ☐ LGBT owned
- ☐ Disabled Veteran Owned
- ☐ Disabled Owned
- ☐ Other 8(a) (found to be disadvantaged by the US Small Business Administration)

If a minority-owned business enterprise, certified or qualified as which of the following?

*Pursuant to Proposition 209, MCE does not give preferential treatment based on race, sex, color, ethnicity, or national origin. Providing information in these categories is optional and will not impact the selection process.

- ○ African American
- ○ Asian American
- ○ Hispanic American
- ○ Native American

Please list the Standardized Industrial Code (SIC) of the products and services contracted for. Reference sheet, here: https://www.mcecleanenergy.org/wp-content/uploads/2020/12/MCE_SIC_Commodity_Codes.pdf

Your answer

If certified, please list a) your business's annual revenue as reported to the Supplier Clearinghouse and b) what was your revenue last year?

Your answer

If your business is qualified but not GO 156 certified, please explain why your business has not gone through the certification process, found here: http://www.supplierdiversity.pro/apply.html

Your answer

If your business used subcontractors for your MCE contract, please include a list of their business names, if their subcontract was for products or services, and their subcontract amount.

Example: Electrical Design Technology, Inc; products (batteries); $100,000. If MCE is audited, we'll ask you for demonstration that subcontractor payments have occurred, such as a canceled check, bank statement, etc.

Your answer

What are your payment timelines for subcontracts - Net 30, Net 45?

Your answer

If applicable, please describe any hiring targets your business has for minority-owned, women-owned, LGBTQ-owned, disabled-owned, or disabled veteran-owned subcontractors.

Your answer

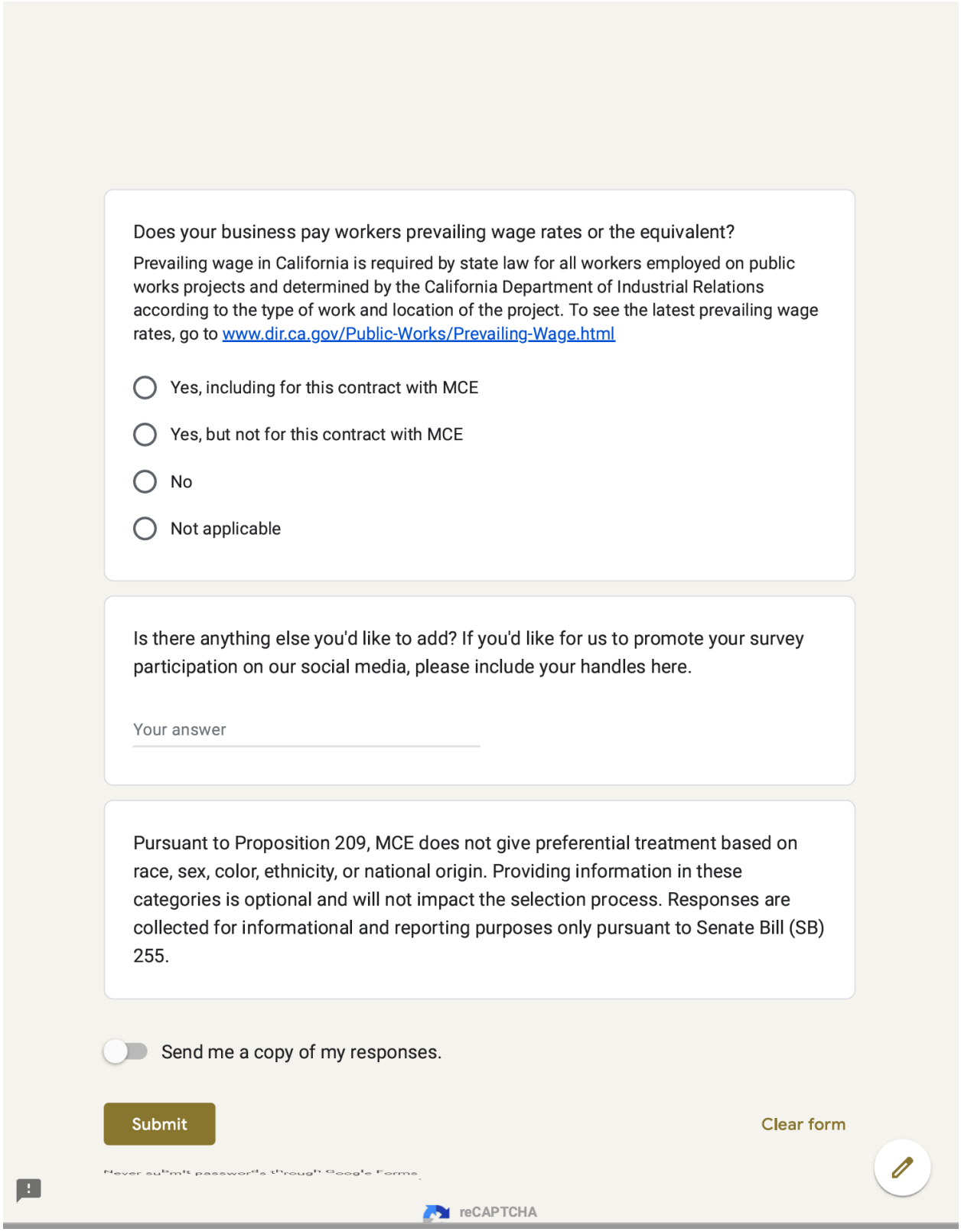
Does your business have a history of using apprenticeship programs, local-hires, union labor, or multi-trade project labor agreements?

Local hires can be defined as labor sourced from within MCE's service area which includes the towns, cities, and unincorporated counties of Marin, Napa, Contra Costa, and Solano.

- [ ] Yes, apprenticeship programs in this recent contract with MCE
- [ ] Yes, local labor in this recent contract with MCE
- [ ] Yes, union labor in this recent contract with MCE
- [ ] Yes, multi-trade PLA in this recent contract with MCE
- [ ] Yes, apprenticeship programs but not in this contract with MCE
- [ ] Yes, history of local hire but not in this contract with MCE
- [ ] Yes, history of union labor but not in this contract with MCE
- [ ] Yes, history of multi-trade PLA but not in this contract with MCE
- [ ] Majority of workforce is California-based, but not local to MCE service area
- [ ] None of the above
- [ ] Not applicable

If you answered yes, please describe your history with labor agreements, union labor, multi-trade labor, apprenticeship labor, or how many local workers/businesses you employ for your contract with MCE.

Your answer



Does your business pay workers prevailing wage rates or the equivalent?

Prevailing wage in California is required by state law for all workers employed on public works projects and determined by the California Department of Industrial Relations according to the type of work and location of the project. To see the latest prevailing wage rates, go to www.dir.ca.gov/Public-Works/Prevailing-Wage.html

- ○ Yes, including for this contract with MCE
- ○ Yes, but not for this contract with MCE
- ○ No
- ○ Not applicable

Is there anything else you'd like to add? If you'd like for us to promote your survey participation on our social media, please include your handles here.

Your answer

Pursuant to Proposition 209, MCE does not give preferential treatment based on race, sex, color, ethnicity, or national origin. Providing information in these categories is optional and will not impact the selection process. Responses are collected for informational and reporting purposes only pursuant to Senate Bill (SB) 255.

Send me a copy of my responses.

Submit

Clear form

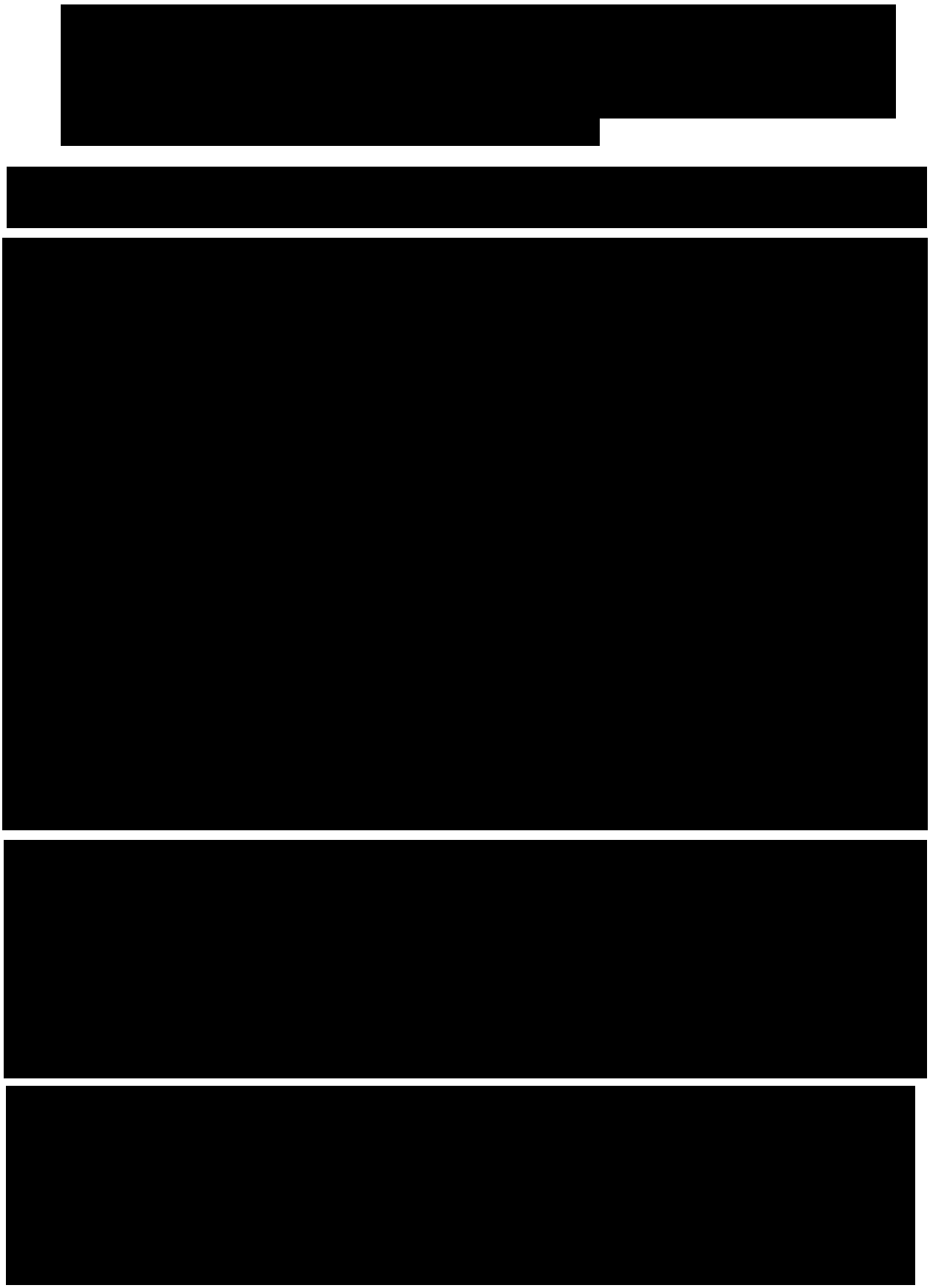
Never submit passwords through Google Forms.

reCAPTCHA

EXHIBIT S

FORM OF LIMITED ASSIGNMENT AGREEMENT

[redacted]



[redacted]

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Appendix 1

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Mayacma Geothermal LLC
Power Purchase Agreement

MCE Board of Directors - October 20, 2022

What is Open Season?

MCE's annual solicitation for large-scale renewable energy and storage projects

Open Season Overview

Goals

- Meet Integrated Resource Planning (IRP) targets for renewable energy and energy storage
- Add Resource Adequacy (RA) supply to the portfolio
- Add resources that would fulfill the Mid Term Reliability (MTR) obligations as outlined in the CA Public Utilities Commission (CPUC) decision D.21-06-035

Product Types

- Renewable Product Content Category 1 energy (PCC1)
- Paired & stand-alone energy storage

CPUC Mid-Term Reliability Mandate

Bucket	Requirements	MCE's Obligation	Online Date	Resource Options
Generic	• Resource Adequacy(RA)	231 MW	Part 1 - 8/2023 Part 2 - 6/2024	• PV+4Hour Storage • Stand-Alone Storage • Wind • Geo or Biomass • Long-Term Imports
DCPP Replacement (5 Hour)	• Zero emissions or RPS • 5MWh/1MW (HE18 - HE22)	72 MW	6/2025	• PV+5Hour Storage • Geo/Bio/Landfill gas • Demand Response
Long Duration Storage (8 Hour)	• 8 Hours - full capacity discharge	29 MW	6/2026	• Stand-Alone Storage
Clean-Firm (Geo/Bio)	• Firm • 80% capacity factor • Not weather dep or use-limited • Zero emissions or RPS	29 MW	6/2026	• Geothermal • Biomass/Landfill gas

CPUC Mid-Term Reliability Mandate

Bucket	Requirements	MCE's Obligation	Online Date	Resource Options	
Generic	• Resource Adequacy(RA)	231 MW	Part 1 - 8/2023 Part 2 - 6/2024	• PV+4Hour Storage • Stand-Alone Storage • Wind • Geo or Biomass • Long-Term Imports	Humidor Contract executed 7/2022
DCPP Replacement (5 Hour)	• Zero emissions or RPS • 5MWh/1MW (HE18 - HE22)	72 MW	6/2025	• PV+5Hour Storage • Geo/Bio/Landfill gas • Demand Response	Golden Fields Contract executed 2/2022
Long Duration Storage (8 Hour)	• 8 Hours - full capacity discharge	29 MW	6/2026	• Stand-Alone Storage	
Clean-Firm (Geo/Bio)	• Firm • 80% capacity factor • Not weather dep or use-limited • Zero emissions or RPS	29 MW	6/2026	• Geothermal • Biomass/Landfill gas	**Mayacma Geothermal LLC** would be compliant with this tranche of the mandate

Overview: Mayacma Geothermal LLC

- 7 MW Geothermal Energy Installation
- Lake County, CA
- Best combination of economics and project viability

Mayacma Geothermal

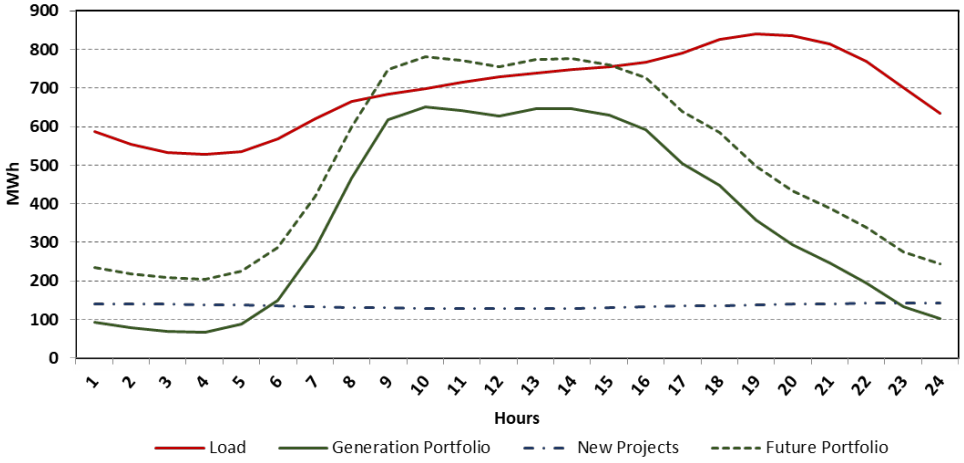
- 7 MW of RA capacity
- 7 MW of renewable energy delivered around the clock
- On-line date: 6/1/2024
- 20 year term
- No credit/collateral obligations for MCE

Why target geothermal resources?

Generation shape compliments MCE's existing portfolio of resources

- Helps fill open positions during important hours
- Incremental contribution towards matching load with renewable generation
- Hedge against expensive hours

Simulated effect of adding geothermal projects to MCE's existing portfolio - 2030 Snapshot



Unique Terms & Conditions

- Financial incentives for performance
- Union labor requirement
- $630,000 security deposit to ensure milestones are met
- Seller will make a one-time contribution of $21,000 to community benefit initiatives in MCE's service area and/or communities adjacent to the project location
- RA delivery guarantee
- Fixed price over the contract term with no annual escalation

Recommendation

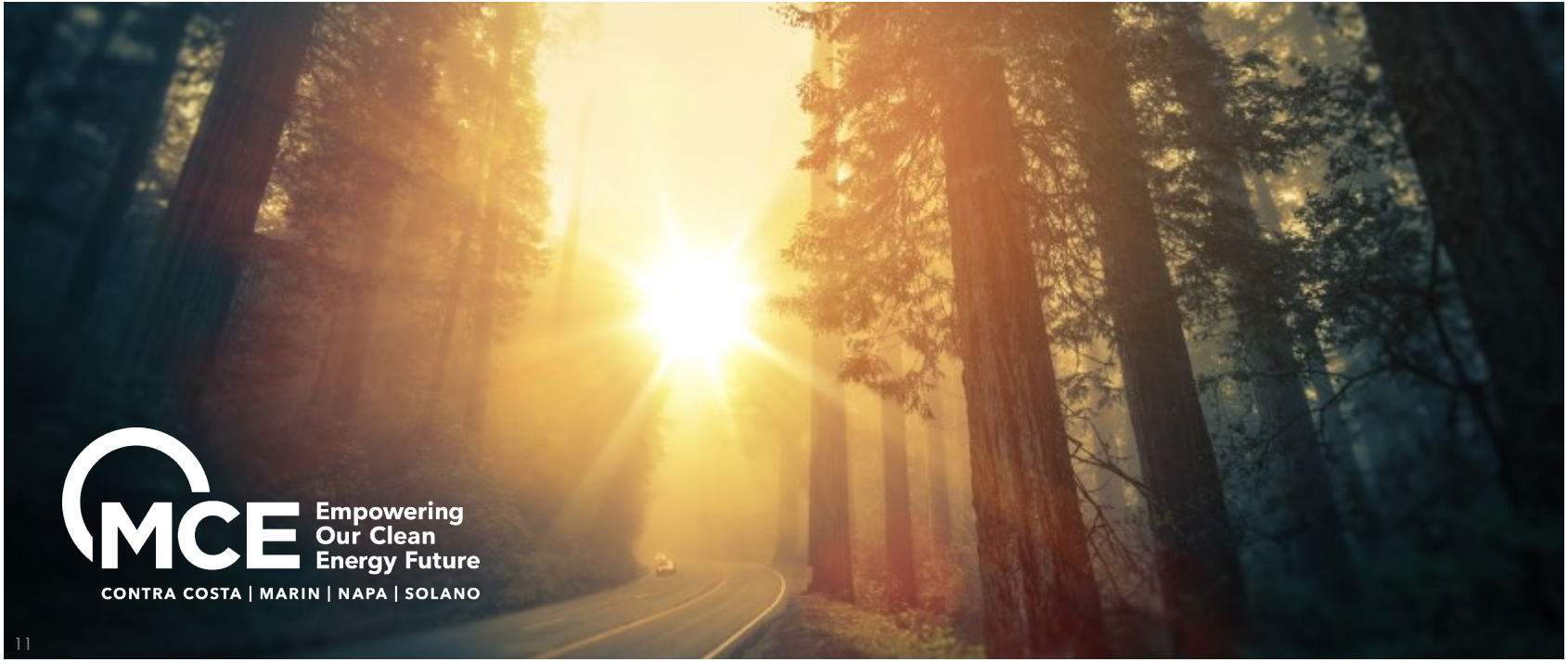
Approve power purchase agreement between MCE and Mayacma Geothermal LLC

Rationale:

- Energy generation and RA capacity produced by the facility would complement MCE's existing portfolio of resources
- The project type, size, specifications and commercial operation date fit the requirements detailed in the CPUC MTR mandated procurement order
- The project is being developed and will be operated by an experienced team
- The project is highly viable. All major pre-construction milestones are complete. Awaiting clearance from CAISO to finalize the interconnection process

Thank You

David Potovsky
Principal Power Procurement Manager
dpotovsky@mceCleanEnergy.org



October 20, 2022

TO: MCE Board of Directors

FROM: Justin Kudo, Senior Strategic Analysis and Rates Manager

RE: Implementation of Electrification Rate Schedule E-ELEC (Agenda Item #10)

Dear Board of Directors:

Summary:

During PG&E's 2018 Rate Design Window proceeding, CPUC Decision 20-03-003 directed PG&E to propose a residential pro-electrification rate schedule. To meet this requirement, PG&E developed rate schedule E-ELEC, proposed to go into effect on December 1, 2022. E-ELEC would support electrification by replacing a portion of PG&E's volumetric delivery charges with a flat monthly fee, mitigating the volumetric costs associated with increased electricity usage in lieu of fossil fuel-based resources.

E-ELEC eligibility is limited to customers participating in one of the following activities:

1) Electric vehicle charging;
2) Energy storage; or
3) Electric heat pumping for water heating or heating and cooling.

Due to the complexities of PG&E's billing system, Solar Net Energy Metering (NEM) customers will be ineligible to sign up for E-ELEC with PG&E until later in 2023.

Customer Impacts

The E-ELEC rate schedule aims to help reduce the electricity costs of customers when their energy usage increases due to electrification. E-ELEC may reduce bills by:

- Reduced volumetric PG&E distribution charges (replaced by a flat daily rate)
- No volumetric PG&E Tiered Rates (also known as the Baseline Credit or Conservation Incentive Adjustment), where customers pay higher rates as their monthly usage increases.
- Adjusted seasonal MCE generation rates with higher summer rates, and lower

rates the rest of the year.

Currently available residential rate offerings are as follows:

Rate Schedule	Seasonal Pricing	Time-Variant Pricing	Tiered	Distribution Charges
E-1	Limited	No	Yes	Volumetric
E-TOU-C	Yes	Yes	Yes	Volumetric
E-TOU-D	Yes	Yes	No	Volumetric
EV2	Yes	Expanded for Off Peak Charging	No	Volumetric
E-ELEC	Expanded	Yes	No	Mixed Volumetric and Fixed

E-ELEC is most likely to offer savings to MCE customers with high usage, particularly outside of the summer season. Features are otherwise similar to the E-TOU-D and EV2 rate schedules above, and in many cases, customers may still see lower electric charges by remaining on these rates. E-ELEC is optional, and MCE customers would still be eligible for any other available residential rate.

Implementation

To provide service under the E-ELEC rate schedule, MCE must develop comparable generation rates at which to bill customers subscribed to PG&E's E-ELEC rate schedule. Staff proposes initial MCE E-ELEC generation rates as follows:

E-ELEC	Peak (4p-9p)	Partial Peak (3p-4p and 9p-12a)	Off Peak (all other hours)
Summer (Jun-Sep)	$0.235/kWh	$0.148/kWh	$0.108/kWh
Winter (Oct-May)	$0.089/kWh	$0.071/kWh	$0.060/kWh

These rates are based on preliminary PG&E generation rates as indicated in its Pro Forma Electric Rate Schedule in Advice Letter E-6690. Final rates may differ, but are not expected to be significantly different. In future years, including the upcoming rate setting cycle, staff would recommend adjusting these rates as necessary to meet revenue requirements and match the appropriate cost of service.

Fiscal Impacts: No direct costs associated with rate implementation. Potential nominal revenue impacts from alternative rates depending on usage behavior.

Recommendation: Approve the implementation of MCE rates for the E-ELEC rate schedule effective December 1, 2022.

October 20, 2022

TO: MCE Board of Directors

FROM: Garth Salisbury, Chief Financial Officer & Treasurer

RE: Proposed Amendments to MCE Policy 014: Investment Policy (Agenda Item #11)

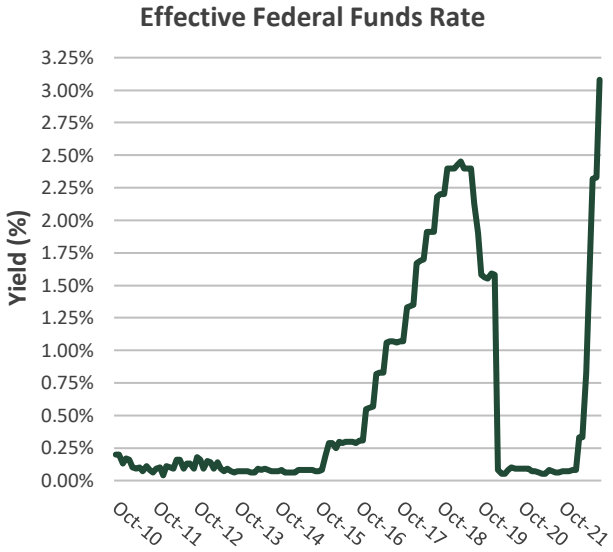
ATTACHMENT: Proposed Amended MCE Policy 014: Investment Policy with Glossary of Investment Terms in Strikeout/Underline Format

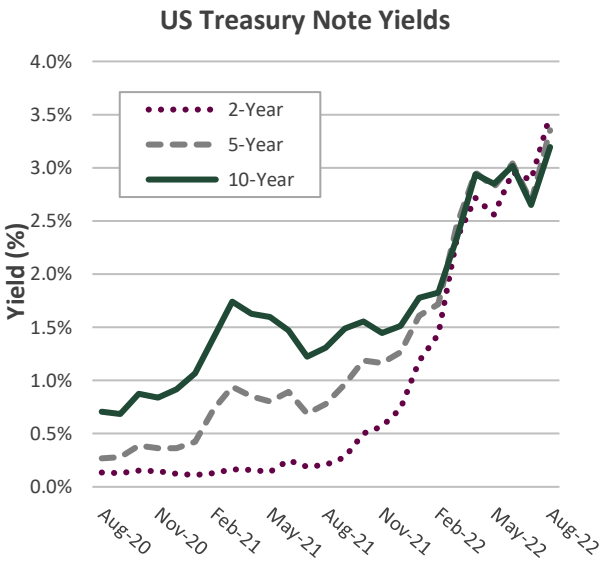
Dear Board Members:

Summary:

In April 2018, your Board approved MCE Policy 014: Investment Policy (the "Policy") to guide the investment of MCE's cash and investments. In March of 2019 your Board amended the Policy to include additional investments in compliance with those allowable in the California Government Code (the "Code") and to add other protections and reporting requirements of the MCE Treasurer. In March, 2020 your Board further amended the Policy to reflect a change in the Code allowing additional investment in FDIC insured bank deposits. Staff is recommending further amendments to the Policy as described below.

Background: Since inception through the close of the most recent fiscal year, MCE has accumulated over $200 million in reserves. Historically, MCE has invested its reserves in FDIC insured or collateralized money market funds and bank certificates of deposit. During the last two years, interest rates available from these investment vehicles have varied significantly in response to actions by the Federal Reserve Bank (the "Fed"). During the pandemic, the Fed reduced the Federal Funds Target Rate (interest rate) to a range between zero and 0.25% to encourage economic investment and to stimulate the economy. Since March of this year, the Fed has increased the target rate to over 3% in an effort to cool the economy and get inflation under control. These inflation fighting measures have created increased capital markets volatility, tighter financial conditions, and significantly higher interest rates in a short period of time. (See a tracking of the Federal Funds Rate and US Treasury Note Yields)





In response to these changing financial conditions and in compliance with the Code and the Investment Policy, MCE issued a solicitation for a professional investment manager with the goal of allocating up to 50% of MCE's liquid assets to be managed professionally.

Rationale for Further Amendments: Further review and recommended changes to the Investment Policy are appropriate following MCE's retention of an investment advisor. Chandler Asset Management ("CAM") was selected as MCE's investment advisor after an RFP process and they bring the necessary experience, local presence and customer service to assist MCE in this next important phase of our investment strategy. A number of amendments to the Policy are being proposed to capture the latest relevant changes to the Code, add additional permitted investment categories that remain in compliance with the Code, and to add a number of protections, procedures and "best practices" in order to ensure ongoing compliance with the tenets of "safety, liquidity and return on investment".

MCE's current Investment Policy limits the investment of funds to: commercial bank checking and savings accounts, negotiable and non-negotiable certificates of deposit, the California State Treasury's Local Agency Investment Fund (LAIF), U.S. Treasury obligations, Federal Agency Securities, Bankers' Acceptances, Placement Service Deposits, Money Market Funds and Commercial Paper.

The proposed amendments to MCE's Investment Policy expand eligible investments to include: municipal securities issued by the State of California and its political subdivisions, collateralized repurchase agreements, high credit quality medium-term corporate notes, asset-backed securities, and supranational debt. The proposed amendments also remove Bankers' Acceptances as a permitted investment as these securities are now extremely rare and no longer a liquid investment alternative. Please see the new Investment Policy section titled "Glossary of Investment Terms" for a description of these investment categories.

The primary purpose of expanding eligible investments is to enhance diversification of MCE's investment program, but the additional asset classes are also expected to provide higher return options over the long-run with little incremental risk while remaining, at all times, in compliance with the Code.

Additionally, Staff and CAM also recommend for the Board's consideration:

- Including a Scope section detailing MCE's funds subject to the Policy
- Augmenting the Policy's Delegation of Authority section to include the engagement of a professional money manager
- Adding a new section to manage ethics and conflicts of interest
- Including additional concentration and credit limits on the different asset classes allowed in order to enhance safety and liquidity
- Augmenting the requirements for brokers and other financial institutions doing business with MCE
- Adding new sections addressing the management of credit and market risk in MCE's investment program
- Including a Glossary of Investment Terms to enhance Policy readability

Fiscal Impacts: It is anticipated that the amendments to the Investment Policy and the professional management of a certain amount of MCEs reserves will result in incremental interest earnings on those funds over time.

Recommendation: Approve the proposed amendments to MCE Policy 014: Investment Policy.

POLICY 014: Investment Policy

Introduction

This Investment Policy establishes guidelines for the management of cash, deposits and investments (together, "funds") at MCE (or the "Agency").

Scope

This policy covers all funds and investment activities under the direct authority of MCE, as set forth in the State Government Code, Sections 53600 et seq., with the following exceptions:

- Proceeds of debt issuance shall be invested in accordance with MCE's general investment philosophy as set forth in this policy; however, such proceeds are to be invested pursuant to the permitted investment provisions of their specific bond indentures.

- Any other funds specifically exempted by MCE's Board of Directors.

Objectives

When managing funds, MCE's primary objectives, in order of importance, shall be to safeguard the principal of the funds, meet the liquidity needs of MCE, and achieve a return on investment on funds in MCE's control.

Safety: Safety of principal is the foremost objective of cash and investment management activities. The investment of funds shall be undertaken in a manner that seeks to ensure the preservation of principal.

Liquidity: The funds of the Agency~~agency~~ shall remain sufficiently liquid to meet all operating needs that may be reasonably anticipated. Since all possible cash demands cannot be anticipated, the investment of funds in deposits or instruments available on demand is recommended.

Return on Investment: The deposit and investment portfolio shall be designed with the objective of attaining a market rate of return throughout the economic cycle while considering risk and liquidity constraints. The return on deposits and investments is of secondary importance compared to the safety and liquidity objectives described above.

Standard of Care

MCE will manage funds in accordance with the Prudent Investor Standard pursuant to California Government Code Section 53600.3.1[1]: "Governing bodies of local agencies or persons authorized to make investment decisions on behalf of those local agencies investing public funds

[1] All further statutory references are to the California Government Code unless otherwise stated.

are trustees and therefore fiduciaries subject to the prudent investor standard. When investing, reinvesting, purchasing, acquiring, exchanging, selling or managing public funds, a trustee shall act with care, skill, prudence and diligence under the circumstances then prevailing, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency. Within the limitations of this section and considering individual investments as part of an overall strategy, investments may be acquired as authorized by law."

Delegation of Authority

Pursuant to Section 53607, the responsibility to manage funds is delegated to the Treasurer of MCE. The Treasurer may appoint Deputy Treasurers as the Treasurer deems necessary and convenient for the prompt and faithful discharge of its duties to invest and reinvest the funds of MCE, pursuant to Section 53607.

MCE may engage the services of one or more external investment advisers, who are registered under the Investment Advisers Act of 1940, to assist in the management of MCE's investment portfolio in a manner consistent with the MCE's objectives. External investment advisers may be granted discretion to purchase and sell investment securities in accordance with this Investment Policy.

Ethics and Conflicts of Interest

All participants in the investment process shall act as custodians of the public trust. Investment Officials and any external investment advisors shall recognize that the investment portfolio is subject to public review and evaluation. As is consistent with MCE's

Conflict of Interest Code, Investment Officials involved in the investment process shall refrain from personal business activity that could create a conflict of interest or the appearance of a conflict with proper execution of the investment program, or which could impair their ability to make impartial investment decisions.

Pursuant to MCE's Conflict of Interest Code, Investment Officials shall disclose to MCE's General Counsel or designee i) any material interests in financial institutions with which they conduct business, and ii) disclose any personal investments with a direct, indirect or beneficial interest totaling $2,000 or more. Investment Officials shall refrain from undertaking any personal investment transactions with the same individual from the external investment advisor with whom business is conducted on behalf of MCE.

Investment Officials, in accordance with applicable law, shall not accept honoraria, gifts, and gratuities from advisors, brokers, dealers, bankers, or other person with whom MCE conducts business.

Any individual of an external investment advisor engaged by MCE shall at all times comply with Municipal Securities Rulemaking Board Rule G-37 and shall follow the Investment Advisor Fiduciary Standard established by the U.S. Securities and Exchange Commission.

Authorized Investments

MCE's investments are governed by California Government Code, Sections 53600 et seq. Within the investments permitted by the Code, MCE seeks to further restrict eligible investments to the guidelines listed below. In the event a discrepancy is found between this policy and the Code, the

more restrictive parameters will take precedence. Percentage holding limits and minimum credit quality requirements listed in this section apply at the time the security is purchased.

Any investment currently held at the time the policy is adopted which does not meet the new policy guidelines can be held until maturity and shall be exempt from the current policy. At the time of the investment's maturity or liquidation, such funds shall be reinvested only as provided in the current policy.

The following types of investments are permitted:

Deposits at Bank(s): Funds may be invested in non-interest bearing depository accounts to meet MCE's operating and collateral needs and grant requirements. Funds not needed for these purposes may be invested in interest bearing depository accounts or Federal Deposit Insurance Corporation (FDIC) insured certificates of deposit with maturities not to exceed five years.

Banks eligible to receive deposits will be federally or state chartered and will conform to Section 53635.2 which requires that banks "have received an overall rating of not less than "satisfactory" in its most recent evaluation by the appropriate federal financial supervisory agency of its record of meeting the credit needs of California's communities, including low- and moderate-income neighborhoods, pursuant to Section 2906 of Title 12 of the United States Code."

FDIC insurance coverage in the United States is $250,000 per Tax ID Number. As per Section 53652, banks must collateralize the deposits of public agencies. The Treasurer, or a duly appointed Deputy Treasurer, will monitor the credit quality of eligible banks to ensure the safety of MCE deposits.

Local Agency Investment Fund (LAIF): Funds may be invested in the Local Agency Investment Fund. The LAIF was established by the California State Treasurer for the benefit of local agencies. Statutory requirements of the Local Agency Investment Fund include:

Section 16429.1

> a. There is in trust in the custody of the Treasurer the Local Agency Investment Fund, which fund is hereby created. The Controller shall maintain a separate account for each governmental unit having deposits in this fund.
>
> e. The local governmental unit, the nonprofit corporation, or the quasi-governmental agency has the exclusive determination of the length of time its money will be on deposit with the Treasurer.
>
> j. Money in the fund shall be invested to achieve the objective of the fund which is to realize the maximum return consistent with safe and prudent treasury management.
>
> i. Immediately at the conclusion of each calendar quarter, all interest earned and other increment derived from investments shall be distributed by the Controller to the contributing governmental units or trustees. An amount equal to the reasonable costs incurred in carrying out the provisions of this section, not to exceed a maximum of 5 percent of the earnings of this fund and not to exceed the amount appropriated in the annual Budget Act for this function, shall be deducted from the earnings prior to distribution.

Section 16429.4

The right of a city, county, city and county, special district, nonprofit corporation, or qualified quasi-governmental agency to withdraw its deposited moneys from the Local Agency Investment Fund,

upon demand, may not be altered, impaired, or denied, in any way, by any state official or state agency based upon the state's failure to adopt a State Budget by July 1 of each new fiscal year.

US Treasury Obligations: Funds may be invested in United States Treasury obligations and other government obligations for which the full faith and credit of the United States are pledged for the payment of principal and interest with a term to maturity not exceeding 5 years. There are no limits on the dollar amount or percentage that MCE may invest in U.S. Treasuries. subject to the limitations set forth in Sections 53601 et seq. and 53635 et seq.

Federal Agency Securities: Funds may be invested in Federal Agency Securities or United States Government-Sponsored Enterprise obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises. There are no limits on the dollar amount or percentage that MCE may invest in Federal Agency or Government-Sponsored Enterprises (GSEs) with a term to maturity not exceeding 5 years. No more than 30% of the portfolio may be invested in any single Agency/GSE issuer. Federal Agency and GSE obligations must be rated in a rating category of AA or equivalent or better. The maximum percent of agency callable securities in the portfolio will be 20%.~~with a term to maturity not exceeding 5 years subject to the limitations set forth in Sections 53601 et seq. and 53635 et seq.~~

Commercial Paper: Funds may be invested in commercial paper in accordance with the requirements of Section 53601 and subject to the following limitations:

i. No more than 25% of the total portfolio shall be invested in commercial paper;
ii. The term to maturity shall not exceed 270 days; and
iii. No more than 10% of outstanding commercial paper shall be from any single issuer.

The issuer of commercial paper must have the following:

i. Assets in excess of $500 million;
ii. A credit rating of A-1 or better by a Nationally Recognized Statistical Rating Organization (NRSRO); and
iii. A senior debt rated at A or better.

Additionally, under a provision sunsetting on January ~~Bankers' Acceptances: Funds may be invested in Banker's Acceptances provided that they are issued by institutions which have short-term debt obligations rated "A-~~1, 2026, ~~" or its equivalent or better by at least one NRSRO. Not more that 30% of the portfolio may be invested in Bankers' Acceptances, and~~ no more than 40% of the portfolio may be invested in Commercial Paper if the Agency's investment assets under management are greater than $100,000,000. No more than~~that~~ 5% of the portfolio may be invested in any single issuer.~~ The maximum maturity shall not exceed 180 days.~~

Negotiable Certificates of Deposit: Funds may be invested in negotiable certificates of deposit issued by a nationally or state-chartered bank, a savings association or a federal association, a state or federal credit union, or by a federally licensed or state-licensed branch~~in accordance with the requirements~~ of a foreign bank~~Section 53601 and 53601.8~~, and subject to the following limitations:

i. Issued by an entity as defined in Section 53601(i); and
ii. No more than 30% of funds invested pursuant to this Investment Policy may be invested in certificates of deposit.
iii. The amount of the NCD insured up to the FDIC limit does not require any credit ratings.
iv. Any amount above the FDIC insured limit must be issued by institutions which have short-term debt obligations rated "A-1" or its equivalent or better by at least one NRSRO; or long-term obligations rated in a rating category of "A" or its equivalent or better by at least

v. one NRSRO.
vi. No more than 5% of the portfolio may be invested in any single issuer.
vii. The maximum maturity does not exceed five (5) years.

Collateralized Time Deposits (Non-Negotiable Certificates of Deposit): Funds may be invested in state or federally chartered banks, savings and loans, or credit unions in excess of insured amounts which are fully collateralized with securities in accordance with California law, provided that:

- No more than 50% of the portfolio will be invested in a combination of federally insured and collateralized time deposits, including CDARS.
- The maximum maturity does not exceed five (5) years.

Placement Service Deposits: Funds may be invested in deposits placed with a private sector entity that assists in the placement of deposits with eligible financial institutions located in the United States (Section 53601.8). The full amount of principal and the interest that may be accrued during the maximum term of each deposit shall at all times be insured by federal deposit insurance. The combined maximum portfolio exposure to the deposits placed pursuant to this section, Insured Cash Sweep (ICS) and Certificate of Deposit Account Registry Service (CDARS) is limited to 50 percent and the maximum investment maturity will be restricted to five years, unless otherwise prescribed by law.

Money Market Funds: Funds may be invested in money market funds pursuant to Section 53601(l)(2) and subject to Section 53601(l)(4).

Municipal Securities: Funds may be invested in municipal securities including obligations of MCE, the State of California and any local agency within the State of California, provided that:

- The securities are rated in a minimum rating category of "A+" or its equivalent or better by at least one nationally recognized statistical rating organization ("NRSRO").
- No more than 5% of the portfolio may be invested in any single issuer.
- No more than 30% of the portfolio may be in Municipal Securities.
- The maximum maturity does not exceed five (5) years.

Repurchase Agreements: Funds may be invested in repurchase agreements collateralized with securities authorized under California Government Code, maintained at a level of at least 102% of the market value of the Repurchase Agreement. There are no limits on the dollar amount or percentage that MCE may invest, provided that:

- Securities used as collateral for Repurchase Agreements will be delivered to an acceptable third party custodian.
- Repurchase Agreements are subject to a Master Repurchase Agreement between the Agency and the provider of the repurchase agreement. The Master Repurchase Agreement will be substantially in the form developed by the Securities Industry and Financial Markets Association (SIFMA).
- The maximum maturity does not exceed one (1) year.

Corporate Medium-Term Notes (MTNs): Funds may be invested in MTMs provided that:

- The issuer is a corporation organized and operating within the United States or by depository institutions licensed by the United States or any state and operating within the United States.

- The securities are rated in a rating category of "A+" or its equivalent or better by at least one NRSRO.
- No more than 30% of the total portfolio may be invested in MTNs.
- No more than 5% of the portfolio may be invested in any single issuer.
- The maximum maturity does not exceed five (5) years.

Asset-Backed, Mortgage-Backed, Mortgage Passthrough Securities, and Collateralized Mortgage Obligations from issuers of U.S. Treasuries, Federal Agencies, and Government Sponsored Enterprises: Funds may be invested in these securities provided that:

- The securities are rated in a rating category of "AA" or its equivalent or better by a NRSRO.
- No more than 20% of the total portfolio may be invested in these securities.
- No more than 5% of the portfolio may be invested in any single Asset-Backed or Commercial Mortgage security issuer.
- The maximum legal final maturity does not exceed five (5) years.

Supranationals: Funds may be invested in supranationals provided that:

- Issues are US dollar denominated senior unsecured unsubordinated obligations issued or unconditionally guaranteed by the International Bank for Reconstruction and Development, International Finance Corporation, or Inter-American Development Bank.
- The securities are rated in a rating category of "AA" or its equivalent or better by a NRSRO.
- No more than 30% of the total portfolio may be invested in these securities.
- No more than 10% of the portfolio may be invested in any single issuer.
- The maximum maturity does not exceed five (5) years.

Prohibited Investments

Pursuant to Section 53601.6, MCE shall not invest funds in any security that could result in a zero interest accrual, or less, if held to maturity. These prohibited investments include inverse floaters, range notes, or mortgage-derived interest-only strips, futures options. The purchase of foreign currency denominated securities is prohibited. Trading securities for the sole purpose of speculating on the future direction of interest rates is prohibited. Purchasing or selling securities on margin is prohibited. The use of reverse repurchase agreements, securities lending or any other form of borrowing or leverage is prohibited. -

Investment Portfolio Management

The term to maturity of any funds invested shall not exceed 5 years pursuant to Section 53601. The Treasurer, or a duly appointed Deputy Treasurer, will allocate funds among authorized investments consistent with the objectives and standards of care outlined in this Policy.

Bids and Purchase of Securities

Prior to the purchase of an investment pursuant to this Policy the persons authorized to make investments shall assess the market and market prices using information obtained from available sources including investment services, broker/dealers, and the media. A competitive bid process, when practical, will be used to place all investment purchases and sales transactions.

Brokers

To the extent practicable, the Treasurer shall endeavor to complete investment transactions using a competitive bid process whenever possible. In accordance with Section 53601.5, institutions eligible to transact investment business with MCE include:

- Institutions licensed by the state as a broker-dealer.
- Institutions that are members of a federally regulated securities exchange.
- Primary government dealers as designated by the Federal Reserve Bank and non-primary government dealers.
- Nationally or state-chartered banks.
- The Federal Reserve Bank.
- Direct issuers of securities eligible for purchase.

Selection of financial institutions and broker/dealers authorized to engage in transactions will be at the sole discretion of MCE, except where MCE utilizes an external investment adviser in which case MCE may rely on the adviser for selection.

Selection of broker/dealers used by an external investment adviser retained by MCE will be at the sole discretion of the adviser. Where possible, transactions with broker/dealers shall be selected on a competitive basis and their bid or offering prices shall be recorded. If there is no other readily available competitive offering, best efforts will be made to document quotations for comparable or alternative securities. When purchasing original issue instrumentality securities, no competitive offerings will be required as all dealers in the selling group offer those securities at the same original issue price.

The Treasurer~~Broker/dealers shall be selected by the Chief Executive Officer upon recommendation by the Treasurer, or a duly appointed Deputy Treasurer. Selection of broker/dealers shall be based upon the following criteria: the reputation and financial strength of the company or financial institution, the reputation and expertise of the individuals employed, and pursuant to the requirements of Section 53601.5. The Chief Executive Officer~~ shall be prohibited from selecting any broker, brokerage firm, dealer, or securities firm that has, within any 48-consecutive month period following January 1, 1996, made a political contribution in an amount exceeding the limitations contained in Rule G-37 of the Municipal Securities Rulemaking Board to any member of the MCE Board, or any candidate for those offices. The broker/dealers shall be provided with and acknowledge receipt of the Investment Policy.

Losses

Losses are acceptable on a sale before maturity and may be taken if required to meet the liquidity needs of the Agency~~agency~~ or if the reinvestment proceeds will earn an income flow with a present value higher than the present value of the income flow that would have been generated by the original investment, considering any investment loss or foregoing interest on the original investment.

Delivery and Safekeeping

The delivery and safekeeping of all securities shall be made through a third party custodian when practical and cost effective as determined by the Treasurer, or a duly appointed Deputy Treasurer, and in accordance with Section 53608. The Director of Finance or their designee shall review all transaction confirmations for conformity with the original transaction.

~~Conflict of Interest~~ Risk Management and Diversification—Mitigating Credit Risk in the Portfolio

Credit risk is the risk that a security or a portfolio will lose some or all its value due to a real or perceived change in the ability of the issuer to repay its debt. MCE will mitigate credit risk by adopting the following strategies:

- The diversification requirements included in the "Authorized Investments" section of this policy are designed to mitigate credit risk in the portfolio.
- No more than 5% of the total portfolio may be deposited with or invested in securities issued by any single issuer unless otherwise specified in this policy.
- MCE may elect to sell a security prior to its maturity and record a capital gain or loss in order to manage the quality, liquidity or yield of the portfolio in response to market conditions or MCE's risk preferences.
- If a security owned by MCE is downgraded to a level below the requirements of this policy, making the security ineligible for additional purchases, the following steps will be taken:
  - Any actions taken related to the downgrade by the investment manager will be communicated to the Treasurer in a timely manner.
  - If a decision is made to retain the security, the credit situation will be monitored and reported to the Governing Body.

Risk Management and Diversification—Mitigating Market Risk in the Portfolio

Market risk is the risk that the portfolio value will fluctuate due to changes in the general level of interest rates. MCE recognizes that, over time, longer-term portfolios have the potential to achieve higher returns. On the other hand, longer-term portfolios have higher volatility of return. MCE will mitigate market risk by providing adequate liquidity for short-term cash needs, and by making longer-term investments only with funds that are not needed for current cash flow purposes.

MCE further recognizes that certain types of securities, including variable rate securities, securities with principal paydowns prior to maturity, and securities with embedded options, will affect the market risk profile of the portfolio differently in different interest rate environments. MCE, therefore, adopts the following strategies to control and mitigate its exposure to market risk:

- MCE will maintain a minimum of $40 million in cash and overnight investments at all times to provide sufficient liquidity for expected disbursements.
- The maximum stated final maturity of individual securities in the portfolio will be five (5) years, except as otherwise stated in this policy.
- The duration of the portfolio will generally be approximately equal to the duration (typically, plus or minus 20%) of a Market Benchmark, an index selected by MCE based on MCE's investment objectives, constraints and risk tolerances.

~~In accordance with state law, staff shall not accept honoraria, gifts, and gratuities from advisors, brokers, dealers, bankers, or other person with whom MCE conducts business.~~

Audits

MCE's funds shall be subject to a process of independent review by its external auditors. MCE's external auditors shall review the investment portfolio in connection with the annual audit for compliance with the Investment Policy~~statement of investment policy~~ pursuant to Section 27134. The results of the audit shall be reported to the Director of Finance and the Ad Hoc Audit Committee.

Reports

Monthly: So long as the Board of Directors' annual delegation of investment authority pursuant to Section 53607 to the Treasurer is effective, the Treasurer or a duly appointed Deputy Treasurer will perform a monthly review of the investment function and shall submit a monthly report of all investment transactions to the Board of Directors. Investment transactions are defined as the purchase, sale or exchange of securities.

Annually: The Treasurer, or a duly appointed Deputy Treasurer, will submit an annual report to the Board of Directors and Chief Executive Officer within 30 days of the end of a fiscal year providing the following:

i. A list identifying the type of investment, issuer, date of maturity, par and dollar amount invested on all securities, the market value and source of the market value information;
ii. A statement that the portfolio is in compliance with the Investment Policy and in accordance with Section 53646 or the manner in which the portfolio is not in compliance; and
iii. A statement of MCE's ability to meet expenditure requirements for the upcoming 12 months.

Annual Review

The Investment Policy will be reviewed annually by the Treasurer, or a duly appointed Deputy Treasurer. Any changes to the Investment Policy will be submitted to the Board for approval.

Glossary of Investment Terms

AGENCIES. Shorthand market terminology for any obligation issued by *a government-sponsored entity (GSE)*, or a *federally related institution*. Most obligations of GSEs are not guaranteed by the full faith and credit of the US government. Examples are:

FFCB. The Federal Farm Credit Bank System provides credit and liquidity in the agricultural industry. FFCB issues discount notes and bonds.

FHLB. The Federal Home Loan Bank provides credit and liquidity in the housing market. FHLB issues discount notes and bonds.

FHLMC. Like FHLB, the Federal Home Loan Mortgage Corporation provides credit and liquidity in the housing market. FHLMC, also called "FreddieMac" issues discount notes, bonds and mortgage pass-through securities.

FNMA. Like FHLB and FreddieMac, the Federal National Mortgage Association was established to provide credit and liquidity in the housing market. FNMA, also known as "FannieMae," issues discount notes, bonds and mortgage pass-through securities.

GNMA. The Government National Mortgage Association, known as "GinnieMae," issues mortgage pass-through securities, which are guaranteed by the full faith and credit of the US Government.

PEFCO. The Private Export Funding Corporation assists exporters. Obligations of PEFCO are not guaranteed by the full faith and credit of the US government.

TVA. The Tennessee Valley Authority provides flood control and power and promotes development in portions of the Tennessee, Ohio, and Mississippi River valleys. TVA currently issues discount notes and bonds.

ASKED. The price at which a seller offers to sell a security.

ASSET BACKED SECURITIES. Securities supported by pools of installment loans or leases or by pools of revolving lines of credit.

BENCHMARK. A comparison security or portfolio. A performance benchmark is a partial market index, which reflects the mix of securities allowed under a specific investment policy.

BID. The price at which a buyer offers to buy a security.

BROKER. A broker brings buyers and sellers together for a transaction for which the broker receives a commission. A broker does not sell securities from his own position.

CALLABLE. A callable security gives the issuer the option to call it from the investor prior to its maturity. The main cause of a call is a decline in interest rates. If interest rates decline since an issuer issues securities, it will likely call its current securities and reissue them at a lower rate of interest. Callable securities have reinvestment risk as the investor may receive its principal back when interest rates are lower than when the investment was initially made.

CERTIFICATE OF DEPOSIT (CD). A time deposit with a specific maturity evidenced by a certificate. Large denomination CDs may be marketable.

CERTIFICATE OF DEPOSIT ACCOUNT REGISTRY SYSTEM (CDARS). A private placement service that allows local agencies to purchase more than $250,000 in CDs from a single financial institution (must be a participating institution of CDARS) while still maintaining FDIC insurance coverage. CDARS is currently the only entity providing this service. CDARS facilitates the trading of deposits between the California institution and other participating institutions in amounts that are less than $250,000 each, so that FDIC coverage is maintained.

COLLATERAL. Securities or cash pledged by a borrower to secure repayment of a loan or repurchase agreement. Also, securities pledged by a financial institution to secure deposits of public monies.

COLLATERALIZED MORTGAGE OBLIGATIONS (CMO). Classes of bonds that redistribute the cash flows of mortgage securities (and whole loans) to create securities that have different levels of prepayment risk, as compared to the underlying mortgage securities.

COMMERCIAL PAPER. The short-term unsecured debt of corporations.

COUPON. The rate of return at which interest is paid on a bond.

CREDIT RISK. The risk that principal and/or interest on an investment will not be paid in a timely manner due to changes in the condition of the issuer.

CURRENT YIELD. The annual income from an investment divided by the current market value. Since the mathematical calculation relies on the current market value rather than the investor's cost, current yield is unrelated to the actual return the investor will earn if the security is held to maturity.

DEALER. A dealer acts as a principal in security transactions, selling securities from and buying securities for his own position.

DEBENTURE. A bond secured only by the general credit of the issuer.

DISCOUNT. The difference between the par value of a bond and the cost of the bond, when the cost is below par. Some short-term securities, such as T-bills and banker's acceptances, are known as discount securities. They sell at a discount from par, and return the par value to the investor at maturity without additional interest. Other securities, which have fixed coupons, trade at a discount when the coupon rate is lower than the current market rate for securities of that maturity and/or quality.

DIVERSIFICATION. Dividing investment funds among a variety of investments to avoid excessive exposure to any one source of risk.

DURATION. The weighted average time to maturity of a bond where the weights are the present values of the future cash flows. Duration measures the price sensitivity of a bond to changes in interest rates. (See modified duration).

FEDERAL FUNDS RATE. The rate of interest charged by banks for short-term loans to other banks. The Federal Reserve Bank through open-market operations establishes it.

FEDERAL OPEN MARKET COMMITTEE. A committee of the Federal Reserve Board that establishes monetary policy and executes it through temporary and permanent changes to the supply of bank reserves.

INVESTMENT OFFICIALS. This includes any applicable MCE staff participating in the investment process; MCE Treasurer; MCE Deputy Treasurer(s); and MCE Board of Directors.

LEVERAGE. Borrowing funds in order to invest in securities that have the potential to pay earnings at a rate higher than the cost of borrowing.

LIQUIDITY. The speed and ease with which an asset can be converted to cash.

LOCAL AGENCY INVESTMENT FUND (LAIF). A voluntary investment fund open to government entities and certain non-profit organizations in California that is managed by the State Treasurer's Office.

LOCAL GOVERNMENT INVESTMENT POOL. Investment pools that range from the State Treasurer's Office Local Agency Investment Fund (LAIF) to county pools, to Joint Powers Authorities (JPAs). These funds are not subject to the same SEC rules applicable to money market mutual funds.

MARGIN. The difference between the market value of a security and the loan a broker makes using that security as collateral.

MARKET RISK. The risk that the value of securities will fluctuate with changes in overall market conditions or interest rates.

MARKET VALUE. The price at which a security can be traded.

MARKING TO MARKET. The process of posting current market values for securities in a portfolio.

MATURITY. The final date upon which the principal of a security becomes due and payable.

MEDIUM TERM NOTES. Unsecured, investment-grade senior debt securities of major corporations which are sold in relatively small amounts on either a continuous or an intermittent basis. MTNs are highly flexible debt instruments that can be structured to respond to market opportunities or to investor preferences.

MODIFIED DURATION. The percent change in price for a 100 basis point change in yields. Modified duration is the best single measure of a portfolio's or security's exposure to market risk.

MONEY MARKET. The market in which short-term debt instruments (T-bills, discount notes, commercial paper, and banker's acceptances) are issued and traded.

MORTGAGE PASS-THROUGH SECURITIES. A securitized participation in the interest and principal cash flows from a specified pool of mortgages. Principal and interest payments made on the mortgages are passed through to the holder of the security.

MUNICIPAL SECURITIES. Securities issued by state and local agencies to finance capital and operating expenses.

MUTUAL FUND. An entity which pools the funds of investors and invests those funds in a set of securities which is specifically defined in the fund's prospectus. Mutual funds can be invested in various types of domestic and/or international stocks, bonds, and money market instruments, as set forth in the individual fund's prospectus. For most large, institutional investors, the costs associated with investing in mutual funds are higher than the investor can obtain through an individually managed portfolio.

NATIONALLY RECOGNIZED STATISTICAL RATING ORGANIZATION (NRSRO). A credit rating agency that the Securities and Exchange Commission in the United States uses for regulatory purposes. Credit rating agencies provide assessments of an investment's risk. The issuers of investments, especially debt securities, pay credit rating agencies to provide them with ratings. The three most prominent NRSROs are Fitch, S&P, and Moody's.

NEGOTIABLE CD. A short-term debt instrument that pays interest and is issued by a bank, savings or federal association, state or federal credit union, or state-licensed branch of a foreign bank. Negotiable CDs are traded in a secondary market and are payable upon order to the bearer or initial depositor (investor).

PREMIUM. The difference between the par value of a bond and the cost of the bond, when the cost is above par.

PRIMARY DEALER. A financial institution (1) that is a trading counterparty with the Federal Reserve in its execution of market operations to carry out U.S. monetary policy, and (2) that participates for statistical reporting purposes in compiling data on activity in the U.S. Government securities market.

PRUDENT PERSON (PRUDENT INVESTOR) RULE. A standard of responsibility which applies to fiduciaries. In California, the rule is stated as "Investments shall be managed with the care, skill, prudence and diligence, under the circumstances then prevailing, that a prudent person, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of like character and with like aims to accomplish similar purposes."

REALIZED YIELD. The change in value of the portfolio due to interest received and interest earned and realized gains and losses. It does not give effect to changes in market value on securities, which have not been sold from the portfolio.

REGIONAL DEALER. A financial intermediary that buys and sells securities for the benefit of its customers without maintaining substantial inventories of securities and that is not a primary dealer.

REPURCHASE AGREEMENT. Short-term purchases of securities with a simultaneous agreement to sell the securities back at a higher price. From the seller's point of view, the same transaction is a reverse repurchase agreement.

SAFEKEEPING. A service to bank customers whereby securities are held by the bank in the customer's name.

SUPRANATIONAL. A Supranational is a multi-national organization whereby member states transcend national boundaries or interests to share in the decision making to promote economic development in the member countries.

TOTAL RATE OF RETURN. A measure of a portfolio's performance over time. It is the internal rate of return, which equates the beginning value of the portfolio with the ending value; it includes interest earnings, realized and unrealized gains, and losses in the portfolio.

U.S. TREASURY OBLIGATIONS. Securities issued by the U.S. Treasury and backed by the full faith and credit of the United States. Treasuries are considered to have no credit risk, and are the benchmark for interest rates on all other securities in the US and overseas. The Treasury issues both discounted securities and fixed coupon notes and bonds.

TREASURY BILLS. All securities issued with initial maturities of one year or less are issued as discounted instruments, and are called Treasury bills. The Treasury currently issues three- and six-month T-bills at regular weekly auctions. It also issues "cash management" bills as needed to smooth out cash flows.

TREASURY NOTES. All securities issued with initial maturities of two to ten years are called Treasury notes, and pay interest semi-annually.

TREASURY BONDS. All securities issued with initial maturities greater than ten years are called Treasury bonds. Like Treasury notes, they pay interest semi-annually.

VOLATILITY. The rate at which security prices change with changes in general economic conditions or the general level of interest rates.

YIELD TO MATURITY. The annualized internal rate of return on an investment which equates the expected cash flows from the investment to its cost.

SEPTEMBER FILINGS

California Community Choice Association

SUBMITTED 09/09/2022, 03:05 PM

Contact
Shawn-Dai Linderman (shawndai@cal-cca.org)

1. Please provide a summary of your organization's comments on the Draft Final Proposal.

SUPPORT WITH CAVEATS

The California Community Choice Association (CalCCA) appreciates the opportunity to comment on the California Independent System Operator Corporation's (CAISO's) Energy Storage Enhancements Draft Final Proposal.

CalCCA continues to support the CAISO's co-located enhancements that would provide co-located storage resources with optional functionality in the day-ahead and real-time markets to ensure storage charging schedules do not exceed onsite renewable generation. This proposal will enable co-located storage resources to more effectively manage storage charging in a way that aligns with investment tax credit regulations. To improve this proposal, the CAISO should allow co-located resources to flag the ability to schedule charging up to its day-ahead forecast of renewable output, as opposed to the current proposal that would not schedule day-ahead charging or schedule charging only if there is a storage self-schedule. Otherwise, if the operator does not bid the renewable component in day-ahead (as is permitted under the Resource Adequacy (RA) must offer obligation rules), the renewable component would not receive a charging schedule until real-time. Scheduling storage charging subject to the renewable component's day-ahead forecast will reflect the co-located resource's expected ability to charge in the day-ahead timeframe and result in more efficient schedules in the day-ahead and real-time markets. Finally, CalCCA supports the ability for storage operators to toggle this functionality on or off and the removal of language around outage card submission and Resource Adequacy Availability Incentive Mechanism (RAAIM) application for the inability to charge from the grid.

CalCCA also supports the CAISO's proposals to:

- **Include opportunity costs in the day-ahead storage default energy bid;**
- **Improve accounting for state-of-charge of resources providing regulation; and**
- **Enhance the CAISO's exceptional dispatch tools for storage resources by holding state-of-charge and compensating them for their opportunity costs of being exceptionally dispatched.**

2. Please provide comments on the EIM Governing Body classification.

SUPPORT

CalCCA has no additional comments at this time.

3. Please provide any additional input not included above related to the Draft Final Proposal.

CalCCA has no additional comments at this time.

California Community Choice Association

SUBMITTED 09/15/2022, 04:41 PM

Contact
Shawn-Dai Linderman (shawndai@cal-cca.org)

1. Please provide a summary of your organization's comments on the WEIM Resource Sufficiency Evaluation (RSE) Enhancements Phase 2 revised draft final proposal and September 2, 2022 stakeholder call discussion:

California Community Choice Association's (CalCCA's) comments on the WEIM RSE Phase 2 revised draft final proposal (Revised Draft Final Proposal) are limited to Section 5, Energy Assistance (EA). Specifically, the CAISO should clarify several aspects of the EA proposal to address: (1) how the CAISO will decide whether to opt in to the EA program, (2) whether EA properly incentivizes load-serving entities (LSEs) within CAISO to procure sufficient capacity; and (3) the mechanisms, cost allocation and relevant cost causation, incentives, and decision-making by Balancing Authority Areas (BAAs) where the BAA is composed of multiple LSEs like in the CAISO.

2. Please provide your organization's overall position on the WEIM Resource Sufficiency Evaluation Enhancements Phase 2 revised draft final proposal:

SUPPORT WITH CAVEATS

Support with caveats, as set forth below.

3. Provide your organization's comments on the proposal to not include load forecast adjustments as an obligation of the WEIM RSE, as described in section 4.1 of the revised draft final proposal:

No comments at this time.

4. Provide your organization's comments on the interaction between advisory WEIM transfers, intertie import offers and lower priority exports cleared by the HASP, as described in section 4.2 of the revised draft final proposal:

No comments at this time.

5. Provide your organization's comments on the resource sufficiency evaluation's proposed treatment of lower priority exports, as described in section 4.2.2 of the revised draft final proposal:

No comments at this time.

6. Provide your organization's comments on the proposal to change the E-TAG designation of lower priority exports, as described in section 4.2.3 of the revised draft final proposal:

No comments at this time.

7. Provide your organization's comments on the proposed treatment of uncertainty within the WEIM RSE, as described in section 4.3 of the revised draft final proposal:

No comments at this time.

8. Provide your organization's comments on the proposal to cure supply insufficiencies through WEIM assistance energy transfers that embed the transfers cost in the deficient BAA's LMPs, as described in section 5.1 of the revised draft final proposal:

Section 5.1 does not sufficiently explain mechanisms, cost allocation and relevant cost causation, incentives, and decision making by BAAs where the BAA is composed of multiple LSEs such as in the CAISO. First, Section 5.1 is not clear on all of the locational marginal prices (LMPs) in the scenario depicted. The example in Section 5.1 appears to depict two nodes where there is a generation node from outside of the BAA, and what appears to be an aggregated node to serve the load inside of the emergency energy receiving BAA. While the example is clear on what happens to the LMP within the energy receiving BAA, it is not clear what happens to the price at the node where the generator was dispatched to provide emergency assistance. Only the Marginal Cost of Energy (MCE) is included, along with an indication of a $1,000 incremental transfer cost which appears to be accounted for as a Marginal Cost of Congestion (MCC). It would appear then in total that the LMP for the generator providing emergency assistance that the total LMP will also be $1,175. The example says nothing of what this LMP will mean to other generation providing energy that is serving local load and not providing emergency energy. Section 5.1 likewise does not indicate how the price at this LMP will enter into calculating the price paid by load in its DLAP pricing when a single node in the area is provided a transfer payment that is incorporated in the MCC of its node. Without answers to these questions, it is not clear what the total impact of this emergency energy is to the providing entity and what costs will need to be recovered.

In the case of a BAA where the BAA is the only LSE, decisions to use or not use emergency assistance are clear since the costs and alternatives are known to that entity who can make rational choices and for whom the costs will be incurred by all BAA customers. In the case of the CAISO where there are multiple LSEs and any single or combination of LSEs may be the cause of an RSE insufficiency, however, it is not clear that the costs to procure emergency energy follow cost causation principles. Since the example in Section 5.1 does not provide clarity about how the Default Load Aggregation Point (DLAP) costs will be calculated, one can only assume that the LMP will be factored into the costs and all LSEs in the DLAP will be charged for the emergency energy. It is therefore not clear how all load in the BAA will pay equally for this failure of the RSE, since it is not clear that the LMP at the import node will impact all of the DLAPs equally. Not accounted for is which entity caused the emergency energy to be necessary in the first place. In the CAISO, the resource adequacy (RA) process should provide sufficient energy from the RA capacity to pass the RSE. A failure of the RSE then is either: (1) the failure of an LSE to meet its RA requirements; (2) an outage of a resource shown as RA that is then unavailable to provide energy to the CAISO market; or 3) an unanticipated condition (forecast error, transmission outage, etc.) that causes the RA to be insufficient. It is not clear that each of these conditions mean that all load in the DLAP was the cause of the need for emergency energy, and therefore it is not clear that charging all load in the DLAP is consistent with cost causation principles. Further, when cost causation principles are not followed, it is unclear whether any entity

will have an incentive to ensure that sufficient energy is made available to the CAISO to meet an RSE test.

Finally, where the BAA is composed of multiple LSEs, Section 5.1 appears to leave the decision to participate in emergency energy provision up to the BAA. This means that LSEs who will pay the costs will not have an ability to choose whether to participate – rather, the decision to opt in or out will be left up to the BAA. Combined with unclear cost allocation based upon cost causation principles, this leaves LSEs with insufficient ability to find and obtain alternative energy to provide to the market to make least cost decisions.

The CAISO should provide further information in Section 5.1 including how settlements will work for both the generator providing emergency energy, as well as the settlements for other generation at the same node as the generator providing emergency energy. In addition, the CAISO should clarify the cost allocation to all load receiving energy assistance including BAAs for which there are multiple DLAPs impacting LSEs within those DLAPs differently. The CAISO should also explain how these settlements are consistent with cost causation principles and provide sufficient incentive to all parties to find least cost solutions to curing an RSE insufficiency. Finally, the CAISO should describe how it will make its own decision to participate in receipt of emergency energy on behalf of multiple LSEs who will be impacted by the costs of this decision.

9. Provide your organization's comments on the proposal to optionally elect to receive assistance energy transfers through a masterfile designation, as described in section 5.1 of the revised draft final proposal:

The logistics of opting in or out of the EA should be clarified by the CAISO. The Revised Draft Final Proposal provides that the election to utilize EA will be made in the CAISO Master File and any changes to that election will occur through the existing Master File process. However, the CAISO fails to explain its internal processes for deciding whether to opt in or out of the EA. For example, who makes the decision for the CAISO to opt in or out, and what are the parameters for making that decision? CAISO's decision may subject all LSEs within the CAISO to the potentially high penalty prices. Therefore, the CAISO risks disincentivizing LSEs from procuring sufficient capacity to serve their load as they may face the penalty pricing if the CAISO opts in and fails the RSE, regardless of whether particular LSEs procured sufficient capacity.

10. Provide your organization's comments on the allocation of assistance energy revenue, as described in section 5.1.1 of the revised draft final proposal:

No comments at this time.

11. Provide your organization's comments on the proposal to monitor for misuse of WEIM assistance energy transfers, as described in section 5.1.2 of the revised draft final proposal:

No comments at this time.

12. Provide your organization's comments on the proposed WEIM decisional classification, as described in section 6 of the revised draft final proposal:

No comments at this time.

13. Provide any additional comments on the WEIM Resource Sufficiency Evaluation Enhancements Phase 2 revised draft final proposal or September 2, 2022 stakeholder call discussion:

No comments at this time.

California Community Choice Association

SUBMITTED 09/16/2022, 04:28 PM

Contact
Shawn-Dai Linderman (shawndai@cal-cca.org)

1. Please provide a summary of your organization's comments on the Transmission Service and Market Scheduling Priorities Phase 2 straw proposal and August 11, 2022 stakeholder call discussion:

California Community Choice Association (CalCCA) appreciates this opportunity to provide comments on the Straw Proposal. Of paramount importance to community choice aggregators (CCAs) as load serving entities (LSEs) whose customers pay for transmission on the California Independent System Operator Corporation (CAISO) grid is ensuring that the wheeling through proposals do not negatively impact transmission capacity to meet native load needs even in extremely constrained conditions. Therefore, the CAISO's calculation of existing transmission commitments (ETC) must be accurate, current, and representative of peak load conditions. CalCCA looks forward to its participation in this initiative and provides more detailed comments on the ETC calculation below.

2. Provide your organization's comments on the design principles discussed in section 4:

CalCCA is supportive of the Design Principles set forth in section 4, with two additions. First, the CAISO should not only ensure that it "maintains sufficient transmission capacity to meet native load needs reliably" presently but should consider future needs in terms of likely load growth over and above historical levels based on increased electrification and economic growth. Similarly, CAISO should not only consider historical and present climate conditions but must incorporate into its analysis the likelihood of future increased instances of extreme weather events due to climate change, similar to the heat wave experienced in early September 2022.

3. Provide your organization's overall comments on calculating ATC in the monthly horizon, as described in section 5.1.1. In particular, the different approaches for calculating native load needs as an existing commitment and other components of the ATC methodology as discussed in the proposal. The ISO encourages stakeholders to share potential alternative methods for consideration in calculating components, particularly native load needs.

CalCCA generally agrees with CAISO's "Approach 3" – deriving native load needs based on the "higher of" Approaches 1 and 2, as long as the data used for the calculations represents the most constrained scenario. CalCCA is concerned that viewing historical data (the prior year or further back) will not adequately portray the likely future increased incidence of severe climate events such as the September 2022 heat wave. In addition, with respect to load growth, while the CAISO quotes a one percent per year average load growth figure, future electrification and economic growth will likely fuel increased load growth that must be considered. Given that other proceedings considering procurement needs, including the Integrated Resource Plan (IRP) and Resource Adequacy (RA) proceedings at the California Public Utilities

Commission, are considering both climate and electrification as substantially contributing to load growth over the coming years, the CAISO must also consider these factors in calculating ATC.

In addition, CalCCA supports CAISO similarly taking a "higher of" approach to options 2A, 2B, and 2C to determine the highest native load need.

4. Provide your organization's comments on each of the ISO's proposed approaches for calculating existing transmission commitments (ETC) as it relates to the ATC methodology as described in section 5.1.1.2. Particularly, the ISO seeks comment on the methods or approaches identified for estimating native load needs across a 13-month horizon and encourages stakeholders to suggest potential variations to inputs in deriving the amount of transmission capacity to set aside for native load needs.

Please see response to Question 3.

5. Provide your organization's comments on the Transmission Reliability Margin (TRM) and the Capacity Benefit Margin (CBM) as it relates to the ATC methodology, as described in section 5.1.1.3:

CalCCA has no comment at this time.

6. Provide your organization's overall comments on calculating the ATC in the daily horizon, as described in section 5.1.2:

CalCCA has no comment at this time.

7. Provide your organization's comments on calculating existing transmission commitments (ETC), particularly native load needs, as it relates to the calculation of daily ATC, as described in section 5.1.2.2:

Please see response to Question 3.

8. Provide your organization's comments on the Transmission Reliability Margin (TRM) and the Capacity Benefit Margin (CBM) as it relates to daily ATC, as described in section 5.1.2.3:

CalCCA has no comment at this time.

9. Provide your organization's comments on the method for accessing ATC to establish wheeling through scheduling priority, as described in section 5.1.3. In particular, consider comments on the requirements identified for accessing ATC.

CalCCA has no comment at this time.

10. Provide your organization's comments on the proposed enhancement to establish a window during which the submitted requests are vying for limited ATC based upon the underlying duration of the supply contract duration of ATC request as described in section 5.1.3:

CalCCA has no comment at this time.

11. Provide your organization's comments on a wheeling through priority rights holder's ability to resell the wheeling through scheduling priority as described in section 5.1.3:

CalCCA has no comment at this time.

12. Provide your organization's comments on the ISO's proposal to establish a process through which entities seeking to establish wheeling through priority on a long-term basis (longer than 1-year) can do so through submission of a study request and the ability to fund upgrades on the ISO system, including the ability of import (wheel in) requests driving Maximum Import Capability (MIC) upgrades as described in section 5.1.4:

CalCCA has no comment at this time.

13. Provide your organization's comments on compensation for wheeling through scheduling priority, as described in section 5.1.5, along with any suggestions your organization may have regarding other potential ways to assess transmission charges for high priority wheeling through transactions:

CalCCA has no comment at this time.

14. Provide your organization's comments on the proposed WEIM decisional classification, as described in section 6:

CalCCA has no comment at this time.

15. Provide any additional comments on the Transmission Service and Market Scheduling Priorities Phase 2 straw proposal and August 11, 2022 stakeholder call discussion:

CalCCA has no comment at this time.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company for Approval of 2024-2031 Energy Efficiency Business Plan and 2024-2027 Portfolio Plan. (U 39 M)	Application 22-02-005 (Filed February 15, 2022)
And Related Matters.	Application 22-03-003 Application 22-03-004 Application 22-03-005 Application 22-03-007 Application 22-03-008 Application 22-03-011 Application 22-03-012 (Consolidated)

OPENING COMMENTS OF MARIN CLEAN ENERGY ON ADMINISTRATIVE LAW JUDGE'S RULING INVITING COMMENTS ON STAFF PROPOSAL FOR GAS ENERGY EFFICIENCY INCENTIVES AND CODES AND STANDARDS SUB-PROGRAMS AND BUDGETS

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September 23, 2022

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1. Introduction

Pursuant to Rule 6.2 of the California Public Utilities Commission ("Commission," or "CPUC") Rules of Practice and Procedure, Marin Clean Energy ("MCE") submits the following opening comments on *Administrative Law Judge's Ruling Inviting Comments on Staff Proposal for Gas Energy Efficiency Incentives and Codes and Standards Sub-Programs and Budgets*[1] issued on August 2, 2022, *Email Ruling Extending Due Dates for Comments to August 2, 2022 Ruling and Providing Notice of Corrections to Staff Proposal* issued on August 18, 2022 and *E-mail Ruling Extending Due Dates for Comments to August 2, 2022 Ruling* issued on September 8, 2022.

[1] Referred to in this document as "Staff Proposal."

MCE participated in the workshop to discuss the Staff Proposal on August 26, 2022. MCE specifically offers: (1) strong support for eliminating fossil fuels; (2) additional criteria to strengthen the Staff Proposal, public health impacts of natural gas measures in energy efficiency ("EE"), equity considerations, other relevant decarbonization proceedings; and (3) recommendations to ensure meaningful progress on Environmental and Social Justice Action Plan[2] ("ESJ Action Plan") goals.

MCE strongly supports the goals of the Staff Proposal "to decarbonize the electric sector" and ensure ratepayer funded EE programs help California achieve its climate mandates.[3] MCE thanks the Commission for its commitment to decarbonization outlined in its Staff Proposal and the opportunity to collaborate with stakeholders on its refinement. MCE additionally recognizes and appreciates the leadership of the Sierra Club filing its *Motion to Prohibit Energy Efficiency Funding for Non-Cost-Effective Gas Appliance Measures* ("Motion").[4] Sierra Club's motion thoroughly documents several reasons for ratepayer EE programs to transition away from natural gas incentives and strategies to improve building decarbonization.

2. MCE Supports Greater Promotion of Electrification and Decarbonization in Energy Efficiency Programs

MCE's mission to eliminate fossil fuel greenhouse gas emissions and create equitable community benefits informs its EE programs and comments on the Staff Proposal. MCE identified "support[ing] electrification and decarbonization efforts" as an overarching strategy for its *Application of Marin Clean Energy for Approval of 20024-2031 Energy Efficiency Business Plan*

[2] *See* Cal. Pub. Util. Comm'n, Environmental and Social Justice Action Plan version 2.0 (April, 2022), available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf.
[3] Staff Proposal at 1.
[4] Filed on January 13, 2022, in R.13-11-005.

and 2024-2027 Energy Efficiency Portfolio Plan ("Application").[5] MCE designed its Application to "scale the impact of its EE programming and support California's decarbonization goals."[6] For example, "MCE supports building electrification in its WE&T program,[7] Strategic Energy Management (SEM) programming and by layering electrification programs available to customers through its 'Any Open Door' strategy across proposed programs."[8] MCE specifically tailored its electrification and decarbonization strategies to help redress and identify barriers to electrification for "Equity customers"[9] and in the EE workforce.[10] MCE intentionally limited its inclusion of non-exempt gas measures[11] in its Application. MCE proposed an estimated total dollar amount of $224,600 for combustible natural gas measures which constitutes 0.29 percent of MCE's total portfolio budget and 1.16 percent of MCE's total proposed Equity segment budget. However, outlining the full depth and breadth of potential impacts of this proposal on MCE's Application and customers requires additional time and information from the Commission.

MCE agrees with the Staff Proposal and Sierra Club's motion that ratepayer funded EE programs must transition away from natural gas incentives. The Commission must not question whether it *should* transition EE programming away from natural gas, but rather *how*. This Staff Proposal should be strengthened to ensure all ratepayers who fund EE, especially Equity customers, may benefit from and be protected through the transition. The *how* must be a detailed,

[5] Application at 8.
[6] Application at 2.
[7] Workforce, Education & Training Program.
[8] Application at 6.
[9] MCE refers to all categories of customers eligible for its proposed Equity segment programs using the umbrella term "Equity customers." *See* Application, Exhibit 2, Chapter 3, Section 4.2. MCE defines "Equity customers" as residential customers and businesses in ESJ communities." "ESJ communities" defined by the Commission's ESJ Action Plan (2019) with the additional income modifier[.]"
[10] Application at 10-12.
[11] Staff Proposal at 11 (defining "Exempt measures").

actionable, sustainable, affordable, safe, regionally specific and equitable pathway to building decarbonization. As a Program Administrator ("PA"), MCE has piloted various strategies and programs to promote electrification like its Low-Income Families and Tenants Pilot.[12] MCE's administration experiences[13] inform its commitment to adding additional specificity to the Staff Proposal with stakeholders.

MCE offers recommendations to strengthen the Staff Proposal including:

- Greater community engagement and workshops on potential barriers and solutions to electrification measures in EE portfolio programs prioritizing ESJ communities consistent with ESJ Action Plan Goal 5.[14]
- Piloting varied approaches to eliminating gas incentives and building decarbonization investments. In piloting approaches, prioritize Equity customers and communities that face barriers to electrification.[15]

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[12] DNV, MCE Low-Income Families and Tenants Pilot Program Evaluation (August 2022), available at: https://pda.energydataweb.com/api/downloads/2529/MCE_LIFT_Final%20EMV%20Report_August2021.pdf at 34 (discussion of electrification barriers and mitigation strategies for low-income multi-family households).

[13] "In 2018, MCE launched our Low-Income Families and Tenants (LIFT) Pilot Program to reduce the energy burden and improve the quality of life for residents in income-qualified multifamily properties. The program offers energy efficiency, electrification, and upgrades for health, safety, and comfort…The 680 qualifying households received upgrades such as switching natural gas and propane heating equipment to high-efficiency electric heat pumps. Participants saved over 7,800 kilowatt-hours and decarbonized energy loads from space and water heating." MCE, Program Plug-in: Energy Efficiency for Low-Income Families and Tenants (May 2022), available at: https://www.mcecleanenergy.org/mce-news/program-plug-in-energy-efficiency-for-low-income-families-and-tenants/.

[14] "Enhance Outreach and Public Participation Opportunities for ESJ Communities to Meaningfully Participate in the CPUC's Decision-Making Process and Benefit from CPUC Programs."

[15] BEEP Coalition, Community Priorities for Equitable Building Decarbonization Report (March 2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf at 8

- Requiring judicious electrification and natural gas incentive phaseout specific reporting that documents the non-energy benefits ("NEBs") and affordability impacts of varied EE program administration approaches.[16] The Commission should comprehensively review existing portfolio metrics and consider eliminating or limiting metrics with potentially less relevance under the Staff Proposal. This will allow the Commission to mitigate any associated risks or unintended burdens of certain phase out approaches in addition to scaling successful strategies for greater cost-effective benefits.
- Identifying resources and requiring PAs dedicate resources for enhanced and culturally specific technical assistance and education on electrification measures.[17]
- Guidance and flexibility on program integration. There are many complementary incentives in California[18] and federally[19] that can provide electrification and

(recommending piloting decarbonization approaches, strategies, considerations and requirements).

[16] The Disadvantaged Communities Advisory Group, Re: Comment on Energy Efficiency Business Plan Application Equity Segment (August 2022), available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=245162 at 1 ("The Energy Efficiency Business Plans, Related Metrics and Cost-Effectiveness Tests Must Include an Adequate Consideration of Non-Energy Benefits").

[17] *See* D.18-12-015 at 81-85 (outlining the need and function of a "Community Energy Navigator" community-based technical assistant for decarbonization pilot projects as a "key to the success of the pilot").

[18] NRDC, $1.4B for Climate-Resilient CA Homes, Schools, Communities (September 2022), available at: https://www.nrdc.org/experts/merrian-borgeson/ca-budget-climate-resilient-homes-schoolscommunities#:~:text=With%20the%20funds%20allocated%20in,income%20families%20and%20disadvantaged%20communities (detailing additional building decarbonization funding sources approved in FY 2022-2023 budget).

[19] Fast Company, 650,000 efficient houses and 7.2 million free heat pumps: How the Inflation Reduction Act will impact U.S. homes (September 2022), available at: https://www.fastcompany.com/90783677/650000-efficient-houses-and-7-2-million-free-heat-pumps-how-the-inflation-reduction-act-will-impact-u-s-homes ("The details of the rebate programs still need to be ironed out at the state level, and it could take one to two years before those incentives are available to homeowners and builders. The tax credits, which expand already existing programs, will be available January 1, allowing homeowners to get heat

decarbonization related resources. However, the coordination of those programs, the eligibility requirements, the timelines, the spending restrictions, the administrative burdens and the permissible measures vary tremendously. Identifying programs to layer, analyzing eligibility requirements, reorganizing programs to layer incentives, and adopting potential necessary changes to EE portfolio rules requires additional time, research and discussion.

MCE offers these recommendations in a good faith effort to support achieving the goals of the Staff Proposal—phasing out natural gas incentives in EE portfolio programs. MCE hopes to collaborate on next steps with the Commission, parties and other stakeholders absent from this proceeding who stand to be impacted. As the Building Energy, Equity and Power ("BEEP") Coalition stated in their *Community Priorities for Equitable Building Decarbonization Report*:

"We believe that there is not a one-size-fits-all solution to decarbonization and electrification efforts must be more than just replacing appliances. We are looking for holistic and equitable solutions that include emissions reductions, meaningful building improvements and protections for residents. The BEEP Coalition is calling for an intersectional approach that prevents further harm and ensures our communities benefit through increased resiliency."[20]

3. Administrative Law Judge's Ruling Questions

1. Are there additional criteria that should be taken into account in the staff proposal?

Yes, the Commission should consider and conduct greater analysis on:

- Forecasted bill impacts for Equity customers.
- Identifying potential barriers to electrification by customer class and program segment.

pumps and other energy-saving devices installed for less than half of what they would cost today.").

[20] BEEP Coalition, Community Priorities for Equitable Building Decarbonization Report (March 2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf at 1.

- The time and resources required for decarbonization focused technical assistance and community engagement.
- The total cost of infrastructure upgrades[21] required for electrification upgrades for Equity customers.
- The availability, timelines, eligibility requirements and qualifying measures for external decarbonization and electrification funding sources.
- Forecasted ability of PAs to meaningfully serve all customers especially Equity segment customers.

b. What other information should be taken into account in supporting the claim that there are adverse public health impacts from natural gas appliances?

There are numerous studies documenting the varied, serious and disproportionate public health impacts of natural gas appliances in California and across the United States. MCE offers the following studies recognizing many additional studies provide valuable documentation as well:

- *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California*.[22]
- *Health Effects from Gas Stove Pollution*.[23]

[21] Staff Proposal at 15.
[22] UCLA Fielding School of Public Health Department of Environmental Health Sciences (April 2020), available at: https://coeh.ph.ucla.edu/effects-of-residential-gas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/.
[23] RMI (2020), available at: https://drive.google.com/file/d/14gOwnrhanMdrQJpb-qWnTh9FU74qKppt/view.

- *Results of the California Healthy Homes Indoor Air Quality Study of 2011–2013: Impact of Natural Gas Appliances on Air Pollutant Concentrations*.[24]
- *California Air Resources Board ("CARB") Draft Scoping Plan 2022: Appendix F Building Decarbonization.*[25]
- *MCE Low-Income Families and Tenants Pilot Program Evaluation.*[26]

The severity of these health impacts and their inequitable distribution in ESJ communities only emphasizes the need for the Commission to holistically outline and ensure its decarbonization efforts materially improve health and safety conditions for participants.[27] Not all decarbonization efforts meaningfully or equally improve health conditions for participants. Different behavioral decisions, infrastructure barriers and individual measures can significantly impact potential health improvements resulting in varied outcomes. For example, a largely uninsulated household will reduce the efficiency of heating appliances. Some households may also require significant retrofitting resources to use electrification appliances not presently available in the EE portfolio or lack the supportive infrastructure for some electrification

[24] Mullen, N. A., J. Li, M.L. Russell, M. Spears, B.D. Less, and B.C. Singer, Indoor Air Volume 26 (2016), available at: https://onlinelibrary.wiley.com/doi/10.1111/ina.12190 at 231-245.
[25] Available at: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp-appendix-f-building-decarbonization.pdf.
[26] DNV (August 2022), available at: https://pda.energydataweb.com/api/downloads/2529/MCE_LIFT_Final%20EMV%20Report_August2021.pdf at 5, 29-30 (documenting beneficial health, safety and comfort impacts of fuel-switching and electric heat pump measures).
[27] BEEP Coalition, Community Priorities for Equitable Building Decarbonization Report at 3 ("**Concern**: Many homes and apartments simultaneously need energy efficiency upgrades and other upgrades to accommodate building decarbonization technologies and to ensure cost savings after a project is completed. **Recommendation**: Take a holistic approach to building decarbonization policy and program design by packaging it with energy efficiency, indoor habitability, and resiliency measures; and expand critical programs that offer energy efficiency and solar PV at no cost.").

technologies like a broadband service provider.[28] These households facing significant barriers could presently be functionally ineligible for EE electrification measures and experience worse health outcomes because of their ineligibility.[29]

Additionally, decarbonization efforts that fail to protect low-income customers from potential and avoidable damaging bill impacts can increase disconnection risks during an existing affordability crisis[30] which produces many negative health impacts.[31] EE programs provide valuable health and safety benefits to participants. A pathway to decarbonization that could result in limiting or excluding some customers from receiving meaningful or parity of EE services risks negative health impacts as well. MCE recommends the Commission add additional record via comments, workshops or public participation hearings on decarbonization health impacts and guidance to ensure EE services deliver on the promise of improved health outcomes from greater decarbonization of portfolio programs.

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[28] CPUC, Broadband Mapping Program (2022), available at: https://www.cpuc.ca.gov/industries-and-topics/internet-and-phone/broadband-mapping-program (documenting the many communities across California that lack access to broadband internet services).

[29] *See* California Air Resources Board, Draft Scoping Plan: Appendix F – Building Decarbonization (2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp-appendix-f-building-decarbonization.pdf at 35 (discussing low-income residents are more likely to live in older buildings in need of greater health and safety upgrades to be eligible for some existing decarbonization incentive programs and therefor end up eliminating the greatest possible health benefits of those programs to potential participants with the greatest health needs).

[30] CPUC, Utility Costs and the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues Pursuant to P.U. Code Section 913.1 (May 2021), available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf.

[31] The Utility Reform Network, Living Without Power: Health Impacts of Utility Disconnections in California (2018), available at: http://www.turn.org/wp-content/uploads/2018/05/2018_TURN_Shut-Off-Report_FINAL.pdf.

6. Do gas appliances serve a market support and/or equity function given the state's goals and progress towards electrification?

In advancing the Staff Proposal, the Commission must ensure all Equity customers may benefit from equity programs in a manner leading to "increased comfort and safety, improved indoor air quality, and more affordable utility bills, consistent with Goals 1, 2, and 5 in the ESJ Action Plan."[32] The salient question for the Commission to consider is *how* to ensure Equity customers will benefit and not experience harmful burdens from varied decarbonization approaches replacing natural gas appliances. This requires forecasting bill impacts[33] and NEBs impacts of measure changes in addition to identifying and potentially authorizing necessary program design changes for the portfolios to ensure participants benefit. The bill impacts alone from electrification efforts depend on the characteristics of buildings, types and models of appliances, customer behavior and preferences, climate variation and more.[34]

These outcomes cannot and should not be left to chance because the risks of failure may significantly harm the wellbeing of participants in violation of the Commission's goal and requirements for the Equity segment. The Equity segment supports programs with the "primary purpose" of providing the benefits of EE to customers facing historic access barriers.[35] The need for the Equity segment is because conventional market-focused EE programs that overemphasized non-equity specific criteria like traditional cost-effectiveness tests[36] failed to

[32] D. 21-05-031 at 14-15.
[33] A noted data gap in the Staff Proposal at 16-17 ("More information is necessary to understand the bill impact of electrification.").
[34] Navigant Consulting, Inc, Impacts of Residential Appliance Electrification: California Building Industry Association (2018), available at: https://drive.google.com/file/d/14cFig3V_G_scSpSJggrI2RcXFhbgx593/view at 14.
[35] D. 21-05-031 at 14-15.
[36] D.21-05-031 at 15 (discussing the need to remove cost-effectiveness requirements from Equity customers).

serve or benefit a subset of paying ratepayers. The Commission should not replicate old barriers by failing to thoughtfully outline pathways to successful implementation of the Staff Proposal.

The Commission should consider and incorporate the robust set of equity focused building decarbonization program design and policy recommendations in California. These resources include, but are not limited to:

- *California's Gas System in Transition*;[37]
- *Equitable Building Electrification: A Framework for Powering Resilient Communities*;[38]
- *Community Priorities for Equitable Building Decarbonization Report*;[39]
- San Joaquin Valley Affordable Energy Pilots.[40]

MCE recommends the Commission hold additional workshops and or public participation hearings to discuss potential impacts of the Staff Proposal on the Equity segment specifically and

[37] Gridworks (2019), available at: https://gridworks.org/wp-content/uploads/2019/09/GW_Calif-Gas-System-report-1.pdf at 2-4 (detailing recommendations on bill protections, renter protections, one-stop-shop for low-income households, prioritizing resources to transition low-income and disadvantaged communities etc).

[38] The Greenlining Institute (2019), available at: https://greenlining.org/wp-content/uploads/2019/10/Greenlining_EquitableElectrification_Report_2019_WEB.pdf (proposing a five step process to support equitable building electrification programs and projects).

[39] BEEP Coalition (March 2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf (including recommendations to ensure bill savings, community-led education on building decarbonization, focused on affordable housing, workforce development, non-energy benefits and holistic upgrades for health, safety and resiliency).

[40] D.18-12-015 at 4 (listing elements required for each pilot project to ensure ESJ participants benefit including a community-based community energy navigator, methods to ensure reduced energy costs, "…specific pilot elements on workforce development, training and education, appliance warranties, and bulk purchasing. It directs use of property owner and tenant agreements to address split-incentive challenges. It directs quarterly reporting starting in 2020 on remediation costs and needs in the communities and on pre- and post- pilot implementation bill impacts, and annual reporting on progress of the pilots more generally."

strategies to ensure intended customers may benefit. MCE further recommends the Commission collaborate with the California Energy Efficiency Coordinating Committee to conduct additional and targeted outreach to equity stakeholders for these activities. One of the key principles of environmental justice is "self-determination"[41] and the Commission can benefit from the expertise of those who stand to be directly impacted. MCE also notes the need to include a discussion of the required Equity segment metrics. Given the number of factual uncertainties related to potential implementation of the Staff Proposal, the Commission needs metrics specifically designed to evaluate the related impacts, successes, and areas for improvement.

8. What other options should the Commission examine for promoting electrification through the staff proposal, beyond redirecting incentives from gas measures?

The Commission should examine targeted pilot projects and programs in ESJ communities and communities that face significant barriers to electrification. These pilots must include meaningful community engagement, technical assistance to participants,[42] specific resources to support overcoming the varied barriers to electrification, consideration of protections for renters at greater risk of displacement from electrification investments, and NEBs metrics.[43] MCE supports a regional pilots to ensure the CPUC may serve the diverse needs of different geographic regions, "There are no two regions in California that experience energy the

[41] First National People of Color Environmental Leadership Summit, The Principles of Environmental Justice (1991), available at: http://lvejo.org/wp-content/uploads/2015/04/ej-jemez-principles.pdf (Principle 5: "Environmental Justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.").
[42] *See e.g.* "Community Energy Navigator" role in D.18-12-015 at 80-85 ("We recognize that the CEN component will be key to the success of the pilot and we direct all pilot administrators and the third-party PA/PI to offer this service in all pilot communities.").
[43] Gridworks, California's Gas System in Transition: Equitable, Affordable, Decarbonized and Smaller (2019), available at: https://gridworks.org/wp-content/uploads/2019/09/GW_Calif-Gas-System-report-1.pdf at 3.

same way, so our approach to transitioning our energy system needs to create space for local leadership and community-based pilots."[44]

10. How does the transition and timeline to phase out energy efficiency gas incentives align with other related proceedings?

The Commission should review the records, program rules and reporting from several of its related proceedings including, but not limited to:

- Order Instituting Rulemaking to Identify Disadvantaged Communities in the San Joaquin Valley and Analyze Economically Feasible Options to Increase Access to Affordable Energy in those Disadvantaged Communities: R.15-03-010;
- Order Instituting Rulemaking to Establish a Framework and Processes for Assessing the Affordability of Utility Service: R.18-07-006;
- The Mobilehome Park Utility Upgrade Program ("MHP") and Mobilehome Utility Conversion Program ("MHP-UCP"): R.11-02-018, R.18-04-018;
- Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Safe and Reliable Gas Systems in California and perform Long-Term Gas System Planning: R.20-01-007;
- Self-Generation Incentive Program[45] ("SGIP");
- Technology and Equipment for Clean Heating[46] ("TECH');

The Commission should conduct inter-agency coordination with the California Air Resources Board ("CARB") and the California Energy Commission ("CEC") on the following studies, proceedings, initiatives and programs:

[44] BEEP, Community Priorities for Equitable Building Decarbonization Report at 1.
[45] D.22-04-036 (establishing heat pump water heater program requirements).
[46] https://energy-solution.com/tech/.

- CARB: Equitable Building Decarbonization Study,[47] Draft 2022 Scoping Plan.[48]
- CEC: Equitable Building Decarbonization Program,[49] Building Decarbonization and Electric Vehicle Charging One Stop Shop,[50] the Building Initiative for Low-Emissions Development Program ("BUILD").[51]

11. How does the transition to phase out energy efficiency gas incentives align with the nine objectives of the CPUC's Environmental and Social Justice Action Plan?

MCE offers recommendations to the Staff Proposal to advance ESJ Action Plan goals 1, 2, 5, and 9. As stated throughout these comments, the Staff Proposal requires additional direction to ensure meaningful progress on ESJ Action Plan goals and to avoid potential unintended harmful consequences to ESJ customers and communities.

Goal 1: Consistently Integrate Equity and Access Considerations Throughout CPUC Regulatory Activities.

MCE recommends the Staff Proposal:

- Fully analyze and document potential equity impacts and Equity segment impacts.
- Develop specific policy recommendations and guidance to mitigate any potential negative impacts and maximize potential equity benefits.

[47] https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/research-solicitations/equitable-building-decarb-approaches.
[48] Appendix F – Building Decarbonization (2022), available at: https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp-appendix-f-building-decarbonization.pdf.
[49] Approved in the FY 2022-2023 California State Budget. LAO, Clean Energy Package (2022), available at: https://lao.ca.gov/Publications/Report/4554.
[50] https://www.energy.ca.gov/event/workshop/2022-08/staff-workshop-building-decarbonization-and-electric-vehicle-charging.
[51] https://www.energy.ca.gov/programs-and-topics/programs/building-initiative-low-emissions-development-program.

Goal 2: Increase Investment in Clean Energy Resources to Benefit ESJ Communities, Especially to Improve Local Air Quality and Public Health.

MCE recommends the Staff Proposal:

- Conduct additional workshops with an ESJ focus to identify any barriers and generate policy recommendations to ensure beneficial investments in ESJ communities.
- Document the implementation paths to overcoming potential barriers and serving ESJ and Equity segment customers.
- Develop specific equity protections or program rule changes to ensure ESJ and Equity segment customers may meaningfully benefit from EE programs.

Goal 5: Enhance Outreach and Public Participation Opportunities for ESJ Communities to Meaningfully Participate in the CPUC's Decision-Making Process and Benefit from CPUC Programs.

MCE recommends the Staff Proposal:

- Conduct additional outreach with ESJ and equity stakeholders on the Staff Proposal including, but not limited to ESJ and equity rooted community-based organizations.
- Provide public opportunities for ESJ and equity stakeholders, including those who may not be a party to this proceeding, to offer feedback and recommendations.
- Discuss ESJ decarbonization and electrification education and technical assistance guidance for EE programs.

Goal 9: Monitor the CPUC's Environmental and Social Justice Efforts to Evaluate How they are Achieving their Objectives.

MCE recommends the Staff Proposal:

- Include guidance on updated decarbonization metrics specifically designed to evaluate the related equity impacts, successes, and areas for improvement. These metrics include affordability impacts, health, safety and comfort and additional NEBs.

4. Conclusion

MCE thanks Energy Division staff and the Sierra Club for the bold Staff Proposal. MCE additionally thanks Commissioner Shiroma, Administrative Law Judge Fitch and Administrative Law Judge Kao for the opportunity to share its perspectives and recommendations. MCE looks forward to working with the Commission, parties, and other stakeholders to advance an actionable and equitable phase out of EE natural gas incentives.

Respectfully submitted,

By: */s/ Mad Stano*_____

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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Continue Electric Integrated Resource Planning and Related Procurement Processes.	R.20-05-003

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON SECTION 2 OF THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENTS ON POTENTIAL NEAR-TERM ACTIONS TO ENCOURAGE ADDITIONAL PROCUREMENT

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September 26, 2022

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SUMMARY OF RECOMMENDATIONS

CalCCA takes no position on the Ruling's proposal on reframing of the "baseline" resources. However, the following alternative solutions are provided in response to the Ruling Section 2.1, Question 3, to ensure projects remain viable and additional procurement remains feasible despite challenging market conditions and project delays:

- The factors to be considered by the Commission in assessing penalties should be clarified and the potential for penalty waivers strengthened to provide greater certainty to market participants;
- The Commission should clarify requirements concerning MTR backstop procurement and the calculation of net CONE for MTR penalties;
- The Commission should clarify that LSEs can trade compliance obligations to encourage LSEs to collectively meet procurement mandates; and
- Projects without a CAISO deliverability study should temporarily count toward MTR requirements under certain conditions.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Electric Integrated Resource Planning and Related Procurement Processes.	R.20-05-003

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON SECTION 2 OF THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENTS ON POTENTIAL NEAR-TERM ACTIONS TO ENCOURAGE ADDITIONAL PROCUREMENT

The California Community Choice Association[1] (CalCCA) submits these Comments in response to the Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-Term Actions to Encourage Additional Procurement (Ruling), issued on September 8, 2022. Specifically, the Comments respond to Section 2 of the Ruling seeking input on near-term actions the California Public Utilities Commission (Commission) can take to encourage immediate additional electricity procurement between now and 2026 or beyond, and to ensure that the requirements of Decision (D.) 19-11-016[2] and D.21-06-035[3] are met.

I. INTRODUCTION

A confluence of events – the COVID pandemic, climate change, governmental investigations and geopolitical conflicts, regulatory and statutory changes, as well as significant supply chain

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[1] California Community Choice Association represents the interests of 23 community choice electricity providers in California: Apple Valley Choice Energy, Central Coast Community Energy, Clean Energy Alliance, Clean Power Alliance, CleanPowerSF, Desert Community Energy, East Bay Community Energy, Lancaster Choice Energy, Marin Clean Energy, Orange County Power Authority, Peninsula Clean Energy, Pico Rivera Innovative Municipal Energy, Pioneer Community Energy, Pomona Choice Energy, Rancho Mirage Energy Authority, Redwood Coast Energy Authority, San Diego Community Power, San Jacinto Power, San José Clean Energy, Santa Barbara Clean Energy, Silicon Valley Clean Energy, Sonoma Clean Power, and Valley Clean Energy.

[2] D.19-11-016, *Decision Requiring Electric System Reliability Procurement for 2021-2023,* Rulemaking (R.) 16-02-007 (Nov. 7, 2019) (2019 Order).

[3] D.21-06-035, *Decision Requiring Procurement to Address Mid-Term Reliability (2023-2026),* R.20-05-003 (June 24, 2021) (MTR Order).

delays – all impact the ability of load serving entities (LSEs), including community choice aggregators (CCAs), to procure sufficient resources to comply with Integrated Resource Planning (IRP) procurement mandates. As noted by the Ruling, LSEs are contracting for resources to comply with the 2019 Order and the MTR Order, but various factors are impacting and delaying actual planned online dates of resources.

Compounding the resulting market constraints, increased prices, and demands of suppliers to renegotiate contractual terms and/or terminate contracts based on claims of force majeure, are potential penalties faced by LSEs for failure to meet MTR compliance obligations. In addition, LSEs face potential additional penalties for failure to meet both resource adequacy (RA) and renewables portfolio standard (RPS) obligations given the project delays. The looming penalties impact the market, and place LSEs in tenuous negotiating positions with suppliers aware of the penalty potential.

CalCCA appreciates the Ruling's attempts to address the difficulties faced by LSEs in the near-term regarding project delays, as well as the reliability needs of the system overall. CalCCA takes no position on the Ruling proposal to reframe the "baseline" resources. However, the following alternative solutions are provided in response to the Ruling Section 2.1, Question 3 to ensure projects remain viable and additional procurement remains feasible despite the challenging market conditions and resulting project delays:

- The factors to be considered by the Commission in assessing penalties should be clarified and the potential for penalty waivers strengthened to provide greater certainty to market participants;
- The Commission should clarify requirements concerning MTR backstop procurement and the calculation of net cost of new entry (net CONE) for MTR penalties;
- The Commission should clarify that LSEs can trade compliance obligations to encourage LSEs to collectively meet procurement mandates; and

- Projects without a California Independent System Operator Corporation (CAISO) deliverability study should temporarily count toward MTR requirements under certain conditions.

II. RESPONSES TO QUESTIONS IN SECTION 2.1 OF THE RULING

1. For LSEs: Identify resources and their capacity amounts that were listed in the D.19-11-016 baseline but that are not yet online.

Not applicable to CalCCA.

2. Describe why you support or oppose the proposal described in Section 2 above to modify the approach to "baseline" for purposes of procurement in compliance with D.19-11-016 and D.21-06-035 requirements to be based on actual online date for new resources. If you prefer a different change to D.19-11-016 and/or D.21-06-035 baseline requirements, describe it in detail.

CalCCA takes no position on the proposal described in Section 2 to reframe the "baseline" resources.

3. Are there other modifications to prior decisions that the Commission should make to facilitate continued procurement by LSEs subject to the IRP process and the requirements of D.19-11-016 and D.21-06-035? If so, describe your proposal in detail.

See Section III., below.

III. PREEMPTIVE SOLUTIONS WILL ENSURE PROJECTS REMAIN VIABLE AND ADDITIONAL PROCUREMENT REMAINS FEASIBLE DESPITE CHALLENGING MARKET CONDITIONS AND PROJECT DELAYS

Preemptive solutions can be adopted by the Commission to address the current market constraints and potential project delays, and to ensure projects in the pipeline remain viable and additional procurement of resources continues. As set forth below, CalCCA proposes that the Commission institute the following in the near term: (1) clarify the factors to assess penalties and strengthen the potential for waivers under the MTR Order for failure to bring projects online; (2) provide clarity on backstop procurement and the calculation of net CONE for MTR penalties; (3)

clarify that LSEs can trade compliance obligations; and (4) allow projects without a CAISO deliverability study to temporarily count toward MTR Requirements under certain conditions.

A. The Factors to be Considered in Assessing Penalties Should be Clarified and the Potential for Penalty Waivers Strengthened to Provide Greater Certainty to Market Participants

The Commission should provide greater certainty and clarification around the potential for penalties and penalty waivers in light of the current difficult market conditions and supply chain constraints. The MTR Order provides for Commission assessment of penalties and potential waivers based on its Resolution M-4846 and consideration of "good faith efforts."[4] However, the identification by the Commission of additional indicators regarding its assessment of penalties and its willingness to waive penalties due to the current exigent circumstances can "calm" the market and level the playing field among suppliers and LSEs. Furthermore, the Commission should consider the potential exposure of LSEs to multiple layers of penalties (in IRP, RA, and RPS) for project delays.

1. The Uncertainties Regarding MTR Penalties and Waivers Impact Market Transactions

The ambiguities built into the MTR Order regarding the potential assessment of penalties and the availability of penalty waivers for missing MTR compliance obligations can impact the negotiating positions of suppliers and LSEs in contracting for resources. Penalty and waiver potential can also impact post-contracting demands by suppliers for renegotiation of contract terms (both pricing and delivery dates) and/or declarations of force majeure for failure to perform under power supply contracts due to market conditions and supply chain delays. Greater certainty, and strengthening the potential for penalty waivers, will therefore "calm" the market and allow market participants to negotiate with additional information regarding potential project costs.

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[4] *Id.*, Conclusion of Law (COL) 27 at 93.

The MTR Order provides that assessment of penalties for non-compliance will "follow the process outlined in Resolution M-4846 and may take into consideration good faith efforts to procure the required capacity."[5] Penalties accrue at the time of backstop procurement (first backstop may occur on December 1, 2023).[6] Penalties will be set at "Net-Cost of New Entry (net Cone)" "included in the Avoided Cost Calculator," assessed once after the June 1, 2025 compliance date for non-compliance with procurement and reporting deadlines throughout 2023-2025.[7]

Resolution M-4846 includes the Commission Enforcement Policy and a Penalty Assessment Methodology.[8] The Enforcement Policy outlines the tools available to Commission Staff to enforce Commission rules and requirements, while maintaining due process for regulated entities. The Enforcement Policy emphasizes ensuring compliance and providing a meaningful deterrent to violations through progressive enforcement and adequate remedies. Remedies include "refunding or depriving the economic benefit gained by noncompliance," along with penalties "higher than the amounts required to be refunded or deprived."[9] Factors to be considered in the Penalty Assessment Methodology include: (a) severity of the offense (including physical harm or harm to the integrity of the regulatory process); (b) conduct of the utility (including previous violations); (c) financial resources of the regulated entity; (d) totality of the circumstances; and (e) the role of precedent.[10] The conduct of the regulated entity includes several factors, including actions taken to detect, prevent, disclose to Commission staff, and rectify a violation.[11] Finally, the totality of the circumstances will be considered, including the need to deter further unlawful conduct, consideration

5 *Id.*, COL 27, at 93.
6 *Id.* at 74.
7 *Id.*, COL 26, at 93.
8 Resolution M-4846 (Nov. 5, 2020).
9 *Id.*, Attachment at 3, Section C, and 4, Section E.
10 *Id.,* Attachment, Section II.C.2. at 3.
11 *Id,* at Appendix I, Section II. at 17-18.

of facts that mitigate or exacerbate the degree of wrongdoing, and consideration of any economic benefit to the regulated entity (and setting the penalty at least 10 percent higher than the benefit amount).[12]

Resolution M-4846 provides multiple factors for the Commission's enforcement and assessment of penalties for non-compliance with MTR obligations. The Commission, however, should further clarify the factors that it will consider, and the potential for penalty waivers, in the context of the current situation. The Ruling provides further clues, but does not go far enough, to provide adequate certainty to market participants:

LSEs should also note that, in the event of a failure to meet one or more the required procurement targets, the Commission will carefully evaluate whether an LSE continued to procure to help meet system reliability and GHG needs, even if the procurement is slightly delayed or otherwise does not meet the letter of the decisions' requirements.[13]

As a result of the ambiguity surrounding potential penalties for delayed projects, suppliers understand the difficult negotiating position of LSEs. Greater clarity in these difficult market conditions of how the Commission will react to such project delays in terms of penalties and waivers may provide the certainty that the market needs to place both suppliers and LSEs on a level playing field.

2. In Considering the Totality of the Circumstances in Assessing MTR Penalties or Waivers, the Commission Should Recognize the Impact on LSEs of Potential Multiple Layers of Penalties Under the IRP, RA and RPS Regulatory Programs

In considering the totality of the circumstances in assessing MTR penalties or waivers, the Commission should recognize that LSEs procuring under the IRP program may also be procuring the

[12] *Id.* at Appendix I, Section IV. at 19-21.
[13] Ruling at 9.

same resources for purposes of RA and RPS compliance. While IRP, as well as ongoing monthly and annual RA compliance, are likely more pressing than RPS compliance as the current RPS compliance period extends through 2024 (and penalties will not be assessed until then), the potential for multiple layers of penalties in IRP, RA and RPS also impacts market conditions and the position of LSEs in their attempts to bring projects online.

As stated above, an LSE with delayed projects could face potential penalties under the MTR Order. However, RA penalties also loom over delayed projects. LSEs are subject to monthly and annual requirements to procure System, Flexible and Local RA. If an LSE cures a deficiency within five business days of a notification from Energy Division, it could face penalties of $5,000-$20,000 per incident depending on the MW size of the deficiency and the LSE's number of deficiencies in the same calendar year. For LSEs failing to cure the deficiency within five business days, an LSE must pay:

- $8.88/kW-month for system RA deficiencies between May-October, and $4.44/kW-month for system RA deficiencies between November and April (with points accruing for multiple violations resulting in potential higher penalties of up to $26.24/kW-month);
- $4.25/kW-month for local RA deficiencies; and
- $3.33/kW-month for flexible RA deficiencies.

In addition, penalty waivers are only available for Local RA if the LSE can demonstrate that it made every commercially reasonable effort to contract for RA resources. Deficient LSEs are still responsible for backstop procurement costs even if they receive a waiver of penalties. In addition to penalties assessed by the Commission, LSEs may also be subject to CAISO backstop charges, at a likely charge at the soft-offer cap of $6.31/kW-month.

The same LSE can also be subject to RPS penalties at the end of the current compliance period (2021-2024) if it fails to meet its RPS compliance requirements as a result of project delays.

Penalties will be assessed at a rate of $50 per renewable energy credit out of compliance (subject to cap). Waivers are available under certain circumstances, including permitting delays, interconnection issues, and insufficient supply.[14] For example, absent a penalty waiver, if an LSE needs to procure 10,000 MWh of RPS energy and only procures 5,000 MWh, the penalty would equal $250,000.[15]

Given the multiple penalties that can be assessed from delayed procurement of resources, LSEs face potentially high exposure and costs despite their best efforts to bring resources online. While considering the "totality of the circumstances" in assessing MTR penalties and waivers, the Commission should therefore consider the potential "layering" of penalties due to the multiple regulatory programs in IRP, RA and RPS.

3. The Commission Should Provide Clarity on Backstop Procurement

The Commission should also clarify whether in the event of an order to an IOU to conduct backstop procurement for an LSE deficient on its MTR procurement, such backstop will be required for a full ten-year contract term. In the alternative, will the Commission require backstop only until an LSE can remedy a deficiency? Clarification on this issue will be helpful for LSEs as they navigate through project delays.

4. The Commission Should Clarify How Net CONE Is Calculated for Purposes of MTR Penalties Given Modifications to the Avoid Cost Calculator

The Commission should also clarify how net CONE will be calculated in the event the Commission assesses penalties under the MTR Order. The MTR Order sets the penalty at the level

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[14] *See* D.14-12-023, *Decision Setting Enforcement Rules for the Renewables Portfolio Standard Program, Implementing Assembly Bill 2187, and Denying Petitions for Modification of Decision 12-06-038,* R.11-05-005 (Dec. 4, 2014) at 22 (regarding RPS waiver considerations).

[15] *See* Commission "Frequently Asked Questions" regarding RPS Compliance (June 2020), located at https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/rps-compliance-faq_2020.pdf

of "net CONE," based on the cost of a new battery storage facility.[16] The penalty will be set "at the level of net CONE included in the Avoided Cost Calculator (ACC), after assessing compliance after the June 1, 2025 compliance filing date."[17] The ACC is referred to as the Commission's ACC "for demand-side resources, which was last updated in D.20-04-010 as part of the integrated distributed energy resource (IDER) proceeding."[18] However, the IDER proceeding has changed the calculation of ACC to use "Real Economic Carrying Charge" (RECC) (including the lifetime costs and revenues of the asset) instead of net CONE (which only considers the first year costs and revenues of a storage asset). The Commission should clarify what level and vintage of net CONE it will use to calculate penalties in 2025.

B. The Commission Should Clarify that LSEs can Trade Compliance Obligations

The Commission can further maximize program flexibility and LSE IRP compliance by clarifying that LSE *procurement obligations* under both the 2019 Order and the MTR Order are "tradable." Trading *excess incremental resources* above an LSEs' procurement requirement is allowed under both D.19-11-016 and MTR.[19] However, whether LSEs can trade *procurement obligations* has not been clarified and can provide another tool for LSEs to balance their positions while collectively still meeting the mandated procurement requirements.

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16 MTR Order at 74.

17 *Id.*, COL 26 at 93.

18 *Id.* at 74.

19 Staff states in "Frequently Asked Questions" regarding D.19-11-016 that the decision "is silent on whether LSEs must directly contract for the resources they procure to meet their incremental resource procurement obligations. Consequently, staff believes that LSEs can use contracts for resources procured from other LSEs to meet their procurement obligations, provided the underlying resource meets the D.19-11-016 definition of incremental resource (and, of course, provided that the LSE from which the resource was purchased backs the sold portion of the resource out of their own compliance showing." *See* "IRP Procurement Track Frequently Asked Questions," at 1-2, Question 3, located at https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/more-information-on-authorizing-procurement/irp-procurement-track. The Commission also states in the MTR Order that "LSEs will continue to have the ability to transact for excess procurement from another LSE, as long as that procurement has not yet been shown for IRP compliance by the first LSE." MTR Order at 77.

If one LSE develops an eligible resource, it can dedicate any portion or any period of the resource commitment to meet the compliance requirement of another LSE. For example, LSE A has a new resource coming online in 2025 for its own compliance obligation and may only need a two-year bridge to its online date. LSE B may have procured resources in excess of its allocated share for 2023-24. Rather than requiring backstop procurement for LSE A who is short for 2023-24, LSE A can transact the 2023-24 share of its procurement obligation to LSE B. In another example, LSE A may invest in a project that exceeds the share of incremental procurement allocated to LSE A. LSE A should be permitted to dedicate any additional "compliance rights" to LSE B which chooses not to invest in a new resource (or who faces project delays), regardless of whether the capacity is actually sold to LSE B.

By encouraging LSEs to work together in this way to trade compliance obligations when some LSEs are long and some LSEs are facing shortages due to project delays, the Commission can ensure the collective obligations are met, and that LSEs avoid penalties to the extent possible.

C. Projects Without a CAISO Deliverability Study Should Temporarily Count Toward MTR Requirements

The Commission should allow projects that have not yet been studied for deliverability, or that are waiting for transmission or interconnection upgrades to be completed to become fully deliverable, to count towards an LSEs' MTR obligation on a temporary basis. The MTR procurement order requires LSEs to procure fully deliverable projects.[20] The CAISO determines projects' deliverability status through deliverability studies within the interconnection study process.

[20] IRP and RA procurement orders require LSEs to meet their obligations with fully deliverable resources. Resources obtain deliverability status through a study performed within the CAISO interconnection study process. If the study finds that a project is not fully deliverable on the existing transmission system and interconnection facilities, transmission system upgrades and/or network upgrades must take place to make the project deliverable. Such upgrades may take many years, and for CCAs often depend on an IOUs' timing and ability to make those upgrades. CCAs have identified delays in online dates due to both interconnection queue delays as well as IOU interconnection and transmission upgrade delays.

The CAISO interconnection queue has, however, received an unprecedented number of project requests, creating an interconnection backlog delaying interconnection of projects.[21] The severely backlogged CAISO interconnection study process can take many years. Projects not already in the interconnection queue in the current study cluster will not progress through the queue in time to obtain full deliverability by the first MTR compliance year. These timelines, in conjunction with the other drivers of project delays, give projects already in the queue without contracts the ability to inflate prices because they know LSEs need them to meet the MTR Order.

To expand the pool of resources eligible to meet MTR procurement obligations, projects that have not yet been studied for deliverability should be counted towards the MTR Order on a temporary basis. LSEs that use such projects to meet their MTR compliance obligations will: (1) still be required to meet their RA obligations with deliverable resources; and (2) need to commit to having their resources go through the deliverability study process and obtain deliverability. If, after the project goes through the deliverability study process, the study finds the project is not fully deliverable, LSEs will need to commit to having the network upgrades completed to make the project fully deliverable, or to procuring different resources with sufficient deliverable capacity to meet their MTR compliance obligation. This ensures the LSE continues to meet its RA requirements for immediate grid reliability needs while in the process of bringing online new deliverable resources.

There is precedent for allowing resources that are not fully deliverable to count towards previous procurement orders. In D.21-12-015 within the Emergency Reliability proceeding (R.20-

[21] Overall, the project requests in the CAISO interconnection queue total approximately 605 projects and 236,225 MW, exceeding the 2019 Order and MTR Order procurement requirements by 15 times. *See* CAISO Interconnection Process Enhancements 2021, Phase 2 – Longer Term Enhancements Straw Proposal (June 7, 2022) at 4-5; CAISO Supercluster Interconnection Procedures Final Proposal (June 14, 2021) at 6.

11-003), the Commission allowed energy storage projects that are not fully deliverable to fulfill compliance obligations so long as they provide peak and net peak grid reliability benefits.[22] The Commission recognized the need for resources to come online in an expedited manner to avoid repetition of the reliability challenges faced in the summer of 2020. California is currently facing the culmination of exigent circumstances resulting in supply chain issues and project delays necessitating the ability to expedite project online dates where possible. To expedite procurement, the Commission should therefore defer the requirement for MTR projects to be fully deliverable.

IV. CONCLUSION

For all the foregoing reasons, CalCCA respectfully requests consideration of the Comments herein and looks forward to an ongoing dialogue with the Commission and stakeholders.

Respectfully submitted,

Evelyn Kahl,
General Counsel and Director of Policy
CALIFORNIA COMMUNITY CHOICE ASSOCIATION

September 26, 2022

[22] D.21-12-015, *Phase 2 Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Take Actions to Prepare for Potential Extreme Weather in the Summers of 2022 and 2023,* R.20-11-003 (Dec. 2, 2021), COL 60 at 159.

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Additional submitted attachment is included below.

STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	
2022 Load Management Rulemaking	Docket No. 21-OIR-03

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE PROPOSED AMENDMENTS TO THE LOAD MANAGEMENT STANDARDS, CALIFORNIA CODE OF REGULATIONS, TITLE 20 (NOTICE OF THIRD 15-DAY PUBLIC COMMENT PERIOD)

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September 27, 2022

STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	
2022 Load Management Rulemaking	Docket No. 21-OIR-03

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE PROPOSED AMENDMENTS TO THE LOAD MANAGEMENT STANDARDS, CALIFORNIA CODE OF REGULATIONS, TITLE 20 (NOTICE OF THIRD 15-DAY PUBLIC COMMENT PERIOD)

The California Community Choice Association[1] (CalCCA) submit these Comments pursuant to the *Notice of Proposed Action (NOPA) With Proposed Amendments to the Load Management Standards (LMS), California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 5*, dated December 24, 2021, and *Notice of Third 15-Day Public Period* (Third Notice), dated September 12, 2022.

I. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

CalCCA appreciates the continued efforts of the California Energy Commission (Commission) to address stakeholder concerns with the proposed load management standards (LMS). Revisions to the LMS Regulations in the Third Notice that impact CCAs include: (1) limiting the application of the regulations to "Large CCAs"; (2) allowing CCAs to first seek

[1] California Community Choice Association represents the interests of 23 community choice electricity providers in California: Apple Valley Choice Energy, Central Coast Community Energy, Clean Energy Alliance, Clean Power Alliance, CleanPowerSF, Desert Community Energy, East Bay Community Energy, Lancaster Choice Energy, Marin Clean Energy, Orange County Power Authority, Peninsula Clean Energy, Pico Rivera Innovative Municipal Energy, Pioneer Community Energy, Pomona Choice Energy, Rancho Mirage Energy Authority, Redwood Coast Energy Authority, San Diego Community Power, San Jacinto Power, San José Clean Energy, Santa Barbara Clean Energy, Silicon Valley Clean Energy, Sonoma Clean Power, and Valley Clean Energy.

approval of their compliance plans, rates and programs from their rate-approving bodies; (3) continuing to require the development and request for approval from CCA rate-approving bodies of the prescribed marginal cost rates, despite allowing CCAs to seek approval from the Commission of rates *or* programs enabling automated response to marginal cost signals; and (4) providing additional time for LMS compliance for CCAs.

The revised regulations, as well as all prior revisions, fail to remedy the jurisdictional overreach by the Commission *mandating* that CCAs comply with the LMS. As set forth in CalCCA's prior comments, the core jurisdictional problem is clear – the Commission has no explicit or implicit authority under the LMS implementing statute, California Public Resources Code section 25403.5, or any other statute, to require CCA participation in the LMS.[2] In addition, the LMS, even as revised, infringes on CCA rate autonomy.[3] Given these issues, the Commission should either remove CCAs from the application of the LMS regulations, or make CCA participation voluntary.

II. THE PROPOSED CHANGES DO NOT REMEDY THE COMMISSION'S JURISDICTIONAL OVERREACH AND INFRINGE ON CCA RATE AUTONOMY

This third round of revisions to the proposed LMS regulations continue to fail to remedy the Commission's jurisdictional overreach and infringement on CCA rate autonomy. As set forth below, the proposed changes: (1) fail to remedy the jurisdictional overreach by restricting

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[2] *See Comments of the California Community Choice Association to the California Energy Commission on the Draft Staff Report,* Docket 19-OIR-01 (June 4, 2021); *California Community Choice Association's Comments on the Proposed Amendments to the Load Management Standards Contained in the California Code of Regulations, Title 20,* Docket 21-OIR-03 (Feb. 7, 2022); *California Community Choice Association's Comments on the Proposed Revisions to the Load Management Standards,* Docket 21-OIR-03 (Apr. 20, 2022); *California Community Choice Association's Comments on the Proposed Revisions to the Load Management Standards (Notice of Second 15-Day Public Comment Period),* Docket 21-OIR-03 (July 21, 2022).

[3] *See id.*

the application of the regulations to "Large CCAs"; (2) do not alter the Commission's ultimate enforcement authority by allowing CCAs to first seek approval of their compliance plans, or rates and programs, from their rate-approving bodies; and (3) continue to infringe on CCA rate autonomy by requiring the *development of and application to CCA rate-approving bodies for* a prescriptive marginal cost rate, even if the CCA ultimately seeks from the Commission approval of a program instead of a rate.

A. Restricting the Application of the Regulations to "Large CCAs" Does Not Remedy the Commission's Jurisdictional Overreach

Limiting the application of the regulations to "Large CCAs," or CCAs that provide in excess of 700 gigawatt-hours of electricity to customers in any calendar year, does not remedy the Commission's jurisdictional overreach or infringement on CCA rate autonomy. In fact, most CCAs will still fall within the application of the LMS regulations, despite the Commission's lack of statutory jurisdiction to require CCA participation. As a result, the revision to restrict the application of the LMS to "Large CCAs" fails to remedy the overreach by the Commission.

B. The Commission Retains Ultimate Enforcement Authority Even Though the Revised Regulations Allow CCAs to Seek Initial Approval from Their Rate-Approving Bodies of Compliance Plan and Rates/Programs

Despite the revision of the "compliance path" to allow CCAs to seek approval of their plans, rates and programs from their rate-approving body prior to seeking approval from the Commission, the Commission's ultimate enforcement authority over all parts of the LMS regulations remains intact in section 1623.1(d). Therefore, even if a CCA rate-approving body approves a plan, rate or program, the Commission retains authority to require changes, and the Commission's Executive Director retains the ability to file a complaint for non-compliance with

the Commission, or to seek injunctive relief.[4] In all cases, the Commission oversteps its jurisdictional authority and infringes upon the rate autonomy of CCA rate-approving bodies.

C. The Revised Regulations Continue to Infringe on CCA Rate Autonomy by Requiring the Development and Application to CCA Rate-Approving Bodies of a Prescriptive Marginal Cost Rate

The revised LMS regulations continue to infringe on CCA rate autonomy as set forth in CalCCA's previous comments. The revisions will allow CCAs to offer either marginal cost rates *or* programs to achieve the goals of the LMS.[5] However, section 1623.1(b)(2) still mandates that:

> Within . . . twenty-seven (27) months of the effective date of these regulations each Large CCA, *shall apply* to its rate-approving body for approval of at least one marginal cost-based rate, that meets the requirements of Subsection 1623.1(b)(1).[6]

Therefore, CCAs can now *offer* an approved rate *or* program to its customers within fifty-one (51) months of the regulations. However, Large CCAs must still *develop and apply for* approval from its rate approving body of the prescriptive marginal cost-based rate described in section 1623.1(b)(1). Therefore, the revised regulations continue to infringe on the rate authority of CCAs by requiring CCAs to develop and request approval for a rate design prescribed by the Commission.

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[4] Third Revised LMS Regulations, § 1623.1(d).

[5] Section 1621 requires entities subject to the LMS offer rates *or programs.* In addition, section 1623.1(a)(1)(A) requires a plan to be submitted within one year of the effective date of the regulations, approved by the CCA rate approving body, and then submitted to the Commission for approval. The plan shall "evaluate cost effectiveness, equity, technological feasibility, benefits to the grid, and benefits to customers of marginal cost-based rates for each customer class." If, after consideration of these factors, a CCA's plan does not propose development of marginal cost-based rates, section 1623.1(a)(1)(B) requires the plan to "propose *programs* that enable automated response to marginal cost signal(s) for each customer class and evaluate them based on their cost-effectiveness, equity, technological feasibility, benefits to the grid, and benefits to customers." (Emphasis supplied)

[6] *Id.,* § 1623.1(b)(2) (emphasis supplied).

III. LENGTHENING THE TIME FOR CCA COMPLIANCE PROVIDES FLEXIBILITY IN THE EVENT A CCA VOLUNTARILY PARTICIPATES IN THE LMS

While for the reasons set forth above and in CalCCA's previous comments the Commission cannot require CCA participation in the LMS program, the revisions providing additional time for CCAs to comply will provide flexibility in the event a CCA decides to voluntarily participate. As explained in prior CalCCA comments, CCAs cannot implement an hourly locational marginal cost-based rate until the IOUs develop the data and billing systems to incorporate the CCA rate. Therefore, delaying CCA participation until after the IOUs develop their own rates and programs will allow the appropriate systems to be in place to ensure that CCAs can actually implement the LMS provisions *if they choose to do so*.

IV. CONCLUSION

For the reasons set forth herein and in CalCCA's previous comments in this proceeding, CalCCA requests that CCAs be removed from the application of the LMS regulations due to the Commission's lack of jurisdiction to mandate CCA participation. In the alternative, the Commission should make CCA participation voluntary. CalCCA appreciates Commission Staff's efforts in Docket 21-OIR-03 and looks forward to further collaboration on this topic.

Respectfully submitted,

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CALIFORNIA COMMUNITY CHOICE ASSOCIATION

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OCTOBER FILINGS

California Community Choice Association

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1. GENERAL COMMENTS: Please provide a summary of your organization's comments on the Extended Day-Ahead Market revised straw proposal:

The California Community Choice Association (CalCCA) appreciates the extensive work by the California Independent System Operator Corporation (CAISO) and stakeholders on the Extended Day-Ahead Market (EDAM) Revised Straw Proposal and the opportunity to comment on the proposal. In summary:

- CalCCA remains concerned about the impacts the imbalance reserve product proposed in the Day-Ahead Market Enhancements (DAME) initiative will have on the California resource adequacy (RA) program;
- CalCCA supports a voluntary EDAM participation model in which all resources within the EDAM balancing authority area (BAA) participate in the market through economic bids or self-schedules;
- CalCCA generally supports EDAM transfers receiving equal priority to load but asks for further consideration around the situation where an economic import into CAISO supports an EDAM transfer out of CAISO;
- CalCCA does not oppose the proposal to give BAA operators the discretion to assign lower priority to EDAM transfers into a BAA that failed the day-ahead resource sufficiency evaluation (RSE) so long as it is reserved for emergency situations and so long as EDAM BAAs and/or their load serving entities (LSEs) have opportunities to cure the RSE deficiency first;
- CalCCA generally supports the concept of transmission "buckets" as a way to frame the discussion around the treatment of different types of transmission;
- CalCCA supports the CAISO's proposal to automatically make bucket 2 transmission not scheduled by 10:00 a.m. available to the EDAM for optimization through the market;
- The CAISO should not make costs associated with new transmission build eligible for transmission revenue recovery;
- CalCCA supports the RSE framework that would conduct the binding EDAM RSE at 10:00 a.m. prior to running the day-ahead market with the ability to conduct advisory runs prior to the binding run;
- CalCCA supports the proposal to not include transmission constraints within the EDAM RSE and monitor the results of the EDAM RSE at the onset of EDAM;
- CalCCA supports the ability to count WSPP Schedule-C contracts and import bids at the CAISO BAA border in the RSE;
- The curing process to resolve an RSE shortfall in the CAISO BAA requires further development given the BAA is not the LSE and multiple LSEs are contributing towards meeting the resource sufficiency evaluation;

- CalCCA supports including BAAs that pass the day-ahead RSE or cure a day-ahead RSE insufficiency by the short-term unit commitment (STUC) horizon in the pooled Western Energy Imbalance Market (WEIM) RSE;
- Of the two mechanisms proposed to manage supply in excess of the RSE, CalCCA prefers mechanism two (the net EDAM transfer export limit constraint);
- CalCCA supports the development of system market power mitigation for the CAISO BAA; and

CalCCA supports the resource-specific approach for green-house gas (GHG) accounting in EDAM. Any future modifications to the resource-specific approach for EDAM, or any deviations from the resource-specific approach, will require California Air Resources Board (CARB) acceptance.