

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

Board of Directors Meeting Thursday, March 21, 2019 7:00 P.M.

Charles F. McGlashan Board Room, 1125 Tamalpais Avenue, San Rafael, CA 94901 Mt. Diablo Room, 2300 Clayton Road, Suite 1150, Concord, CA 94920

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CLOSED SESSION

Conference with Legal Counsel – Anticipated Litigation Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2). One case.

Swearing in of New Board Members

- 1. Roll Call/Quorum
- 2. Board Announcements (Discussion)
- 3. Public Open Time (Discussion)
- 4. Report from Chief Executive Officer (Discussion)
- **5.** Consent Calendar (Discussion/Action)
 - C.1 Approval of 10.18.18 Meeting Minutes
 - C.2 Approval of 1.28.19 Special Meeting Minutes
 - C.3 Approved Contracts Update
 - C.4 First Agreement with CLEAResult Consulting, Inc.
- 6. Presentation of Charles F. McGlashan Advocacy Award (Discussion/Action)



Agenda material can be inspected at 1125 Tamalpais Avenue, San Rafael, CA 94901 on the Mission Avenue side of the building and at One Concord Center, 2300 Clayton Road, Concord, CA 94520 at the Clayton Rd. entrance. The meeting facilities are in accessible locations. If you are a person with a disability and require this document in an alternate format (example: Braille, Large Print, Audiotape, CD-ROM), you may request it by using the contact information below. If you require accommodation (example: ASL Interpreter, reader, note taker) to participate in any MCE program, service or activity, you may request an accommodation by calling (415) 464-6032 (voice) or 711 for the California Relay Service or by e-mail at djackson@mceCleanEnergy.org not less than **four work days** in advance of the event.



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- 7. New Board Member Additions to Committees (Discussion/Action)
- 8. Proposed Budgets for Fiscal Year 2019/20 (Discussion/Action)
- **9.** Resolution No. 2019-02 Appointing Chief Operating Officer as Treasurer (Discussion/Action)
- 10. Amendment to MCE Policy 014: Investment Policy (Discussion/Action)
- 11. Resolution No. 2019-01 Regarding LAIF Investments (Discussion/Action)
- **12.** Ordinance 2018-02 Establishing an Alternative Claims Procedure (Discussion/Action)
- 13. Update on MCE Community Activities and Interface (Discussion)
- 14. Board Matters & Staff Matters (Discussion)
- 15. Adjourn



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MCE BOARD MEETING MINUTES Thursday, October 18, 2018 7:00 P.M.

Mt. Diablo Room 2300 Clayton Road, Suite 1150 Concord, CA 94520

Charles F. McGlashan Board Room 1125 Tamalpais Avenue San Rafael, CA 94901

- 1. <u>Roll Call:</u> Director Kate Sears called the regular Board meeting to order at 7:01 P.M. By roll call, an established quorum was met.
- Present: Sloan Bailey, Town of Corte Madera (San Rafael) Edi Birsan City of Concord (San Rafael) Tom Butt, City of Richmond (San Rafael) Rich Carlston, Walnut Creek (Concord) Barbara Coler, Town of Fairfax (San Rafael) Paul Fadelli, City of El Cerrito (San Rafael) Ford Greene, Town of San Anselmo (San Rafael) Kevin Haroff, City of Larkspur (San Rafael) Bob McCaskill, City of Belvedere (San Rafael) Andrew McCullough, City of San Rafael (San Rafael) Teresa Onoda, Alt. Town of Moraga (Concord) P. Rupert Russell, Town of Ross (San Rafael) Alan Schwartzman, City of Benicia (Concord) Kate Sears, Chair, County of Marin (San Rafael) Don Tatzin, City of Lafayette (Concord) Maureen Toms, City of Pinole (Concord) Jon Welner, Town of Tiburon (San Rafael) Ray Withy, City of Sausalito (San Rafael)
- Absent:Denise Athas, City of Novato
Juan Banales, City of Pittsburg
Lisa Blackwell, Town of Danville
Arturo Cruz, City of San Pablo
Federal Glover, County of Contra Costa
Sue Higgins, City of Oakley
Sashi McEntee, City of Mill Valley
Scott Perkins, City of San Ramon
Rob Schroder, City of Martinez
Brad Wagenknecht, County of Napa

Staff &

Others:Jesica Brooks, Board Assistant (San Rafael)
Alex DiGiorgio, Deputy Director of Community Development (Concord)
Kirby Dusel, Resource Planning & RE Programs (Concord)
Sarah Estes-Smith, Director of Internal Operations (San Rafael)
Darlene Jackson, Board Clerk (Concord)
Vicken Kasarjian, Chief Operating Officer (San Rafael)

Elizabeth Kelly, General Counsel (*Concord*) Justine Parmelee, Internal Operations Manager (*Concord*) Lindsay Saxby, Interim Deputy Director of Power Resources (*San Rafael*) Enyo Senyo-Mensah, Internal Operations Associate (*Concord*) Daniel Settlemyer, Regulatory and Policy Assistant (*San Rafael*) Dawn Weisz, Chief Executive Officer (*Concord*)

2. Board Announcements (Discussion)

There were none.

3. Public Open Time (Discussion)

Chair Sears opened the public comment period and there were no speakers.

4. <u>Report from Chief Executive Officer (Discussion)</u>

CEO Dawn Weisz reported the following:

- Ms. Weisz thanked Board members for attending September events which included Central Valley tour, CalCCA Board Retreat in Pacific Grove, Global Climate Action Summit, Supplier Diversity En Banc, MCE Board Retreat in Richmond, and 2018 CAISO Stakeholder Symposium in Sacramento.
- Ms. Weisz provided PCIA and CalCCA updates.
- Ms. Weisz reminded the Board of MCE's upcoming Holiday Party taking place on Friday, December 7, 2018 at the Napa Valley Marriott Hotel. Invitations and a link offering a group rate for Party guests were sent out.

5. <u>Consent Calendar (Discussion/Action)</u>

- C.1 Approval of 7.19.18 Meeting Minutes
- C.2 Approval of 9.28.18 Meeting Minutes
- C.3 Approved Contracts Update
- C.4 Withdrawal of MCE Policy 005
- C.5 Resolution 2018-10 Amending MCE's Conflict of Interest Code
- C.6 Third Agreement with Open Energy Efficiency

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Greene/Birsan) to **approve Consent Calendar**. Motion carried by unanimous vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).

6. <u>Resolution 2018-08 Authorizing Delegation of Authority by Chief Executive Officer</u> (Discussion/Action)

Elizabeth Kelly, General Counsel, introduced this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Tatzin/Patterson) to **adopt Resolution 2018-08 Authorizing Delegation of Authority by CEO**. Motion carried by unanimous roll call vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).

7. <u>Ordinance 2018-02 Establishing an Alternative Claims Procedure</u> (Discussion/Action)

Elizabeth Kelly, General Counsel, introduced this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Greene/McCullough) to waive full reading, read by title only, and introduce for first reading Ordinance 2018-02 of the Board of Directors of MCE Establishing an Alternative Claims Procedure pursuant to Government Code 935. Motion carried by unanimous roll call vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).

8. <u>Resolution 2018-09 Delegating the Authority of Setting Compensation, Tenure,</u> <u>Appointment and Conditions of Employment to the Executive Committee and the</u> <u>Chief Executive Officer (Discussion/Action)</u>

Elizabeth Kelly, General Counsel, introduced this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Birsan/Patterson) to adopt Resolution 2018-09 Delegating Authority of Setting Compensation, Tenure, Appointment and Conditions of Employment to the Executive Committee and the Chief Executive Officer. Motion carried by unanimous roll call vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).

9. <u>Resolution 2018-11 Affirming MCE's Commitment to Complying with the Land Use</u> <u>Authority of its Member Communities (Discussion/Action)</u>

Elizabeth Kelly, General Counsel, introduced this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Trotter/Tatzin) to **approve Resolution 2018-11 Affirming MCE's Commitment to Complying with the Land Use Authorities of its Member Communities.** Motion carried by unanimous roll call vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).

10. <u>Receive Applicant Analysis and Consider 1. Resolution 2018-12 of the Board of</u> <u>Directors of MCE approving the County of Solano as a Member of MCE; 2.</u> <u>Amendment 13 to the MCE JPA Agreement; and 3. Direction to Submit</u>

<u>Amendment No. 6 to the MCE Implementation Plan and Statement of Intent</u> (Discussion/Action)

Alex DiGiorgio, Deputy Director of Community Development, and John Dalessi, Operations and Development, introduced this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: It was M/S/C (Patterson/Tatzin) to **1. Approve Resolution 2018-12 of the Board of Directors of MCE approving the County of Solano as a Member of MCE; 2. Approve Amendment 13 to the MCE JPA Agreement; and 3. Direct staff to Submit to the CPUC Amendment No. 6 to the MCE Implementation Plan and Statement of Intent. Motion carried by unanimous roll call vote. (Absent: Directors Athas, Banales, Blackwell, Cruz, Glover, Higgins, McEntee, Perkins, Schroder, Wagenknecht).**

11. Update on Integrated Resource Plan (Discussion)

Lindsay Saxby, Interim Deputy Director of Power Resources, presented this item and addressed questions from Board members.

Chair Sears opened the public comment period and there were no speakers.

Action: No action required.

12. Board Member & Staff Matters (Discussion)

There were no announcements

13. Adjournment

Chair Sears adjourned the meeting at 8:45 P.M. to the next scheduled Board Meeting on November 15, 2018.

Kate Sears, Chair

Attest:

Dawn Weisz, Secretary

MCE SPECIAL BOARD MEETING MINUTES Monday, January 28, 2019 10:30 A.M.

Mt. Diablo Room, 2300 Clayton Road, Suite 1150, Concord, CA 94520 The Charles F. McGlashan Board Room, 1125 Tamalpais Avenue, San Rafael, CA 94901 City of San Ramon, 7000 Bollinger Canyon Road, Room 256, San Ramon, CA 94583 Office of Contra Costa County Supervisor John Gioia, 11780 San Pablo Ave, Ste. D, El Cerrito, CA 94530 1505 Pearl St., Unit 309, Boulder, CO 80302

Call to Order: Chair Kate Sears called the Special Meeting to order at 10:35 a.m.

Present:	Sloan Bailey, Town of Corte Madera (San Rafael)
	Lisa Blackwell, Town of Danville (Boulder, CO)
	Barbara Coler, Town of Fairfax (<i>San Rafael</i>)
	Paul Fadelli, Alternate, City of El Cerrito (<i>El Cerrito</i>)
	John Gioia, Alternate, Contra Costa County (El Cerrito)
	Ford Greene, Town of San Anselmo (San Rafael)
	Kevin Haroff, City of Larkspur (San Rafael)
	Claire McAuliffe, Alternate, City of Belvedere (San Rafael)
	Sashi McEntee, City of Mill Valley (San Rafael)
	Jael Myrick, Alternate, City of Richmond (San Rafael)
	Elizabeth Patterson, City of Benicia (Concord)
	Scott Perkins, City of San Ramon (City of San Ramon)
	Vincent Salimi, City of Pinole (San Rafael)
	Rob Schroder, City of Martinez (Concord)
	Kate Sears, County of Marin (San Rafael)
	Renata Sos, Town of Moraga (Concord)
	Brad Wagenknecht, County of Napa (San Rafael)
	Justin Wedel, City of Walnut Creek (Concord)
	Ray Withy, City of Sausalito (San Rafael)
Absent:	Denise Athas, City of Novato
	Arturo Cruz. City of San Pablo
	Sue Higgins. City of Oakley
	Tim McGallian. City of Concord
	Andrew McCullough, City of San Rafael
	Rupert Russell, Town of Ross
	Shanelle Scales-Preston, City of Pittsburg
	Jon Welner, Town of Tiburon (Recuse)

Staff

& Others: Jesica Brooks, Board Assistant (San Rafael) Michael Callahan, Senior Policy Counsel (San Rafael) Darlene Jackson, Clerk of the Board (Concord) Nathaniel Malcolm, Policy Counsel (San Rafael)

Catalina Murphy, Legal Counsel (*San Rafael*) Shalini Swaroop, General Counsel (*San Rafael*) Dawn Weisz, Chief Executive Officer (*Concord*)

Swearing in of New Board Members

CEO Dawn Weisz conducted the Oath of Office for the following new Board members: Elizabeth Patterson, City of Benicia, Vincent Salimi, City of Pinole, Renata Sos, Town of Moraga, and Justin Wedel, City of Walnut Creek.

1. Roll Call/Quorum

Roll Call was conducted and quorum established.

2. Board Announcements (Discussion)

There were none.

3. Public Open Time (Discussion)

There were no speakers.

CLOSED SESSION

4. <u>CONFERENCE WITH LEGAL COUNSEL—ANTICIPATED LITIGATION</u> Initiation of litigation pursuant to paragraph (4) of subdivision (d) of Section 54956.9: (one case)

Action: The Board provided direction to staff to intervene in an action.

5. Adjourn

Chair Sears adjourned the meeting at 11:50 a.m. to the next scheduled Board Meeting on Thursday, February 21, 2019.

Kate Sears, Chair

Attest:

Dawn Weisz, Secretary



March 21, 2019

TO:MCE Board of DirectorsFROM:Bill Pascoe, Power Supply Resources CoordinatorRE:Approved Contracts Update (Agenda Item #04 – C.3)

Dear Board Members:

SUMMARY: This report summarizes agreements entered into by the Chief Executive Officer and if applicable, the Chair of the Technical Committee since the last regular Board meeting in October. This summary is provided to your Board for information purposes only.

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.

Summary of Agreements

Month	Purpose	Contractor	Maximum Annual Contract Amount	Term of Contract
October	Sale of Resource	City of	(\$35,000)	2 Months
2018	Adequacy, March & May 2019	Lancaster		
October	Purchase of Resource	City of	\$35,000	2 Months
2018	Adequacy, March & May 2019	Lancaster		
October	Purchase of Resource	ConocoPhillips	\$325,000	1 Year
2018	Adequacy, 2019	Company		
October	Purchase of Resource	Calpine Energy	\$525,000	1 Year
2018	Adequacy, 2019	Services, L.P.		
October	Purchase of Resource	Calpine Energy	\$315,000	1 Year
2018	Adequacy, 2019	Services, L.P.		

October 2018	Sale of Resource Adequacy, 2019	Calpine Energy Services. L.P.	(\$265,000)	1 Year
October 2018	Purchase of Resource Adequacy, June 2019	San Diego Gas & Electric	\$200,000	1 Month
October 2018	Purchase of Resource Adequacy, September, October & December 2019	Pioneer Community Energy	\$60,000	3 Months
October 2018	Sale of Resource Adequacy, September, October & December 2019	Pioneer Community Energy	(\$60,000)	3 Months
October 2018	Purchase of Resource Adequacy, April-May 2019	CleanPowerSF	\$30,000	2 Months
October 2018	Purchase of Resource Adequacy, May 2019	CleanPowerSF	\$60,000	1 Month
October 2018	Purchase of Resource Adequacy, December 2019	Silicon Valley Power	\$60,000	1 Month
October 2018	Sale of Resource Adequacy, March 2019	NRG Energy	(\$85,000)	1 Month
October 2018	Sale of Resource Adequacy, March 2019	NRG Energy	(\$165,000)	1 Month
October 2018	Purchase of Resource Adequacy, January- February 2019	California Choice Energy Authority	\$45,000	2 Months
October 2018	Purchase of Resource Adequacy, January- February 2019	City of Lancaster	\$36,750	2 Months
October 2018	Sale of Resource Adequacy, October 2019	Clean Power Alliance of Southern California	(\$85,000)	1 Month
October 2018	Sale of Resource Adequacy, October 2019	Clean Power Alliance of Southern California	(\$75,000)	1 Month
October 2018	Sale of Resource Adequacy, January- February 2019	Calpine	(\$110,000)	2 Months
October 2018	Sale of Resource Adequacy, January- February 2019	Calpine	(\$25,000)	2 Months
October 2018	Sale of Resource Adequacy, January- February 2019	Calpine	(\$125,000)	2 Months

October 2018	Purchase of Resource	PG&E	\$510,000	7 Months
2010	May & November- December 2019			
October 2018	Sale of Bundled Renewable Energy, November-December 2018	Direct Energy Business Marketing, LLC	(\$550,000)	2 Months
October 2018	Sale of Bundled Renewable Energy, November-December 2018	Pioneer Community Energy	(\$300,000)	2 Months
November 2018	Purchase of Carbon Free Energy 2019	TransAlta	\$350,000	1 Year
November 2018	Purchase of Carbon Free Energy 2020	Shell Energy North America, L.P.	\$425,000	1 Year
November 2018	Purchase of System Energy 2020	Exelon	\$19,000,000	1 Year
November 2018	Purchase of System Energy 2019	Shell Energy North America, L.P.	\$18,000,000	1 Year
November 2018	Purchase of System Energy 2021-2022	Morgan Stanley Capital Group	\$32,000,000	2 Years
October 2018	Purchase of Resource Adequacy, May & June 2019	Elk Hills Power, LLC	\$120,000	2 Months
October 2018	Sale of Bundled Renewable Energy, November-December 2018	Powerex Corp	(\$800,000)	2 Months
November 2018	Purchase of Resource Adequacy, April 2019	Peninsula Clean Energy Authority	\$150,000	1 Month
November 2018	Sale of Resource Adequacy, December 2019	Peninsula Clean Energy Authority	(\$60,000)	1 Month
November 2018	Sale of As-Available Bundled Renewable Energy, December 2018	PowerEx Corp	(\$0- \$1,500,000)	1 Month
January 2019	Purchase of System Energy 2019-2022	Shell Energy North America, L.P.	\$30,000,000	4 Years
January 2019	Sale of Resource Adequacy, October 2019	Monterey Bay Community Power Authority	(\$175,000)	1 Month

January	Sale of Resource	EDF Trading	(\$30,000)	1 Month
2019	Adequacy, February	North America,		
	2019	LLC		
February	Sale of Resource	Turlock	(\$40,000)	1 Month
2019	Adequacy, April 2019	Irrigation District		
February	Sale of Resource	Southern	(\$400,000)	3 Months
2019	Adequacy, July-	California		
	September 2019	Edison		
February	Purchase of Resource	Southern	\$400,000	3 Months
2019	Adequacy, July-	California		
	September 2019	Edison		
February	Sale of Import	Pioneer	\$25,000	1 Month
2019	Allocation Rights,	Community		
	September 2019	Energy		
February	Purchase of Bundled	Turlock	\$300,000	1 Year
2019	Renewable Energy,	Irrigation District		
	2019			
February	Purchase of Bundled	Turlock	\$300,000	1 Year
2019	Renewable Energy,	Irrigation District		
	2020			
February	Purchase of Carbon	Brookfield	\$350,000	11 Months
2019	Free Energy, 2019	Energy		
		Marketing		

Fiscal Impact: Expenses associated with these Agreements that are expected to occur during FY 2018/19 are within the FY 2018/19 Operating Fund Budget. Expenses associated with future years will be incorporated into budget planning as appropriate. Total sales within the same time period were \$3,385,000-\$4,885,000.

Recommendation: Information only. No action required.



March 21, 2019

TO:	MCE Board of Directors
FROM:	Joey Lande, Customer Programs Manager
RE:	First Agreement with CLEAResult Consulting, Inc. (Agenda Item #05 C.4)
ATTACHMENT:	Draft First Agreement with CLEAResult Consulting, Inc.

Dear MCE Board of Directors:

SUMMARY:

The proposed First Agreement with CLEAResult Consulting, Inc. (CLEAResult) is a contract for energy efficiency services, primarily focused on the design and implementation of industrial and agricultural energy efficiency (EE) programs. The scope of the contract would also include program support and project design services for large commercial customers. The proposed First Agreement would commence upon contract execution and continue through December 31, 2021.

Background

With the approval of MCE's Business Plan by the California Public Utilities Commission (CPUC) in May 2018, and subsequent approval of MCE's 2019 Annual Budget Advice Letter, MCE is now approved and funded to expand its EE programs to serve industrial and agricultural customers. MCE's industrial and agricultural EE programs are forecasted to play an increasingly important role in the MCE programs portfolio. These two programs are expected to achieve optimal cost-effectiveness ratings, deliver on significant savings targets, and provide valued support to a number of MCE's key accounts and stakeholders.

CLEAResult was selected through a solicitation process, which included two responses from qualified vendors. CLEAResult was selected as the desired vendor due to their technical experience and ongoing relationships with industrial and agricultural customer groups, which MCE could leverage to foster stronger customer relationships through multiyear engagement, enable deeper EE savings, and support MCE's need to scale to achieve growing savings targets. CLEAResult is able to offer comprehensive solutions for the delivery of electric and gas savings, leveraging a unique blend of measures, custom analyses, and data-driven approaches that include Strategic Energy Management and Normalized Metered Energy Consumption. These interventions rely heavily on energy efficient equipment upgrades and retrofits, and also incorporate behavioral, retrocommissioning and operational improvements.

Under the proposed Agreement, CLEAResult would be compensated on a pay-forperformance basis throughout the three-year contract period. The Agreement is rooted in the savings goals and annual budgets shown in the tables below, with a not-to-exceed contract value of \$2,002,091 for the agricultural and industrial programs. Additional budget is recommended for savings delivered under MCE's Commercial Program. The full not-toexceed contract value would be \$2,100,000 through December 31, 2021.

Program Goals	2019 Program Year		2020 Program Year*		2021 Program Year*	
	net kWh	net therms	net kWh	net therms	net kWh	net therms
Industrial	556,588	71,153	1,179,161	110,000	1,179,161	110,000
Agricultural	799,656	30,937	709,938	10,000	709,938	10,000
* Coals for the 2020 and 2021 Programs years will be finalized through the Appual Rudget Advice Letter						

* Goals for the 2020 and 2021 Programs years will be finalized through the Annual Budget Advice Letter

Performance Rates	2019 Program Year		2020 Program Year		2021 Program Year		NTE Contract Value
	\$/net kWh	\$/net therm	\$/net kWh	\$/net therm	\$/net kWh	\$/net therm	Total
Industrial	\$0.28	\$1.65	\$0.28	\$1.65	\$0.28	\$1.65	N/A
Agricultural	\$0.28	\$1.65	\$0.28	\$1.65	\$0.28	\$1.65	N/A
Commercial	\$0.25	\$1.65	\$0.25	\$1.65	\$0.25	\$1.65	N/A
NTE Industrial	\$155,845	\$117,402	\$330,165	\$181,500	\$330,165	\$181,500	\$1,296,576
NTE Agricultural	\$223,904	\$51,046	\$198,783	\$16,500	\$198,783	\$16,500	\$705,515
NTE Commercial	reservation	reservation	reservation	reservation	reservation	reservation	N/A
Performance rates will be invoiced and paid on a monthly basis for claimed energy savings, or quarterly for metered energy savings (SEM and NMEC).							

Fiscal Impacts: Expenditures related to the proposed First Agreement with CLEAResult would be funded from energy efficiency program funds allocated by the CPUC.

Recommendation: Approve the proposed First Agreement with CLEAResult Consulting, Inc.

MARIN CLEAN ENERGY ENERGY EFFICIENCY PROGRAMS STANDARD SHORT FORM CONTRACT

FIRST AGREEMENT BY AND BETWEEN MARIN CLEAN ENERGY AND CLEARESULT CONSULTING INC.

THIS FIRST AGREEMENT ("Agreement") is made and entered into this day **March 21, 2019** by and between MARIN CLEAN ENERGY, hereinafter referred to as "MCE" and CLEAResult Consulting Inc., hereinafter referred to as "Implementer."

RECITALS:

WHEREAS, MCE desires to retain a person or firm to provide the services described in Exhibit A;

WHEREAS, Implementer is a third-party program implementer that will implement the contracted-for energy efficiency program ("Program");

WHEREAS, Implementer warrants that it is qualified and competent to render the aforesaid Services;

NOW, THEREFORE, for and in consideration of the agreement made, and the payments to be made by MCE, the parties agree to the following:

1. SCOPE OF SERVICES:

Implementer agrees to provide all of the services described in **Exhibit A** attached hereto and by this reference made a part hereof. "Services" shall mean all of the services described in **Exhibit A**, and any other work performed by Implementer pursuant to the Agreement and any related purchase orders.

2. FURNISHED SERVICES:

MCE agrees to make available all pertinent data and records for review, subject to MCE Policy 001 - Confidentiality.

3. FEES AND PAYMENT SCHEDULE; INVOICING:

The fees and payment schedule for furnishing services under this Agreement shall be based on the rate schedule which is attached hereto as **Exhibit B** and by this reference incorporated herein. Said fees shall remain in effect for the entire term of the Agreement. Implementer shall provide MCE with his/her/its Federal Tax I.D. number prior to submitting the first invoice. Implementer is responsible for billing MCE in a timely and accurate manner. Implementer shall email invoices to MCE on a monthly basis for any services rendered or expenses incurred hereunder. Fees and expenses invoiced beyond 90 days will not be reimbursable. The final invoice must be submitted within 30 days of completion of the stated scope of services or termination of this Agreement. MCE will process payment for undisputed invoiced amounts and provide written notice of any amount in dispute within 30 days.

4. MAXIMUM COST TO MCE:

In no event will the cost to MCE for the services to be provided herein exceed the maximum sum of \$2,100,000.

5. TERM OF AGREEMENT:

This Agreement shall commence on **March 21, 2019**, and shall continue, unless terminated earlier in accordance with the terms of this Agreement, until **December 31, 2021** Certificate(s) of Insurance must be current on the day the Agreement commences and if scheduled to lapse prior to termination date, must be automatically updated before final payment may be made to Implementer.

6. INSURANCE AND SAFETY:

All required insurance coverages shall be substantiated with a certificate of insurance and must be signed by the insurer or its representative evidencing such insurance to MCE. The general liability policy shall be endorsed naming Marin Clean Energy and its employees, officers and agents as additional insureds. The certificate(s) of insurance and required endorsement shall be furnished to MCE prior to commencement of work. Implementer shall provide for thirty (30) days advance written notice to MCE of any cancellation or reduction in coverage. Said policies shall remain in force through the life of this Agreement and shall be payable on a per occurrence basis only, except those required by paragraph 6.4 which may be provided on a claims-made basis consistent with the criteria noted therein.

DRAFT

Nothing herein shall be construed as a limitation on Implementer's obligations under paragraph 17 of this Agreement to indemnify, defend and hold MCE harmless from any and all liabilities arising from the Implementer's negligence, recklessness or willful misconduct in the performance of this Agreement. MCE agrees to timely notify the Implementer of any negligence claim.

Failure to provide and maintain the insurance required by this Agreement will constitute a material breach of the agreement. In addition to any other available remedies, MCE may suspend payment to the Implementer for any services provided during any time that insurance was not in effect and until such time as the Implementer provides adequate evidence that Implementer has obtained the required coverage.

6.1 GENERAL LIABILITY

The Implementer shall maintain a commercial general liability insurance policy in an amount of no less than one million dollars (\$1,000,000) with a two million dollar (\$2,000,000) aggregate limit. MCE shall be named as an additional insured on the commercial general liability policy and the Certificate of Insurance shall include an additional endorsement page. (see sample form: ISO - CG 20 10 11 85).

6.2 AUTO LIABILITY

Where the services to be provided under this Agreement involve or require the use of any type of vehicle by Implementer in order to perform said services, Implementer shall also provide comprehensive business or commercial automobile liability coverage including non-owned and hired automobile liability in the amount of one million dollars combined single limit (\$1,000,000.00).

6.3 WORKERS' COMPENSATION

The Implementer acknowledges the State of California requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of the Labor Code. If Implementer has employees, a copy of the certificate evidencing such insurance or a copy of the Certificate of Consent to Self-Insure shall be provided to MCE prior to commencement of work.

6.4 PROFESSIONAL LIABILITY INSURANCE (REQUIRED IF CHECKED]

Coverages required by this paragraph may be provided on a claims-made basis with a "Retroactive Date" either prior to the date of the Agreement or the beginning of the contract work. If the policy is on a claims-made basis, coverage must extend to a minimum of twelve (12) months beyond completion of contract work. If coverage is cancelled or non-renewed, and not replaced with another claims made policy form with a "retroactive date" prior to the Agreement effective date, the Implementer must purchase "extended reporting" coverage for a minimum of twelve (12) months after completion of contract work. Implementer shall maintain a policy limit of not less than \$1,000,000 per incident. If the deductible or self-insured retention amount exceeds \$100,000, MCE may ask for evidence that Implementer has segregated amounts in a special insurance reserve fund or Implementer's general insurance reserves are adequate to provide the necessary coverage and MCE may conclusively rely thereon.

6.5 PRIVACY AND CYBERSECURITY LIABILITY. Privacy and cybersecurity liability (including costs arising from data destruction, hacking or intentional breaches, crisis management activity related to data breaches, and legal claims for security breach, privacy violations, and notification costs) of at least \$1,000,000 US per occurrence.

Implementer shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Agreement. Implementer shall monitor the safety of the job site(s) during the project to comply with all applicable federal, state, and local laws, and to follow safe work practices.

7. NONDISCRIMINATORY EMPLOYMENT:

Implementer and/or any permitted subcontractor, shall not unlawfully discriminate against any individual based on race, color, religion, nationality, sex, sexual orientation, age or condition of disability. Implementer and/or any permitted subcontractor understands and agrees that Implementer and/or any permitted subcontractor is bound by and will comply with the nondiscrimination mandates of all federal, state and local statutes, regulations and ordinances.

8. SUBCONTRACTING:

The Implementer shall not subcontract nor assign any portion of the work required by this Agreement without prior written approval of MCE except for any subcontract work identified herein. If Implementer hires a subcontractor under this Agreement, Implementer shall require subcontractor to provide and maintain insurance coverage(s) identical to what is required of Implementer under this Agreement and shall require subcontractor to name Implementer as additional insured under this Agreement. It shall be Implementer's responsibility to collect and maintain current evidence of insurance provided by its subcontractors and shall forward to MCE evidence of same. Nothing contained in this Agreement or otherwise stated between the parties shall create any legal or contractual relationship between MCE and

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any subcontractor, and no subcontract shall relieve Implementer of any of its duties or obligations under this Agreement. Implementer shall be solely responsible for ensuring its subcontractors' compliance with the terms and conditions of this Agreement. Implementer's obligation to pay its subcontractors is an independent obligation from MCE's obligation to make payments to Implementer. As a result, MCE shall have no obligation to pay or to enforce the payment of any moneys to any subcontractor.

9. ASSIGNMENT:

The rights, responsibilities and duties under this Agreement are personal to the Implementer and may not be transferred or assigned without the express prior written consent of MCE.

10. RETENTION OF RECORDS AND AUDIT PROVISION:

Implementer and any subcontractors authorized by the terms of this Agreement shall keep and maintain on a current basis full and complete documentation and accounting records, employees' time sheets, and correspondence pertaining to this Agreement. Such records shall include, but not be limited to, documents supporting all income and all expenditures. MCE shall have the right, during regular business hours and upon providing reasonable advance notice, to review and audit all records relating to this Agreement during the Contract period and for at least five (5) years from the date of the completion or termination of this Agreement. Any review or audit may be conducted with an escort on Implementer's premises or, at MCE's option, Implementer shall provide all records within a maximum of fifteen (15) days upon receipt of written notice from MCE. Implementer shall refund any monies erroneously charged. Implementer shall have an opportunity to review and respond to or refute any report or summary of audit findings, and shall promptly refund any overpayments made by MCE based on undisputed audit findings.

11. [RESERVED]

12. TERMINATION:

- A. If Implementer fails to provide in any manner the services required under this Agreement or otherwise fails to comply with the terms of this Agreement or violates any ordinance, regulation or other law which applies to its performance herein, MCE may terminate this Agreement by giving ten (10) business days' written notice to the party involved.
- B. Implementer shall be excused for failure to perform services herein if such services are prevented by acts of God, strikes, labor disputes or other forces over which Implementer has no control.
- C. Either party hereto may terminate this Agreement for any reason by giving thirty (30) calendar days' written notice to the other party. Notice of termination shall be by written notice to the other parties and be sent by registered mail or by email to the email address listed in Section 20 Invoices; Notices.
- D. In the event of termination not the fault of Implementer, Implementer shall be paid for services performed to the date of termination in accordance with the terms of this Agreement so long as proof of required insurance is provided for the periods covered in the Agreement or Amendment(s). Notwithstanding anything contained in this Section 12, in no event shall MCE be liable for lost or anticipated profits or overhead on uncompleted portions of the Services. Implementer shall not enter into any agreement, commitments or subcontracts that would incur significant cancelation or termination costs without prior written approval of MCE, and such written approval shall be a condition precedent to the payment of any cancellation or termination charges by MCE under this Section 12. Also, as a condition precedent to the payment of any cancellation or termination charges by MCE under this Section 12, Implementer shall have delivered to MCE any and all reports, drawings, documents and deliverables prepared for MCE before the effective date of such cancellation or termination.
- E. This Agreement shall be subject to changes, modifications, or termination by order or directive of the California Public Utilities Commission ("CPUC"). The CPUC may from time to time issue an order or directive relating to or affecting any aspect of this Agreement, in which case MCE shall have the right to change, modify or terminate this Agreement in any manner to be consistent with such CPUC order or directive by providing written notice to Implementer at least ten (10) business days before such change takes effect, unless an order or directive issued by the CPUC requires changes take effect earlier than this notice and at such time MCE will provide notice as early as possible. MCE may also terminate this Agreement if funding for this Agreement is reduced or eliminated by a third-party funding source.
- F. Upon MCE's termination of this Agreement for any reason, Implementer shall, and shall cause Implementer or each of its employees, agents, representatives, and subcontractors and all other persons performing the Services on behalf of Implementer (each, an Implementer Party), to bring the Services to an orderly conclusion as directed by MCE. Implementer and each Implementer Party shall vacate the worksite but shall not remove any material, plant or equipment thereon without the approval of MCE. MCE, at its option, may take possession of any portion of the Services paid for by MCE.

13. AMENDMENT:

This Agreement may be amended or modified only by written agreement of all parties.

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14. ASSIGNMENT OF PERSONNEL:

The Implementer shall not substitute any personnel for those specifically named in its proposal unless personnel with substantially equal or better qualifications and experience are provided, acceptable to MCE, as is evidenced in writing.

15. GOVERNING LAW AND VENUE:

This Agreement shall be governed by the internal laws of the State of California, with reference to its conflict of laws principles. In the event of any litigation to enforce or interpret any terms of this Agreement, such action shall be brought in a Superior Court of the State of California located in Marin County (or if the federal courts have exclusive jurisdiction over the subject matter of the dispute, in the U.S. District Court for the Northern District of California), and the parties hereby submit to the exclusive jurisdiction of such courts.

16. DISPUTES:

Either Party may give the other Party written notice of any dispute which has not been resolved at a working level. Any dispute that cannot be resolved between Implementer's contract representative and MCE's contract representative by good faith negotiation efforts shall be referred to Legal Counsel of MCE and an officer of Implementer for resolution. Within 20 calendar days after delivery of such notice, such persons shall meet at a mutually acceptable time and place, and thereafter as often as they reasonably deem necessary to exchange information and to attempt to resolve the dispute. If MCE and Implementer cannot reach an agreement within a reasonable period of time (but in no event more than 30 calendar days), MCE and Implementer shall have the right to pursue all rights and remedies that may be available at law or in equity. In particular, Implementer shall have right to request arbitration or mediation to resolve the dispute in arbitration or mediation in good faith. All negotiations and any mediation agreed to by the Parties are confidential and shall be treated as compromise and settlement negotiations, to which Section 1119 of the California Evidence Code shall apply, and Section 1119 is incorporated herein by reference.

17. <u>REPRESENTATIONS; WARRANTIES; INDEMNIFICATION:</u>

17.1 LICENSING. At all times during the performance of the Services, Implementer represents, warrants and covenants that it has and shall, and shall cause each Implementer Party to obtain and maintain, at its sole cost and expense, all required licenses and registrations required for the operation of its business and the performance of the Services. Implementer shall promptly provide copies of such licenses and registrations to MCE at the request of MCE.

17.2 PERFORMANCE ASSURANCE; BONDING. At all times during the performance of the Services, Implementer providing any direct installation services represents, warrants and covenants that it has and shall, and shall cause each Implementer Party, obtain and maintain, at its sole cost and expense, all bonding requirements of the California State License Board, as may be applicable. Regardless of the specific Services provided, Implementer shall also maintain any payment and/or performance assurances as may be requested by MCE during the performance of the Services.

17.3 GOOD STANDING. Implementer represents and warrants that (a) it is a **Corporation** duly organized, validly existing and in good standing under the laws of the State of **Texas** and (b) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to engage in the business it presently conducts and contemplates conducting, and is and will be duly licensed or qualified to do business and in good standing under the laws of the State of California and each other jurisdiction wherein the nature of its business transacted by it makes such licensing or qualification necessary and where the failure to be licensed or qualified would have a material adverse effect on its ability to perform its obligations hereunder.

17.4 SAFETY. During the term of this Agreement, Implementer continuously represents, warrants and covenants that it shall, and shall cause each Implementer Party to:

(a) abide by all applicable federal and state Occupational Safety and Health Administration requirements and other applicable federal, state, and local rules, regulations, codes and ordinances to safeguard persons and property from injury or damage;

(b) abide by all applicable MCE security procedures, rules and regulations that have been provided to Implementer and cooperate with MCE security personnel whenever on MCE's property;

(c) abide by MCE's standard safety program contract requirements as may be provided by MCE to Implementer from time to time;

(d) provide all necessary training to its employees, and require subcontractors to provide training to their employees, about the safety and health rules and standards required under this Agreement; and

(e) have in place an effective Injury and Illness Prevention Program that meets the requirements all applicable laws and regulations, including but not limited to Section 6401.7 of the California Labor Code. Additional safety

requirements (including MCE's standard safety program contract requirements) are set forth elsewhere in the Agreement, as applicable, and in MCE's safety handbooks as may be provided by MCE to Implementer from time to time.

17.5 BACKGROUND CHECKS.

(a) Implementer hereby represents, warrants and certifies that any personnel of Implementer or Implementer Party having or requiring access to MCE's assets, premises, customer property, data or systems ("Covered Personnel") shall have successfully passed background screening on each such individual, prior to receiving access, which screening may include, among other things to the extent applicable to the Services, a screening of the individual's educational background, employment history, valid driver's license, and court record for the seven (7) year period immediately preceding the individual's date of assignment to the project.

(b) Notwithstanding the foregoing and to the extent permitted by applicable law, in no event shall Implementer permit any Covered Personnel to have one or more convictions during the seven (7) year period immediately preceding the individual's date of assignment to the project, or at any time after the individual's date of, assignment to the project, for any of the following ("Serious Offense"): (i) a "serious felony," similar to those defined in California Penal Code Sections 1192.7(c) and 1192.8(a), or a successor statute, or (ii) any crime involving fraud (such as, but not limited to, crimes covered by California Penal Code Sections 476, 530.5, 550, and 2945, California Corporations Code 25540), embezzlement (such as, but not limited to, crimes covered by California Penal Code Sections 484 and 503 et seq.), or racketeering (such as, but not limited to, crimes covered by California Penal Code Section 186 or the Racketeer Influenced and Corrupt Organizations("RICO") Statute (18 U.S.C. Sections 1961-1968)).

(c) To the maximum extent permitted by applicable law, Implementer shall maintain documentation related to such background for all Covered Personnel and make it available to MCE for audit if required pursuant to the audit provisions of this Agreement.

(d) To the extent permitted by applicable law, Implementer shall notify MCE if any of its Covered Personnel is charged with or convicted of a Serious Offense during the term of this Agreement. Implementer will also immediately prevent that employee, representative, or agent from performing any Services.

17.6 FITNESS FOR DUTY. Implementer shall ensure that all Covered Personnel report to work fit for their job. Covered Personnel may not consume alcohol while on duty and/or be under the influence of drugs or controlled substances that impair their ability to perform their work properly and safely. Implementer shall, and shall cause its subcontractors to, have policies in place that require their employees report to work in a condition that allows them to perform the work safely. For example, employees should not be operating equipment under medication that creates drowsiness.

17.7 INDEMNIFICATION. Implementer agrees to indemnify, defend, and hold MCE, its employees, officers, and agents, harmless from any and all liabilities including, but not limited to, litigation costs and attorney's fees arising from any and all claims and losses to anyone who may be injured or damaged by reason of Implementer's negligence, recklessness or willful misconduct in the performance of this Agreement.

18. NO RECOURSE AGAINST CONSTITUENT MEMBERS OF MCE:

MCE 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 the Joint Powers Agreement and is a public entity separate from its constituent members. MCE shall solely be responsible for all debts, obligations and liabilities accruing and arising out of this Agreement. Implementer shall have no rights and shall not make any claims, take any actions or assert any remedies against any of MCE's constituent members in connection with this Agreement.

19. COMPLIANCE WITH APPLICABLE LAWS:

The Implementer shall comply with any and all applicable federal, state and local laws, regulations and resolutions (including, but not limited to all CPUC policies and guidance for energy efficiency programs, the County of Marin Nuclear Free Zone, Living Wage Ordinance, and Resolution #2005-97 of the Marin County Board of Supervisors prohibiting the off-shoring of professional services involving employee/retiree medical and financial data) affecting services covered by this Agreement.

20. INVOICES; NOTICES:

This Agreement shall be managed and administered on MCE's behalf by the Contract Manager named below. All invoices shall be submitted by email to:

Email Address:	invoices@mcecleanenergy.org
	interest Chicology of g

All other notices shall be given to MCE at the following location:

Contract Manager:	Troy Nordquist
MCE Address:	1125 Tamalpais Avenue
	San Rafael, CA 94901
Email Address:	contracts@mcecleanenergy.org
Telephone No.:	(415) 464-6027

Notices shall be given to Implementer at the following address:

Implementer:	CLEAResult Consulting Inc.	
	Attn: Legal Department	
Address:	100 SW Main Street, Suite 1500	
	Portland, OR 97204	
Email Address:		
Telephone No.:	503-248-4636	

21. ACKNOWLEDGEMENT OF EXHIBITS:

In the event of a conflict between the Terms of this Agreement and the terms in any of the following Exhibits, the terms in this Agreement will govern.

	\square	Check applicable Exhibits IMPLEMENTER'S INITIALS
EXHIBIT A.	\boxtimes	Scope of Services
<u>EXHIBIT B.</u>	\boxtimes	Fees and Payment
Appendix A.	\boxtimes	Implementation Plan Template
Appendix B.	\boxtimes	California Industrial SEM M&V Guide

22. DATA COLLECTION AND OWNERSHIP REQUIREMENTS:

22.1. DEFINITION OF "MCE DATA". "MCE Data" shall mean all data or information provided by or on behalf of MCE, including but not limited to, customer Personal Information; energy usage data relating to, of, or concerning, provided by or on behalf of any customers; all data or information input, information systems and technology, software, methods, forms, manual's, and designs, transferred, uploaded, migrated, or otherwise sent by or on behalf of MCE to Implementer as MCE may approve of in advance and in writing (in each instance); account numbers, forecasts, and other similar information disclosed to or otherwise made available to Implementer. MCE Data shall also include all data and materials provided by or made available

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to Implementer by MCE's licensors, including but not limited to, any and all survey responses, feedback, and reports subject to any limitations or restrictions set forth in the agreements between MCE and their licensors.

"Confidential Information" under this Agreement shall have the same meaning as defined in the Marin Clean Energy Non-Disclosure Agreement between the parties dated **[MONTH YEAR]**

- 22.2. **DEFINITION OF "PERSONAL INFORMATION".** "Personal Information" includes but is not limited to the following: personal and entity names, e-mail addresses, addresses, phone numbers, any other public or privately-issued identification numbers, IP addresses, MAC addresses, and any other digital identifiers associated with entities, geographic locations, users, persons, machines or networks. Implementer shall comply with all applicable laws, rules, and regulations related to the use, collection, storage, and transmission of Personal Information.
- 22.3. MCE DATA SECURITY MEASURES. Prior to Implementer receiving any MCE Data, Implementer shall comply, and at all times thereafter continue to comply, in compliance with MCE's Data security policies set forth in MCE Policy 009 and MCE's Advanced Metering Infrastructure (AMI) Data Security and Privacy Policy ("Security Measures") and pursuant to MCE's Confidentiality provisions in Section 5 of the Marin Clean Energy Non-Disclosure Agreement between the parties dated [MONTH YEAR]. MCE's Security Measures and Confidentiality provisions require Implementer to adhere to reasonable administrative, technical, and physical safeguard protocols to protect the MCE's Data from unauthorized handling, access, destruction, use, modification or disclosure.
- 22.4. **IMPLEMENTER DATA SECURITY MEASURES**. Additionally, Implementer shall, at its own expense, adopt and continuously implement, maintain and enforce reasonable technical and organizational measures, consistent with the sensitivity of Personal Information and Confidential Information including, but not limited to, measures designed to (1) prevent unauthorized access to, and otherwise physically and electronically protect, the Personal Information and Confidential Information, and (2) protect MCE content and data against unauthorized or unlawful access, disclosure, alteration, loss, or destruction.
- 22.5. **RETURN OF MCE DATA**. Promptly after this Agreement or a Statement of Work terminates or expires, and for each completed Statement of Work (i) Implementer will securely destroy all MCE Data in its possession with respect to each terminated or expired Statement of Work and certify the secure destruction in writing to MCE, and (ii) each party will return (or if requested by the disclosing party, destroy) all other Confidential Information and property of the other (if any) with respect to each terminated or expired Statement of Work, provided that Implementer's attorney shall be permitted to retain a copy of such records or materials solely for legal purposes.

22.6. OWNERSHIP AND USE RIGHTS.

- a) MCE Data. Unless otherwise expressly agreed to by the Parties, MCE shall retain all of its rights, title and interest in MCE's Data.
- b) Program Intellectual Property. Unless otherwise expressly agreed to by the Parties, any and all finished or unfinished materials, information, or other work product created, prepared, accumulated or developed by Implementer or any Implementer Party under this Agreement with Program funds ("Program Intellectual Property"), including inventions, processes, templates, documents, other writings, drawings, computer programs, designs, calculations, maps, plans, workplans, text, filings, estimates, manifests, certificates, books, specifications, sketches, notes, reports, summaries, analyses, studies, manuals, visual materials, data models and samples, including summaries, extracts, analyses and preliminary or draft materials developed in connection therewith, shall be owned solely by MCE upon its creation on behalf and for the benefit of its customers.
- c) Program Intellectual Property will be owned by MCE upon its creation. Implementer agrees to execute any such other documents or take other actions as MCE may reasonably request to perfect MCE's ownership in the Program Intellectual Property. MCE shall have the exclusive right to use such Program Intellectual Property in its sole discretion without further compensation (beyond the compensation set forth in this Agreement) to Implementer or to any other party. Implementer shall, at MCE's expense, provide such Program Intellectual Property MCE or any party MCE may designate, upon written request. Implementer may keep file reference copies of all documents prepared for MCE.
- d) Implementer's Pre-Existing Materials. If, and to the extent Implementer retains any preexisting ownership rights ("Implementer's Pre-Existing Materials") in any of the materials furnished to be used to create, develop, and prepare the Program Intellectual Property, Implementer hereby grants MCE and the Program Participants on behalf of their respective customers and the CPUC for governmental and regulatory purposes an irrevocable, assignable, non-exclusive, perpetual, fully paid up, worldwide, royalty-free, unrestricted license to use and sublicense others to use, reproduce, display, prepare and develop derivative works, perform, distribute copies of any intellectual or proprietary property right of Implementer or any Implementer Party for the sole purpose of using such Program Intellectual Property for the conduct of MCE's business and for disclosure to the CPUC for governmental and regulatory purposes related thereto (the "MCE License").

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Unless otherwise expressly agreed to by the Parties, Implementer shall retain all of its rights, title and interest in Implementer's Pre-Existing Materials. Any and all claims to Implementer's Pre-Existing Materials to be furnished or used to prepare, create, develop or otherwise manifest the Program Intellectual Property must be expressly disclosed to MCE prior to performing any Services under this Agreement. Any such Pre-Existing Material that is modified by work under this Agreement is owned by MCE with the exception of process changes to Implementer's [*please insert the name of CLEAResult's proprietary software*] or revisions to Implementer's [*please list the pre-existing templates to be modified*] that are modified in a general manner so as to apply to work product for other clients of Implementer ("Generally-Applicable Modifications to Pre-Existing Materials"). Generally-Applicable Modifications to Pre-Existing Materials do not include modifications that are customized for MCE or its customers. For the avoidance of doubt, the MCE License shall also apply to Generally-Applicable Modifications to Pre-Existing Materials.

22.7 BILLING, ENERGY USE, AND PROGRAM TRACKING DATA.

- a) Implementer shall comply with and timely cooperate with all CPUC directives, activities, and requests regarding the Program and Project evaluation, measurement, and verification ("EM&V"). For the avoidance of doubt, it is the responsibility of Implementer to be aware of all CPUC requirements applicable to the Services of this Agreement.
- b) Implementer shall make available to MCE upon demand, detailed descriptions of the program, data tracking systems, baseline conditions, and participant data, including financial assistance amounts.
- c) Implementer shall make available to MCE any revisions to Implementer's program theory and logic model ("PTLM") and results from its quality assurance procedures, and comply with all MCE EM&V requirements, including reporting of progress and evaluation metrics.

23. WORKFORCE STANDARDS:

At all times during the term of the Agreement, Implementer shall comply with, and shall cause all Implementer Parties to comply with, the workforce qualifications, certifications, standards and requirements set forth in this Section 23 ("Workforce Standards"). The Workforce Standards shall be included in their entirety in Implementer's Final Implementation Plan. Final Implementation Plan shall mean as it is defined in the deliverables for the Services listed in Exhibit A. Prior to commencement of any Services, once per calendar year, and at any other time as may be requested by MCE, Implementer shall provide all documentation necessary to demonstrate to MCE's reasonable satisfaction that Implementer has complied with the Workforce Standards.

23.1 HVAC STANDARDS. For any non-residential project pursuant to this Agreement installing, modifying or maintaining a Heating Ventilation and Air Conditioning ("HVAC") system or component with incentives valued at \$3,000 or more, Implementer shall ensure that each worker or technician involved in the project, including all employees and agents of its subcontractors, meets at least one of the following workforce criteria:

- a) Completed an accredited HVAC apprenticeship;
- b) Is enrolled in an accredited HVAC apprenticeship;
- c) Completed at least five years of work experience at the journey level as defined by the California Department of Industrial Relations, Title 8, Section 205, of the California Code of Regulations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed; or
- d) Has a C-20 HVAC contractor license issued by the California Contractor's State Licensing Board.

This standard shall not apply where the incentive is paid to any manufacturer, distributor, or retailer of HVAC equipment, unless the manufacturer, distributor, or retailer installs or contracts for the installation of the equipment.

23.2 ADVANCED LIGHTING CONTROLS STANDARDS. For any non-residential project pursuant to this Agreement involving installation, modification, or maintenance of lighting controls with incentives valued at \$2,000 or more, Implementer shall ensure that all workers or technicians involved in the project, including those of its subcontractors are certified by the California Advanced Lighting Controls Training Program ("CALTP"). This requirement shall not apply where the incentive is paid to a manufacturer, distributor, or retailer of lighting controls unless the manufacturer, distributor, or retailer installs or contracts for installation of the equipment.

24. FINANCIAL STATEMENTS:

Implementer shall deliver financial statements on an annual basis or as may be reasonably requested by MCE from time to time. Such financial statements or documents shall be for the most recently available audited or reviewed period and prepared in accordance with generally-accepted accounting principles. MCE shall keep such information confidential pursuant to the Confidentiality Agreement between the parties, ______, except as provided by law and to provision to the CPUC may be required from time to time under confidentiality procedures, where applicable.

25. QUALITY ASSURANCE PROCEDURES:

Implementer shall comply with the "Quality Assurance Procedures" identified by Implementer in the implementation plan as required in Exhibit A. Additionally, Quality Assurance Procedures must include, but are not limited to: (i) industry standard best practices; and (ii) procedures that ensure Measure functionality, customer satisfaction, and that the Minimum Qualifications are satisfied.

26. COORDINATION WITH OTHER PROGRAM ADMINISTRATORS:

Implementer shall coordinate with other Program Administrators, including investor-owned utilities and local government agencies authorized by the CPUC to implement CPUC-directed energy efficient programs, administering energy efficiency programs in the same geographic area as MCE. These other Program Administrators include: Pacific Gas and Electric Company and Bay Area Regional Energy Network. The CPUC may develop further rules related to coordination between Program Administrators in the same geographic area, and any Implementer is required to comply with such rules.

27. ACCESS TO CUSTOMER SITES:

Implementer shall be responsible for obtaining any and all access rights from customers and other third parties to the extent necessary to perform the Services. Implementer shall also procure any and all access rights from Implementer Parties, customers and other third parties in order for MCE and CPUC employees, representatives, designees and contractors to inspect the Services.

28. <u>MEASUREMENT AND VERIFICATION REQUIREMENTS, INCLUDING GUIDELINES ABOUT NORMALIZED METERED</u> ENERGY CONSUMPTION ("NMEC") DESIGN REQUIREMENTS:

Implementer shall:

- 1. Only enroll customers that qualify for Program services.
- 2. Comply with current policies, procedures, and other required documentation as required by MCE;
- 3. Report Customer Participation Information to MCE.
- 4. Work with MCE's evaluation team to define Program-specific data collection and evaluability requirements, and in the case of NMEC which independent variables shall be normalized.

Throughout the Term, MCE may identify new net lifecycle energy savings estimates, net-to- gross ratios, effective useful lives, or other values that may alter Program Net Lifecycle Energy Savings, as defined in Exhibit A, if applicable. Implementer shall use modified values upon MCE's request, provided MCE modifies Implementer's Program budget and/or overall Program net lifecycle Energy Savings consistent with the requested change. MCE will determine any budget increases or decreases in its sole discretion.

For Programs claiming to-code savings: Implementer shall comply with Applicable Law and work with MCE to address elements in its Program designs and Implementation Plans, such as:

- 1. Identifying where to-code savings potential resides;
- 2. Specifying which equipment types, building types, geographic allocations, and/or customer segments promise costeffective to-code savings;
- 3. Describing the barriers that prevent code-compliant equipment replacements;
- 4. Explaining why natural turnover is not occurring within certain markets or for certain technologies; and
- 5. Detailing the program interventions that would effectively accelerate equipment turnover.

29. SEVERABILITY:

Should any provision of this Agreement be held invalid or unenforceable by a court of competent jurisdiction, such invalidity will not invalidate the whole of this Agreement, but rather, the remainder of the Agreement which can be given effect without the invalid provision, will continue in full force and effect and will in no way be impaired or invalidated.

30. COMPLETE AGREEMENT:

This Agreement along with any attached Exhibits constitutes the entire Agreement between the parties. No modification or amendment shall be valid unless made in writing and signed by each party. Failure of either party to enforce any provision or provisions of this Agreement will not waive any enforcement of any continuing breach of the same provision or provisions or any breach of any provision or provisions of this Agreement.

31. COUNTERPARTS:

This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall be deemed one and the same Agreement.

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IN WITNESS WHEREOF, the parties have executed this Agreement on the date first above written.

APPROVED BY Marin Clean Energy:	IMPLEMENTER:
Ву:	
CEO	Ву:
Date:	_
	Name:
Bv:	
Chairperson	Date:
Date:	
2000	-

MODIFICATIONS TO ENERGY EFFICIENCY STANDARD SHORT FORM

Standard Short Form Content Has Been Modified

List sections affected: ____Sections 3, 6, 10, 11, 12, 17.4(b), 17.5 (c), 22.6 (b), (c) and (d), 24, and 25 ____

Approved by MCE Counsel: _____

Date: _____

DRAFT EXHIBIT A SCOPE OF SERVICES (required)

Implementer will provide the following Energy Efficiency Program services for MCE's Agricultural and Industrial sectors as directed by MCE staff, up to the maximum time and fees allowed under this Agreement. Implementer will also be able to serve MCE Commercial customers, whereby projects will be approved individually by MCE staff.

I. Overview:

Implementer will offer comprehensive solutions for delivering electric and gas energy efficiency savings, serving the Agricultural and Industrial customer base in MCE's service territory. Implementer may also opt to serve MCE customers in the Commercial sector, with a limited scope of services described under Section IV below.

Implementer will develop and implement the Agricultural and Industrial energy efficiency programs (the Programs) consistent with the outlines developed in program-specific Implementation Plans (see III below, Appendix A).

II. Goals and Targets:

Program Goals	2019 Program Year		2020 Program Year*		2021 Program Year*	
	net kWh	net therms	net kWh	net therms	net kWh	net therms
Industrial	556,588	71,153	1,179,161	110,000	1,179,161	110,000
Agricultural	799,656	30,937	709,938	10,000	709,938	10,000

*Goals for the 2020 and 2021 Program years will be finalized through the Annual Budget Advice Letter (ABAL).

Implementer may also opt to serve commercial customers within MCE's service area. See Section IV below for details on this service.

III. Agricultural and Industrial Program Services:

Implementer will provide comprehensive Program design, project development and Program implementation services, including but not limited to:

a. Program Design and Measure Development

Implementer will work with MCE to develop Program designs. This will include, but is not limited to: identifying and vetting energy efficiency measures; setting incentive and/or rebate levels based on budgets approved by MCE; selecting savings calculation methods; and determining intervention strategies.

Implementer may utilize deemed, custom, Strategic Energy Management (SEM) and Normalized Metered Energy Consumption (NMEC) savings analyses and claims. Implementer will select the savings methodology which maximizes accuracy of the savings claim and customer benefit. Implementer will adhere to the most up-to-date guidance from the CPUC in developing the Programs and specific projects. CPUC Rulebooks and guidance for NMEC can be found on the <u>CPUC Website (http://www.cpuc.ca.gov/General.aspx?id=6442456320)</u>. Guidance for SEM project development and M&V are found in the California Industrial SEM Design Guide and the California Industrial SEM M&V Guide.

With support from MCE staff, Implementer will develop draft Implementation Plans per CPUC requirements for the Agricultural and Industrial Energy Efficiency Programs, within 40 days of contract execution. Implementer shall support MCE with the Final Implementation Plan, which MCE shall submit within 60 days of contract execution. Implementer will complete initial drafts of the document, as well as inputs for the Total Resource Cost (TRC) and Program Administrator Cost (PAC) calculations to inform cost-effectiveness forecasts. The template for Implementation Plans is attached hereto in Appendix A.

Implementer will provide cost-effectiveness forecasts each year in support of MCE's ABAL.

b. Implementation Launch Activities

Implementer will launch the Programs to eligible customers within MCE service territory.

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Implementer will lead the development of a Program Policies Manual – a required component of the Implementation Plans – to be used by Implementer and MCE to provide guidance around common processes and procedures encountered during the course of Program implementation, including:

- Eligible Measures
- Customer Eligibility Requirements
- Contractor Eligibility Requirements
- Program services such as training, specification, installation oversight, measurement and verification (M&V)
- Audit procedures

Implementer will produce a document or matrix which summarizes additional customer opportunities beyond the core MCE Program. The opportunities listed in the document shall include information summarizing eligibility standards for customer financing, renewable energy, and water efficiency programs or opportunities that may be presented to customers together with MCE's energy efficiency project proposals.

c. Customer Recruitment and Enrollment

Implementer will use data provided by MCE along with best practice parameters to target, recruit, and enroll customers in the Programs. Recruitment may include, but is not limited to: coordination with MCE and PG&E representatives; customer marketing and outreach; vendor engagement; and industry trade association event attendance and coordination.

d. Project Development and Project Engineering

Implementer will perform project engineering for each applicable customer project ("Project") which may include, but is not limited to: engineering assessments; energy savings and Project financial assessments; Project data analysis and calculations; Project evaluation; Project site surveys and assessments; and M&V. Implementer will provide customers with estimated savings summaries and/or reports for each Project, to address customer-specific needs such as payback estimates, annual energy savings estimates, operational improvements, and financing resources.

e. Project Application Review, Validation, and Submittal

Implementer will develop customer application documents and calculators for use throughout the Programs. Implementer will compile, review, and validate customer Project applications prior to submitting to MCE for payment. Any Project submitted for incentive payment must also be submitted as part of the monthly and quarterly energy savings claim (see below).

A subset of all deemed Projects and measures must be selected for post-installation review. Custom Projects will be audited both pre-installation and post-installation to verify accuracy of savings claims. SEM and NMEC Projects will adhere to CPUC guidance on the validation of savings claims.

i. Savings Claims Reporting and Invoicing

Implementer will submit net and gross monthly energy savings and year-to-date energy savings claims data on a monthly basis for each Project, following the submittal of an application for incentive payment. Monthly reporting documentation will include:

- Monthly invoice;
- Monthly reporting, including net energy savings (kWh, kW reduction, therms) and year-to-date net energy savings;
- Monthly spend-to-date on Implementer expenditures;
- Monthly spend-to-date on dollar per unit (kwh and therm) in customer incentives;
- Project paperwork as required by MCE program managers.

f. M&V Plan and M&V

Implementer will develop an M&V Plan to serve as the basis for verification of savings claims. Implementer shall conduct all M&V activities in compliance with all CPUC orders and guidance.

Implementer will ensure that NMEC projects follow the most recent CPUC Rulebook on NMEC savings claims and embedded M&V for site-specific analyses and any additional guidance provided by MCE at the time of project initiation. For the avoidance of doubt, Implementer may rely on guidance from MCE provided at the time of project initiation, however NMEC projects must always follow the most recent CPUC Rulebook regardless of calculations/methodologies in place at the time of project initiation.

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Implementer will ensure that SEM projects follow the most up-to-date guidance from the CPUC on M&V, incorporating principles of the California Industrial SEM M&V Guide (included as Attachment B), The American Society of Heating, Refrigerating and Air-Conditioning Engineers Guideline 14:2014, and International Performance Measurement and Verification Protocol (IPMVP). The M&V Plan will include the following:

- Energy Data Collection Plan
- Energy Data Report
- Energy Savings Calculation Report

g. Program Enhancement Planning and Policy Coordination Activities

At the request of MCE, Implementer will participate in Program planning activities and energy efficiency policy coordination to improve Program design.

IV. Commercial Program Services

Implementer will be able to serve commercial customers with energy efficiency Program services, pending approval and/or referral of Projects from MCE staff. Eligible commercial customer types will include any non-residential customer with average load of greater than 20 kW. Implementer will not engage in commercial program marketing without MCE staff approval, and must seek MCE approval for project incentive reservations, in advance of presenting project proposals to customers.

All projects submitted to MCE's Commercial Energy Efficiency Program must utilize pre-approved Project paperwork, measures/interventions, and savings claims requirements. Project savings will be reported in accordance with MCE's requirements.

- V. Deliverables
 - a. Implementation Plans Draft within 40 days of contract execution; Final Plan ready for MCE to submit within 60 days of contract execution.
 - i. See Appendix A for required components
 - b. Application and enrollment forms, rebate/incentive forms, calculator tools, audit documentation within 60 days of contract execution
 - c. M&V Plan on or before June 28, 2019
 - d. Cost Effectiveness Tests Annually in July, in support of ABAL timeline
 - e. Program marketing collateral on or before June 14, 2019

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Performance Rates	2019 Program Year		2020 Program Year		2021 Program Year		
	\$/net kWh	\$/net therm	\$/net kWh	\$/net therm	\$/net kWh	\$/net therm	2019-2021 NTE Contract Value
Industrial	\$0.28	\$1.65	\$0.28	\$1.65	\$0.28	\$1.65	N/A
Agricultural	\$0.28	\$1.65	\$0.28	\$1.65	\$0.28	\$1.65	N/A
Commercial	\$0.25	\$1.65	\$0.25	\$1.65	\$0.25	\$1.65	N/A
NTE Industrial	\$155,845	\$117,402	\$330,165	\$181,500	\$330,165	\$181,500	\$1,296,576
NTE Agricultural	\$223,904	\$51,046	\$198,783	\$16,500	\$198,783	\$16,500	\$705,515
NTE Commercial	reservation	reservation	reservation	reservation	reservation	reservation	N/A

For services provided under this Agreement, MCE shall pay Implementer in accordance with the following payment schedule:

Performance rates will be invoiced and paid on a monthly basis for claimed energy savings, or quarterly for metered energy savings (SEM and NMEC). Customer rebates and incentives will be proposed by Implementer in the Implementation Plan, not to exceed average rates for measures (Electric incentive budget/net kWh goal, or Gas incentive budget/net therms goal) as directed by MCE per its available incentive budget.

For purposes of this Agreement, "net" is defined as claimable energy savings as determined and approved by the CPUC Implementer shall adhere to the most up to date guidance from the CPUC for all calculations of net energy savings.

Projects are paid based on claimed (deemed or custom) or metered (NMEC or SEM) energy savings reported to the CPUC.

- I. <u>Claimed Energy Savings Projects</u>. Implementer payments for Projects based on deemed or custom claimed energy savings will be made after Project completion and submission of Project energy savings documentation and claims data to MCE. Claimable energy savings will be based on the CPUC-approved policy at the time the Project is pre-approved by MCE and valid for a period of one year. Projects not completed after one year of MCE pre-approval, may require additional MCE review. Implementer shall invoice monthly for these completed Projects.
- II. <u>Metered Energy Savings Projects.</u> Implementer payments for Projects based on measured consumption data Projects (NMEC and SEM) will follow the IPMVP and CPUC guidance for NMEC and SEM analyses and measurement and according to the following schedule:
 - a. Payments for SEM Projects not using site-level NMEC: Implementer payments will be made based on forecasted annual energy savings and shall be paid to Implementer in quarterly installments, beginning after the initial intervention or enrollment for a Project, and subject to the True-Up Protocol listed in Section II c. below. Forecasting methodology shall be consistent with protocols approved by the CPUC. Implementer shall invoice quarterly for these Projects.
 - b. Payments for NMEC Projects (Including whole facility SEM projects using site-level NMEC): Implementer payments will be made based on NMEC savings and shall be paid to Implementer in quarterly installments, beginning after the initial intervention or enrollment for a Project, and subject to the True-Up Protocol listed in Section II c. below. Implementer shall provide documentation of energy savings for the prior quarter which will be reviewed and approved by MCE before issuing a payment installment. Implementer shall invoice quarterly for these Projects.
 - c. True-Up Protocol after 12 Months (applicable to both NMEC and SEM Projects). After 12 months following project enrollment, Implementer will submit the final first year annual energy savings based on documentation and true-up positive or negative variance from the quarterly claims. In the event that MCE has paid less than the amount to which Implementer was entitled based on annual energy savings documentation (as reviewed and approved by MCE), MCE shall pay any such net difference to Implementer. In the event that MCE has paid more than the amount to which Implementer was entitled, as reviewed and approved by MCE, Implementer shall refund any such amount to MCE. This process will repeat for a second year to cover variance from the first year annual energy savings, concluding 24 months after the initial intervention.

d. Year 2 of a Project: MCE will pay Implementer based on the incremental savings earned above the verified savings claimed in the first year of a Project, and according to the applicable payment schedule for claimed or metered energy savings projects listed above, and subject to the True-Up Protocol listed in Section II c. above.

Implementer shall invoice MCE according to the project type listed above. In no event shall the total cost to MCE for the services provided herein exceed the maximum sum of **\$2,100,000** for the term of the Agreement.

ALJ/TOD/sbf/dc3

Date of Issuance 10/28/2015

Decision 15-10-028 October 22, 2015

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation, and Related Issues.

Rulemaking 13-11-005 (Filed November 14, 2013)

DECISION RE ENERGY EFFICIENCY GOALS FOR 2016 AND BEYOND AND ENERGY EFFICIENCY ROLLING PORTFOLIO MECHANICS

R.13-11-005 ALJ/TOD/sbf/ dc3

Appendix 4

Implementation Plan Template

R.13-11-005 ALJ/TOD/sbf/ dc3

ATTACHMENT: Implementation Plan Guidance

The following information will be uploaded to EEStats, to create a separate webpage for each program and sub-program through an online database platform.

Program Budget and Savings Information

EE Stats implementation plan platform will generate summary views of the following information, based on application tables that the PAs upload to EE Stats .The information will be organized at the measure and sub-program level to enable multiple cross tabulations and outputs for stakeholders review and consideration. Programs with subprograms will be displayed at subprogram level, and will roll up to a program summary page..

- 1. Program and/or Sub-Program Name
- 2. Sub-Program ID number
- 3. Sub-program Budget Table
- 4. Sub-program Gross Impacts Table
- 5. Sub-Program Cost Effectiveness (TRC)
- 6. Sub-Program Cost Effectiveness (PAC)
- 7. Type of Sub-Program Implementer (Core, third party or Partnership)
- 8. Market Sector (including multi-family, low income, etc)
- 9. Sub-program Type (Non-resource, resource acquisition, market transformation)
- 10. Intervention Strategies (Upstream, downstream, midstream, direct install, non-resource, finance, etc)

Implementation Plan Narrative

Provide the following narrative description for each program (and sub-program, if applicable):

- 1. Program Description: Describe the program, its rationale and objectives.
- 2. **Program Delivery and Customer Services:** Describe how the energy efficiency program will deliver savings (upstream, downstream, direct install, etc); how it will reach customers and the services that the program will provide. Describe all services and tools that are provided.
- 3. **Program Design and Best Practices:** Describe how the program meets the market barriers in the relevant market sector/end use. Describe why the program approach constitutes "best practices" or reflects "lessons learned". Provide references where available.
 - 4. **EM&V:** Describe any process evaluation or other evaluation efforts that the Program Administrator (PA) will undertake Identify the evaluation needs that the PA must build into the program. These might include:
 - a. data collection strategies embedded in the design of the program or intervention to ensure ease of reporting and near term feedback, and

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- b. internal performance analysis during deployment
- c. performance metrics
- 5. Pilots: Please describe any pilot projects that are part of this program, and explain the innovative characteristics to these pilots. The inclusion of this description should not replace the Ideation Process requirements currently agreed by Commission staff and IOUs. This process is still undergoing refinements and will be further discussed as part of Phase III of this proceeding.¹
- 6. Additional information: Include here additional information as required by Commission decision or ruling (As applicable. Indicate decision or ruling and page numbers)

Supporting Documents

Attach the following documents in Word:

- 1. Program Manuals and Program Rules (See below)
- 2. Program Logic Model: Model should visually explain underlying theory supporting the sub-program intervention approach, referring as needed to the relevant literature (e.g., past evaluations, best practices documents, journal articles, books, etc.).
- 3. Process Flow Chart: Provide a sub-program process flow chart that describes the administrative and procedural components of the sub-program. For example, the flow chart might describe a customer's submittal of an application, the screening of the application, the approval/disapproval of an application, verification of purchase or installation, the processing and payment of incentives, and any quality control activities.
- Incentive Tables, Workpapers, Software Tools: (Can incentives be drawn out of the E3s?) Provide a summary table of measures and incentive levels, along with links to the associated workpapers. Templates are available at http://eestats.cpuc.ca.gov/StandardTables/GuidanceDocument.aspx.

¹ The Ideation Process is a set of reporting requirements developed collaboratively to ensure adequate reporting and review of pilots and other similar projects. This process will be further deliberated as part of Phase III. The current set of guidelines can be found here: <u>http://www.cpuc.ca.gov/NR/rdonlyres/2D89F0DD-619B-4FC7-BD17-</u>843E2993594D/0/IdeationProjectsProcess_OUT.pdf

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- 5. **Quantitative Program Targets**: Provide estimated quantitative information on number of projects, companies, non-incentive customer services and/or incentives that program aims to deliver and/or complete annually. Provide references where available.
- 6. **Diagram of Program:** Please provide a one page diagram of the program including subprograms. This should visually illustrate the program/sub-program linkages to areas such as:
 - a. Statewide and individual IOU marketing and outreach
 - b. WE&T programs
 - c. Emerging Technologies and Codes and Standards
 - d. Coordinated approaches across IOUs
 - e. Integrated efforts across DSM programs

Program Manuals:

All programs must have manuals to clarify for implementers and customers the eligibility requirements and rules of the program. Note that program rules must comply with CPUC policies and rules. Table templates are available at

<u>http://eestats.cpuc.ca.gov/StandardTables/GuidanceDocument.aspx</u>. At minimum, manuals should include:

- 1. Eligible Measures or measure eligibility: Provide requirements for measure eligibility or a list of eligible measures.
- 2. **Customer Eligibility Requirements:** Provide requirements for program participation (e.g., annual energy use, peak kW demand)
- 3. **Contractor Eligibility Requirements:** List any contractor (and/or developer, manufacturer, retailer or other "participant") eligibility requirements (e.g. specific IOU required trainings; specific contractor accreditations; and/or, specific technician certifications required).
- 4. **Participating Contractors, Manufacturers, Retailers, Distributers**: For upstream or midstream incentive and/or buy down programs indicate
- 5. Additional Services: Briefly describe any additional sub-program delivery and measure installation and/or marketing & outreach, training and/or other services provided, if not yet described above
- 6. **Audits:** Indicate whether pre and post audits are required, if there is funding or incentive levels set for audits, eligibility requirements for audit incentives
- 7. **Sub-Program Quality Assurance Provisions:** Please list quality assurance, quality control, including accreditations/certification or other credentials

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For Market Transformation Programs Only:

- 1. Quantitative Baseline and Market Transformation Information: Provide quantitative information describing the current energy efficiency program baseline information (and/or other relevant baseline information) for the market segment and major sub-segments as available.
- Market Transformation Strategy: A market characterization and assessment of the relationships/dynamics among market actors, including identification of the key barriers and opportunities to advance demand side management technologies and strategies A description of the proposed intervention(s) and its/their intended results, and specify which barriers the intervention is intended to address.

(End of Appendix 4)



California Industrial SEM M&V Guide

VERSION 1.0, FEBRUARY 8, 2017

PREPARED BY:

DR. PETER THERKELSEN, RAVEN ENERGY CONSULTING, FOR SERGIO DIAS CONSULTING LLC AND SERGIO DIAS, SERGIO DIAS CONSULTING LLC

PREPARED FOR:

PACIFIC GAS AND ELECTRIC, SAN DIEGO GAS AND ELECTRIC, SOUTHERN CALIFORNIA EDISON, AND SOUTHERN CALIFORNIA GAS COMPANY
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1. Introduction

Rate-payer funded Strategic Energy Management (SEM) programs are a relatively new approach to saving energy in the industrial sector. These programs seek to:

- 1. Develop and improve an organization's Energy Management System (EnMS), which are the business practices that help an organization manage and continually improve energy performance
- 2. Implement energy efficiency projects and save energy
- 3. Demonstrate and report facility-wide energy performance improvement.

The industrial customer (customer), the SEM implementer (implementer), and utility are the three primary stakeholder who will be engaged in conducting the measurement and verification (M&V) of energy savings in order to demonstrate and report facility-wide energy performance improvements.

While other tools exist for determining facility-wide energy performance improvement as part of an SEM program, this *California Industrial Strategic Energy Management Measurement & Verification Guide* (M&V Guide or Guide) sets forth the requirements with guidance for determining and demonstrating facility-wide energy savings at an industrial facility as part of a utility SEM program in California.

This M&V Guide is meant for use with the California Industrial SEM Design Guide (Design Guide), which provides the detailed process for engaging a customer, reporting progress and influence, and provides the timing of key activities.

The main text of this M&V Guide contains the requirements that must be followed. Annexes contain additional information that may be of value to those seeking additional guidance or have unique challenges regarding energy savings determination. Documentation requirements, which can be used in part to show SEM program influence, are included in this M&V Guide.

If exceptions to this M&V Guide are sought, or clarification is needed, the utility SEM program manager shall be contacted.

The development of this M&V Guide is founded upon the key principles and details of other well-established M&V documents. All of the technical content and much of the language in this Guide has been taken with permission from three M&V documents:

- Bonneville Power Administration Monitoring Tracking and Reporting Reference Guide, Revision 5.0, February 20, 2015
- Energy Trust of Oregon Energy Intensity Modeling Guideline, Version 1.1, January 27, 2016, and
- U.S. Department of Energy Superior Energy Performance Measurement and Verification Protocol, July 2016.

In combination, these three documents have been used to determine facility-wide energy savings at hundreds of industrial facilities in the United States, Canada, and Mexico.

This M&V Guide is consistent with the principles of *ISO* 50015:2014 – *Measurement and verification of energy performance of organizations* – *General principles and guidance* and is compatible with *ISO* 50047:2016 – *Determination of energy savings in organizations*.

In addition, efforts were taken to ensure consistency in technical direction with:

 ASHRAE Guideline 14:2014 – Measurement of Energy, Demand and Water Savings, and • International Performance Measurement and Verification Protocol – Option C, January 2012.

While the determination of facility-wide energy savings can be performed by any party following this M&V Guide, it is expected that the customer participating in the SEM program and the SEM program implementer (or a supporting party qualified to determine SEM energy savings) will work together to determine savings. Although this Guide is meant to be followed in a linear progression, it is highly recommended that the SEM implementer first read and understand this Guide and then review the key concepts with the customer prior to engaging in the determination of energy savings.

NOTE: In order to demonstrate competency to use this Guide, it is recommended that the implementer or other individual tasked with determining energy savings be accredited with, or have the equivalent knowledge of an individual accredited with, a Superior Energy Performance - Performance Verifier or Certified Practitioner of Energy Management Systems credentials from the Institute of Energy Management Professionals.¹

1.1. A Facility-Wide Approach to Energy Savings Determination for SEM

For SEM programs the determination of energy savings is conducted at a facility-wide level. While the determination of facility-wide energy savings does not necessitate or result in the calculation of energy savings of individual energy performance improvement actions (EPIAs or energy efficiency projects), the energy savings of individual energy efficiency projects may be used in a limited capacity to provide confidence in calculated facility-wide SEM energy savings.

The determination of facility-wide energy savings is based upon a "facility boundaries approach" and consists of a process of:

- 1. As part of an M&V Report, establishing an Energy Data Collection Plan,
- 2. Accounting for energy consumption and relevant variables that affect energy consumption and collecting and maintaining data,
- 3. As part of an M&V Report, creating an Energy Data Report to document alterations to data,
- 4. Normalizing energy consumption values for relevant variables with energy consumption adjustment models (adjustment models) through:
 - a. The creation of hypothesis models with historic energy consumption and relevant variable data,
 - b. Testing the hypothesis models as reporting period data become available, and
 - c. Finalizing the adjustment models,
- 5. Calculating energy savings values using the finalized adjustment models, and
- 6. As part of an M&V Report, creating an Energy Savings Calculation Report to document calculated energy savings values and the adjustment models used.

If energy savings values cannot be determined following the above "facility boundaries approach" then facility-wide energy savings can be determined following an "Energy Performance Improvement Action" (EPIA) approach. The EPIA approach aggregates energy savings from non-incented individual energy performance improvement actions (projects).

¹ https://ienmp.org

Additionally, this M&V Guide provides guidance for "netting-out" or reducing the facility-wide savings based on estimated energy saving from other incented custom/capital energy performance improvement actions.

1.2. The Value of Energy Consumption Adjustment Models

The development and use of energy consumption adjustment models serves two primary purposes:

- 1. *Making energy savings values meaningful.* Energy savings are calculated by comparing energy consumption between two time periods. Because variables that affect energy consumption are ever changing, the operational and external conditions of these time periods do not inherently reflect one another. By adjusting, via a regression model, the energy consumption of one of the two time periods such that the operational and external conditions are comparable, calculated energy savings values depict an accurate representation of the impact energy performance improvement actions implemented at the facility have made.
- 2. Provide feedback to customers. The regression model developed to normalize for relevant variables is a valuable tool, providing industrial facilities with energy performance information over time. It is important that customers understand and trust their models and work closely with the implementer in all steps of the determination of facility-wide energy savings. The ultimate goal is for the customer to own the energy savings determination process and use the process and results as a tool as they continually improve energy performance.

1.3. Supporting Program Influence through SEM M&V

Utilities and implementers seek to demonstrate that the SEM program directly influenced the achievement of facility-wide energy savings. SEM program influence is demonstrated through documented interactions between the customer, implementer, and utility throughout the SEM program engagement. Details on the types and timing of reports are found in the Design Guide.

The determination of energy savings is a process that both the customer and implementer collaboratively conduct throughout the SEM program engagement. Through documentation of a M&V Report the implementer is able to document the program's impact. The M&V Report is comprised of information taken from the Energy Data Collection Plan, Energy Data Report, and Energy Savings Calculation Report. Raw data collected as part of this effort may be customer sensitive and shall be maintained by the customer and implementer. Raw data are not shared with the utility as a general rule. However, this data shall be made available to the utility upon request and per the requirements of the SEM program.

It is the responsibility of the implementer to finalize the M&V Report and deliver it to the utility as requested or at the conclusion of the SEM engagement. The M&V Report will be used to confirm that the adjustment models created are valid and allowable for use when the utility reports savings to the California Public Utilities Commission.

It is the responsibility of the implementer to ensure the customer understand what types of data will be required and to whom the data will be made available.

2. Terminology and Reference Notation

2.1. Terminology

For the purposes of this M&V Guide, the following terms and definitions apply.

Achievement period: interval between the end of the baseline period and the end of the reporting period Source: MSE 50021: 2015, 3.1

Baseline period: specific period of time selected as the reference period for the determination of energy performance improvement Source: MSE 50021: 2015, 3.2 (removed "SEP")

Boundaries: physical or site limits as defined by the organization Source: ISO 50001:2011, 3.1 - modified (removed "and/or organization limits" and "examples")

Energy: electricity, fuels, steam, heat, compressed air, and other like media Note 1: for the purposes of this Guide, energy refers to the various types of energy, which can be purchased, stored, treated, used in equipment or in a process, or recovered. Note 2: energy can be defined as the capacity of a system to produce external activity or perform work.

Source: ISO 50001:2011, 3.5 - modified (replaced "International Standard" with "this Guide", and removed "including renewable" in Note 1)

Energy accounting: system of rules, methods, techniques and conventions used to measure, analyze, and report energy consumption Source: ISO 50047, 3.2

Energy consumption: quantity of energy applied Source: ISO 50001:2011, 3.7

Energy use: manner or kind of application of energy Examples: ventilation; lighting; heating; cooling; transportation; processes; production lines Source: ISO 50001:2011, 3.18

F-test: A statistical test that can be used to assess how well a regression model fits the data, or how much evidence there is that a particular variable or set of variables belong in the model

Feedstock: raw or unprocessed material used as an input to a manufacturing process to be converted to a product

Example: crude oil used to produce petroleum products

Non-routine adjustment: adjustment made to the energy baseline to account for unusual changes in relevant variables or static factors, outside the changes accounted for by normalization

Note 1: non-routine adjustments may apply where the energy baseline no longer reflects energy use or energy consumption patterns, or there have been major changes to the process, operational patterns, or energy using systems Note 2: for routine adjustments normalization is used Source: ISO 50015:2014, 3.16 - modified (added Note 2)

Normalization: process of routinely modifying energy data in order to account for changes in relevant variables to compare energy performance under equivalent conditions Source: ISO 50006:2014, 3.13 - modified (removed Note 1 to entry)

p-value: value which indicates the probability of observing an outcome at least as extreme given that the null hypothesis was true.

Note 1: In a linear regression model, an estimate's p-value represents the probability of the model producing the estimated parameter value given that the true value was zero. Note 2: A regression model's F-test p-value indicates the probability that the true model is best represented by an intercept model (i.e., except for the intercept term, all variables are uninformative)

Relevant variable: quantifiable factor that affects energy performance and routinely changes

Examples: Production parameters (production volume, production rate); weather conditions (outdoor temperature, degree days); operating hours; operating parameters (operational temperature, light level).

Source: ISO 50047, 3.18

Reporting period: ending period in which energy performance improvement is measured relative to the baseline period to determine SEP energy performance improvement Source: MSE 50021: 2015, 3.6

Static factor: Identified factor that affects energy performance and does not routinely change

Source: ISO 50047, 3.21

2.2. Reference Notation

This section describes the notation used in this Guide. The energy consumption and savings notation is designed to distinguish quantities in the format shown below.



- 1. **Base Notation:** Describes if the energy consumption or savings is for delivered energy and provides the base for energy performance improvement notation.
- **Energy Types:** Describes the type of energy that is quantified. The asterisk (*) notation 2. is used as a placeholder for a generic or unknown energy type.
- 3. **Modeled Period:** Indicated in subscripts and defines the time period for which the model is built.
- 4. Period/Conditions of Interest: Indicates the time period or conditions of interest for which the model is being applied to.
- Adjustment Indicator: Indicated in superscripts and describes if the quantity of energy 5. is observed (actual) or adjusted.

1. Base Notation

ECD(*)	Delivered energy consumption of an unspecified energy type
E(*)	Quantity of energy of an unspecified type
ESD(*)	Delivered energy savings of an unspecified energy type
EnPI	Energy Performance Indicator

2. Energy Types

Individual energy type notation replaces the asterisk (*) in parentheses from the base notation above. The following are recommended for clarity of communication.

*	Unspecified energy type
е	Electricity
ge	Grid delivered electricity
pve	On-site generated electricity from on-site photovoltaic panels
ng	Natural gas
st	Steam
са	Compressed air
d	Diesel
С	Coal
hw	Hot water
Σ	The sigma notation is used to represent summation of all energy types.
	$ECD(\Sigma) = \sum_{*} ECD(*)$
	Example: if observed baseline delivered energy types are "ge" and "ng", then $ECD(\Sigma) = ECD(ge) + ECD(ng)$

3. Modeled Period and 4. Period/Conditions of Interest – (Subscript)

b	Baseline period
r	Reporting period
S	Standard conditions
m	Mean conditions

5. Adjustment Indicator – (Superscript)

0	Observed (actual) value for the indicated time period of condition of interest
а	Adjusted value for the indicated time period or condition of interest

Energy Savings Notation

ESD _{TD} Delivered energy savings as determined by the top-down approach	
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3. Characterizing the Facility

The process of characterizing the facility is conducted prior to the collection of any energy consumption or other data, the creation of energy consumption adjustment models, and calculation of energy savings. This process is conducted in tandem between the customer and implementer and is best done at the facility.

3.1. Establishing Facility Boundaries

3.1.1. Initial Development of Facility Boundaries

Facility boundaries are used as the point at which energy types (e.g. electricity, natural gas, propane, and diesel) are accounted for, as this is where these types of energy enter or leave the facility. In the majority of situations energy consumption of any energy type will not need to be submetered within the facility boundaries. Examples of when metering of energy consumption and generation metering is required within the facility boundaries are presented in Section 1.

The facility boundaries shall align with production lines, process systems, buildings and/or utility meters and submeters as appropriate. All energy consumed within the buildings and by operations which are included within the scope of the EnMS being developed as part of this SEM engagement must be included inside the facility boundaries.

The customer is responsible for initially identifying the facility boundaries. Documentation of facility boundaries shall include one or more line drawings of the facility with the facility boundaries clearly marked. The line drawing(s) shall include demarcation of buildings and major equipment and processes within the facility boundaries. Process flow diagrams, energy maps, piping and instrumentation diagrams, and value stream maps can be helpful in creating the line drawing(s). Energy maps are used as part of the implementation of the facility's EnMS.

NOTE: Facility boundaries are considered three-dimensional, thus energy accounting shall include energy that enters the facility boundaries from the sky (e.g. rooftop solar PV) and ground (e.g. on-site natural gas extraction) if consumed at the facility in the form of an energy type for which energy savings are being determined. This requirement is needed to address the energy accounting of onsite solar generated electricity as well as natural gas extraction, consumption, and exportation as a product. See Section 1 for more information.

The facility boundaries shall not change between the baseline and reporting periods. Subsequent steps in the energy modeling process may reveal a need to revisit facility boundaries. Changes to the facility boundaries made after the baseline period will result in the need for a documented non-routine adjustment to the baseline energy values (Section 7.5.1).

3.1.2. Utility and Submeter Boundary Considerations

Use of existing utility meters may be sufficient to conduct the energy consumption portion of energy accounting at most facilities. However, if utility meters serve buildings, equipment, processes or other energy using systems outside the boundaries of the SEM program for which energy savings are being determined, submeters are required to net out the energy consumption of these energy uses.

The customer shall identify all utility and other relevant meters for all types of energy delivered to or away from the facility boundaries. Serial numbers or other unique identifiers of these meters shall be recorded as part of the Energy Data Collection Plan. The location of these meters shall be recorded on the line drawing(s) showing the connection between the meters and the energy uses.

Data regarding the quantity of energy delivered into or away from the facility boundaries (delivered to the facility, delivered away as energy export, delivered away as energy product, or feedstock) may be available directly from meters (utility or submeters) or taken from a supplier invoice (see Section 6 for more information). Meters (utility or submeters) may directly report energy consumption values or physical properties such as pressure, temperature, mass, volumetric flow, and heating value that can be used to calculate energy consumption by using engineering equations and conversion factors. Equation and conversion factors shall be documented as part of the Energy Data Collection Plan.

3.1.3. Energy Flows

Energy flows for the energy types for which energy savings are to be determined shall be documented on the line drawing(s). The energy flows trace the "path" energy takes from the point it is delivered to the facility boundaries and to the energy end uses. If applicable, the energy flows will include the "path" energy may take into and out of on-site storage, delivered away from the facility as an energy product or energy export (see Section 6 for more information). Additionally, if energy is used as a feedstock this shall be noted as part of the energy flow. The energy content of the energy flows that do not terminate in energy end uses within the facility boundaries will need to be netted out of the delivered energy value as part of the energy accounting (Section 5).

3.1.4. Finalization of Facility Boundaries

Using the initial line drawing(s) as well as the information regarding utility meters and submeters, the customer and implementer shall finalize and document the facility boundaries. The finalized line drawing(s) shall show the facility boundaries, buildings, major equipment and processes, energy flows, and utility and relevant variable data meters and submeters. This documentation is to be reviewed by the customer with the implementer and be documented as part of the Energy Data Collection Plan.

3.2. Identifying Relevant Variables

Relevant variables are factors that may or may not be in the control of the customer and which directly affect the amount of energy consumed within the facility boundaries.

EXAMPLES: Production quantities, equivalent products, number of batches, heating degree-days, humidity, occupancy, hours worked, and raw material characteristics.

Relevant variables shall be physical quantities, characteristics, or conditions. Financial metrics or metrics that include a financial component, such as product price or energy costs are not allowed as they lack a physical relationship to energy consumption.

Relevant variables are used to normalize energy consumption as part of an adjustment model. In order to develop robust and meaningful adjustment models, care shall be taken to avoid:

- Omitting relevant variables that affect energy consumption, and
- Including variables that do not directly affect energy consumption.

The customer and implementer shall work together to identify a list of potential relevant variables that may or may not be included in the adjustment models developed as part of the energy consumption normalization process, using engineering judgment to identify potential relevant variables. For each potential relevant variable included on this list the energy type the relevant variable is suspected to affect shall be noted. This list shall be included as part of the Energy Data Collection Plan.

A metric of production is often a relevant variable, but is likely not the only relevant variable for an industrial facility. It is important to understand how many product types are manufactured in a facility and whether there is likely to be a difference in energy consumption based on operating parameters such as product type, process flow, or batch size. Facility personnel who work closely with energy end uses typically have insight into what variables shall be considered. By thinking openly about not only which variables may affect energy but how those variables compare to one another, the chances of developing a robust energy consumption adjustment model will be increased.

EXAMPLE: A facility that produces two types of products, one of which is very energy intensive to produce and the other is not, may consider including production levels from both products rather than an aggregated production value.

The following variables shall be considered for inclusion as relevant variables:

- Activity level (e.g., operating hours, operating mode (weekend/weekday), production level, product mix, and equivalent products, occupancy)
- Weather (e.g., heating degree-day, cooling degree-day, ambient temperature, and humidity)

See Annex B for more information on selecting production based relevant variables.

The list of variables will be reviewed by the implementer with the customer prior to their use in developing hypothesis model(s). This review will include discussions about adding and removing variables. Variables are excluded from the initial list if there is no logical mechanism by which the variable would affect the consumption of energy types for which energy savings are being determined.

Additionally, a discussion on how data related to relevant variables will be collected shall be included in the Energy Data Collection Plan. Relevant variable data will be collected as part of the energy accounting process (Section 5).

A reduced list of relevant variables which have been chosen for inclusion in the energy accounting shall be included in the Energy Data Collection Plan.

NOTE: In the process of selecting relevant variables for energy accounting, there exists competing objectives of capturing the full subset of variables which will prove statistically significant for inclusion in adjustment models, while aiming to limit the number of relevant variables to a level that is easy to maintain yet meaningful. No single analytical technique will provide the perfect solution, so the customer and implementer must rely on their own experience and engineering judgment to decide which relevant variables shall be included as part of the Energy Data Collection Plan.

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4. Establishing Time Periods

For each two-year SEM engagement cycle, the determination of energy savings is based upon the energy consumption of the baseline and selected reporting periods. Together, two annual reporting periods comprise the achievement period.

Energy savings are determined using a baseline period that is valid for two years (the duration of an achievement period). As such, a progression is made of every second reporting period becoming the new baseline period.





4.1. Baseline Period

The length of the baseline period shall be 12 consecutive months (1 year) to account for variations in operations and seasonality. The baseline period does not have to coincide with a calendar year.

For the initial baseline period, if valid adjustment models cannot be created and it is suspected that the 12-month baseline period is a limiting issue, a 24-month long baseline period may be used. Baseline periods established for subsequent achievement periods must be the same 12-months as the prior year two reporting period.

EXAMPLE: February 1 through January 31 of the following year.

For the initial baseline period, the customer and implementer shall work together to establish the start date of the initial baseline period such that it ends within plus or minus of one month of the first date of actions related to developing and implementing the EnMS as part of the current SEM engagement.

NOTE: It may be helpful to select a baseline period start date that coincides with utility billing data (e.g., if billing data starts on the 15th of each month, starting the baseline period on that data may help create a more meaningful model)

4.2. Achievement Period

The achievement period is 24-months (2 years) long and begins immediately upon the conclusion of the baseline period.

4.3. Reporting Periods

The achievement period is comprised of two 12-month long reporting periods. The two reporting periods sequentially follow one another. As such, the first reporting period begins immediately following the conclusion of the baseline period and is the same as the first half of the achievement period. The second reporting period begins immediately following the conclusion of the first reporting period and ends at the conclusion of the achievement period.

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The implementer shall confirm the proposed start and end dates of the baseline, achievement, and reporting periods with the customer. The confirmed dates will be documented as part of the Energy Data Collection Plan.

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5. Energy Accounting

Energy accounting is a system of rules, methods, techniques and conventions used to measure, analyze, and report energy consumption and relevant variable data.

The quantity of a particular type of energy that is consumed within the facility boundaries is defined by the net energy flow of that energy type across the facility boundaries. For each energy type included in the energy accounting, energy consumption shall be equal to or greater than zero. If energy consumption is calculated to be a negative value, it shall be accounted for as zero. In such cases, care shall be taken to ensure energy export and energy product are correctly accounted for.

The below equation describes how to calculate energy consumption. Figure 2 graphically illustrates this relationship.

ECD(*) = E(*) delivered to the facility E(*) onsite generation/extraction – E(*) delivered away as export –

E(*) delivered away as product + E(*) drawn out of storage -

E(*) added to storage - E(*) used as feedstock



Figure 2: Generic energy consumption accounting flow diagram.

Special cases and requirements of energy accounting are presented in Section 1.

5.1. Types of Energy with Relatively Insignificant Consumption

All energy types that cross the facility boundaries during the baseline and reporting periods shall be included in the energy accounting. Types of energy may be omitted from the energy accounting if these energy types account for in aggregate 5.0 percent or less of the facility's total delivered energy consumption in each of the baseline and reporting periods. In calculating the percent of total consumption represented by an omitted energy type, both the energy consumption of the omitted energy type and total facility energy consumption shall be calculated on a delivered energy basis. The determination to omit energy types may be based on measured or calculated data.

EXAMPLE: A facility that produces and freezes large quantities of processed foods uses propane for two forklifts.

If the energy consumption of an energy type has been determined to be insignificant and will be omitted from the energy accounting, then it shall be omitted in both the baseline and reporting periods. The omission of an energy type shall be noted in the Energy Data Collection Plan along with justification for the omission.

5.2. Developing the Energy Data Collection Plan

To support the energy accounting, the customer and implementer shall work together to develop an Energy Data Collection Plan. The basis of the Energy Data Collection Plan will have already been established as part of the actions taken in Section 4. In addition to the Energy Data Collection Plan documentation requirements included in Section 4, the Energy Data Collection Plan shall include the items specified in this section as well as by the utility.

The Energy Data Collection Plan shall be utilized to collect data for the baseline and achievement period. In cases where historic data are needed, such as when establishing a baseline period that extends prior to the current date, data shall be collected from utility bills and other records in line with the Energy Data Collection Plan (e.g., data are collected at the same frequency and from the same meter or another source).

The Energy Data Collection Plan may need to be updated during the SEM engagement if it is found to be ineffective, identified meters are removed, additional relevant variables are identified, or other extenuating circumstances arise. The customer and implementer shall work together to make and document changes to the Energy Data Collection Plan. The updated Energy Data Collection Plan shall be put into place and used to retroactively collect data for the baseline and reporting periods.

Requirements and considerations for the Energy Data Collection Plan are presented below.

5.2.1. Frequency of Data Collection

Energy and relevant variable data shall be collected at least monthly if not more frequently (e.g., weekly, daily, and 15-minute interval). In general, more frequent data collection can be beneficial in the development of a robust energy consumption adjustment model. Daily or weekly time interval data typically provide better insight into the process being modeled, and thus more accurate adjustment models may be created when compared to data of longer durations such as monthly data.

The recommended minimum standard for the number of data points needed for use in the creation of an adjustment model is six times the number of relevant variables that will be used in the adjustment model. As at this point it is unknown how many relevant variables will ultimately be used in the development of adjustment models, the expected number of relevant variables that will be used should be selected.

EXAMPLE: Production output, HDD, CDD, and shift hours have been selected as relevant variables for inclusion in the Energy Data Collection Plan. It is expected that production output, CDD, and shift hours will be used in the electricity adjustment model. It is expected that HDD will be used in the natural gas adjustment model. As such, at a minimum, 18 data points are recommended for use as part of the electricity adjustment model and, at a minimum, 6 data points can be used for the natural gas adjustment model. These recommendations can be used to specify that electricity consumption, production output, CDD, and shift hour data should be collected on at least a weekly basis and that natural gas and HDD data should be collected on at least a monthly basis. This is just a

recommendation and the customer and implementer can agree upon other data collection frequencies understanding that with having more data points will provide more information to arrive at a useful model.

Potentially overriding the equation based guidance, the frequency of data collection shall take into consideration the frequency at which energy consumption data and relevant variable data can be obtained and be meaningful. If production is a relevant variable and data can only be collected on a weekly basis, then there is limited benefit to collecting energy consumption on a 15-minute basis. This should not prohibit a customer from collecting data more frequently as data can be aggregated together when creating energy consumption adjustment models. (e.g., 15-minute interval electricity consumption data can be aggregated to a weekly basis if the relevant variables associated with electricity are only available on a weekly basis.)

5.2.2. Options for Facilities with Multiple Meters

When a facility needs to use more than one meter for a given energy type, consider the following options, selecting one for use as part of the energy accounting for each type of energy.

- Aggregate energy data (preferred option). Sum the data from two or more meters to create an aggregate of facility meter data. If meter data is collected at different intervals, aggregate to the largest sampling interval. This method is appropriate when:
 - Meters have the same interval, or the largest meter has the largest sampling interval.
 - The resulting adjustment model created by using the aggregate data is simple and understandable.
- Build separate energy adjustment models (option used only if aggregation does not work). Build an individual energy adjustment model for each meter. Energy savings calculated for each model will be aggregated. This method is appropriate when:
 - An aggregate energy adjustment model will have large a number of relevant variables. Guidance is that if there are eight relevant variables in a model it should be split if possible by using data from multiple meters.
 - Meters serve different areas or processes with different relevant variables.
 - Meters have different measurement intervals, especially if a meter with the largest energy consumption has much finer granularity than the other meter(s).
 - The facility prefers separate models for greater context of energy savings.

5.2.3. Meter Calibration

All data used as part of the energy accounting, including those for energy consumption and relevant variables, shall be taken from precise measurement systems, such as utility meters and regularly calibrated submeters. Quantification of energy consumption or of a relevant variable via subtraction of readings from two or more calibrated meters is acceptable.

If energy consumption data are taken from a source other than the utility meter, calibration of that meter must follow the manufacturer's recommendations. Calibration records and records of repairs to calibrated meters shall be maintained by the customer and available for the implementer to review if requested. Calibration records for utility meters are not the responsibility of the customer or implementer and do not need to be maintained.

Weather data shall be actual weather data from the baseline and achievement period, from published government sources, such as primary National Oceanic and Atmospheric Administration (NOAA) weather stations, the National Climate Data Center (NCDC) database, or from a calibrated weather meter within close enough proximity to the facility to reflect the weather conditions at the facility.

NOTE: As part of the energy accounting, accurate records will need to be maintained regarding the data source of all energy and relevant variables data. Changes made to the data set, such as the removal of outliers (see Section 5.3.2) will need to be documented. Data continuity is critical to maintaining adjustment model accuracy throughout the SEM engagement

5.3. Implementing the Energy Data Collection Plan

The implementation of the Energy Data Collection Plan is a continuous process conducted throughout the achievement period. The Energy Data Collection Report is the second section of the M&V Report and provides details regarding alterations to the collected data.

5.3.1. Collecting Data

The Energy Data Collection Plan shall be implemented to collect energy consumption and relevant variable data. The collected data shall be recorded and maintained by the customer and implementer. The persons responsible for collecting and maintaining the collected data shall be identified in the Energy Data Collection Plan. The implementer shall check with the customer on a regular basis (suggested bimonthly) to ensure that data is being accurately collected and recorded. These reviews shall be documented.

At a minimum, the implementer and customer shall review the collected data when all baseline period data are collected, when the first six months' worth of reporting period one data are collected, and when all data for each of the two reporting periods have been collected. At these points in time the utility will confer with the implementer that the data collection and quality are acceptable. Reviews of data between any combination of customer, implementer, and utility shall be documented as part of the Energy Data Report.

5.3.2. Reviewing for Data Outliers and Missing Data Points

Data outliers and missing data points can negatively impact the accuracy of energy consumption adjustment models.

Energy consumption and relevant variable data shall be screened for anomalous values that are not representative of typical operating conditions. If high variability is characteristic of the operation, outliers do not necessarily need to be removed. Data outliers can be an indicator of poor operational control and offer the potential for identification of an energy performance improvement action. The effect of outliers on the reliability of the adjustment model estimates and the reason for removing them shall be maintained as a record in the Energy Data Report and discussed with the IOU at the appropriate review.

If an anomalous value is found, reasons for the anomaly shall be identified if possible. If the anomaly is determined to be a data error, the error shall be corrected if possible. Otherwise, if the anomaly is determined to be a data error that cannot be corrected, the anomalous value shall be deleted from the adjustment model(s) data set. The effects of data errors on the reliability of the adjustments model estimates and the reason for making any changes to the data set shall be maintained as a record in the Energy Data Report and discussed with the IOU at the appropriate review. If the anomalous value is determined not to be a data error it shall be left in the data set.

An initial review for outliers and missing data shall be conducted by creating time series plots of data for energy consumption and relevant variable independently in a time series format. Outliers and missing or erroneous entries shall be flagged for review, investigation, and correction (if possible) by applying a common rule of thumb for identifying data that lie outside the range of plus or minus three standard deviations from the mean.

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Figure 3. Example of graphical methods to identify outliers.

Omitted data shall be corrected for by closing the gap in the data set, and not by replacement with a calculated interpolation. Filling in missing data can skew model validity tests. In all cases, omitted data cannot be replaced.

The removal of outliers and the efforts taken to replace the omitted data shall be documented as part of the Energy Data Report.

If outliers related to specific operating conditions are excluded from the baseline period, the intervals in the achievement period corresponding to the same conditions must also be excluded from the reporting period.

The customer and implementer shall identify outliers and propose a resolution strategy which will be reviewed with the implementer. Collectively the customer and implementer will decide, using their best judgment, how to account for the outliers. These discussions shall be documented in the Energy Data Report.

NOTE: A particular type of outlier results from shut-down periods where production is zero. In some facilities, this may only occur for a handful of days per year. If a single adjustment model can be created that reflects both the production and non-production days, the shut-down outliers do not need to be excluded. Alternatively, a relevant variable can be created to account for the effect of reoccurring shutdown days. If an otherwise valid adjustment model cannot be created to accommodate the shut-down periods, these periods may be excluded from the model or treated as a separate mode of operation and modeled independently. When determining a strategy, consider whether energy savings are expected to be achieved during shutdown periods.

NOTE: Outliers should not be excluded from the model unless there is a reason to do so. For example, a facility may have outliers on major holidays. Consider adding a relevant variable to represent those holidays, or simply exclude these holidays from the model. Note that any reoccurring periods that are excluded from the baseline model must also be excluded from the achievement period. NOTE: Be careful to distinguish between a zero-data point and a missing data. Missing data should be excluded and not treated as a zero.

NOTE: The removal of outliers, especially in the cases when data is collected on a monthly basis, can significantly affect an energy consumption model's predictive power. Careful consideration should be made regarding the removal of outliers when data is collected on a less frequent basis.

Outliers shall be reviewed by the customer and implementer so that both parties understand the cause of the anomaly. The customer shall take corrective action to reduce the potential for data outliers if possible as outliers can be an indicator of poor operational control or data collection systems. The omission of data points shall be documented in the Energy Data Report.

5.3.3. Adjusting Data for Time-Series Offsets

Data for energy consumption and relevant variables will frequently not be available for exact calendar months, or aligned with time intervals. For example, monthly production data may be reported on the first of the month, while utility data may be provided mid-month. Alignment of time intervals is preferred and may facilitate development of more representative adjustment models, but it is not required.

A time-series offset may exist between energy consumption and relevant variable data. Energy consumption and relevant variable data shall be reviewed to identify time-series offsets. This most commonly occurs when data are collected at high frequency levels (typically weekly or higher). Time-series offsets that negatively affect adjustment model development shall not be used.

Time-series plots shall be used to identify consistent offsets between energy consumption data and each relevant variable (Figure 4). For example, if an energy-intensive process has a twoday lead time from the point at which production levels are measured, a two-day time series adjustment may need to be applied to the production variable.

If such an offset is identified, the customer and implementer shall discuss if the application of a time-series adjustment, or if aggregating data such that the data frequency interval is slower (e.g. aggregate so that all data are represented on a weekly rather than daily time interval), would improve the adjustment model. The decision to use a time-series adjustment shall be documented as part of the Energy Data Report.



Figure 4. Example of a time-series plot (energy and production vs. Time). Arrows indicate the timeseries offset which may be adjusted for.

5.4. Expressing Energy Consumption in Common Units

A common energy unit of kWh for electricity and MMBTUs for natural gas shall be used as part of the energy accounting. Additionally, a MMBTU value of electricity shall be maintained for use in reporting total energy savings (natural gas, electricity, and other). A common energy unit allows for comparison and aggregation of the absolute and relative consumption of multiple energy types. All conversion factors used to convert various units to the chosen common energy unit shall be used consistently for the baseline and reporting periods and recorded as part of the Energy Data Report.

5.5. Establishing Energy Consumption for Time Periods

5.5.1. Baseline Period Energy Consumption

The outputs of the energy accounting are used to determine the energy baseline. An energy baseline is the singular quantifiable value of energy consumption for the baseline period. An energy baseline is established by summing the multiple data points of energy consumption collected as part of the energy accounting during the baseline period (e.g. 12 monthly data points summed).

An energy baseline shall be established for each type of energy for which energy savings are being determined as well as an aggregated energy baseline for all types of energy (e.g., an individual energy baseline for electricity, natural gas, and others and for all energy types together) using common units (MMBTU).

5.5.2. Reporting Period Energy Consumption

Similarly, a value of energy consumption for each energy type and all energy types in aggregate is to be established for each reporting period.

6. Energy Consumption Normalization Through Adjustment Modeling

6.1. General Principles of Normalization

Normalization of energy consumption through the use of adjustment models shall be made so that baseline and each reporting period can be compared as if all relevant variables were the same in the two periods. Normalized baseline period and/or reporting period energy consumption are calculated using one or more adjustment models.



Figure 5. Left: Illustration of baseline period data and the application of a forecast adjustment model to that data. Right: Illustration of actual reporting period energy consumption, the application of the adjustment model to reporting period relevant variables, and the resulting energy savings.

6.2. Primary Methods of Normalization

Three primary methods are allowed to create adjustment models.

6.2.1. Forecast Normalization

Forecast normalization results in a model of baseline period energy consumption that is applied to the reporting period relevant variable values to calculate adjusted baseline period energy consumption $(ECD(*)^a_{b|r} \text{ and } ECD(\Sigma)^a_{b|r})$ for comparison with observed (actual) reporting period energy consumption $(ECD(*)^o_r \text{ and } ECD(\Sigma)^o_r)$. The adjusted baseline period energy consumption is an estimate of the energy consumption that would have been expected at reporting period-relevant variable values, if the baseline operating systems and practices were still in place during the reporting period.

The forecast normalization method shall be attempted first to create adjustment models.

6.2.2. Backcast Normalization

Backcast normalization results in a model of the second reporting period energy consumption that is applied to the baseline period and first reporting period-relevant variable values to calculate adjusted second reporting period energy consumption $(ECD(*)^{a}_{r|b})$ and $ECD(\Sigma)^{a}_{r|b})$ for

comparison with observed (actual) baseline period and first reporting period energy consumption $(ECD(*)_b^o \text{ and } ECD(\Sigma)_b^o)$. The adjusted second reporting period energy consumption is an estimate of the energy consumption that would have been expected at baseline period or first reporting period relevant variable values, if the second reporting period operating systems and practices were in place during the baseline period.

The backcast normalization method is applicable in instances where:

- One or more relevant variables has significantly increased or decreased from the baseline period through the reporting period.
- The resolution of the energy signature for the baseline period was relatively poor and the resolution of the energy signature during the reporting period has significantly improved.
- No major operational or structural changes have occurred during the achievement period.

The backcast normalization method shall be attempted to create adjustment models if no valid adjustment model can be created using the forecast normalization method.

6.2.3. Standard Conditions Normalization

Standard condition normalization results in two adjustment models: one of baseline period energy consumption and one for reporting period energy consumption. Standard conditions are applied to each of the models to calculate adjusted energy consumption values $(ECD(*)^{a}_{r|s})$ and $(ECD(*)^{a}_{b|s})$ and $ECD(\Sigma)^{a}_{b|s})$. The adjusted energy consumption for each period is the estimated energy consumption that would have been expected at a standard set of conditions (relevant variable values) in both the baseline and reporting periods.

The standard conditions method has proven valuable when creating adjustment models for facilities with processes which do not change over time and for which energy consumption is affected largely by a single relevant variable (e.g., clean rooms and data centers).

The standard conditions method shall only be used if valid adjustment models cannot be created using the forecast and backcast normalization methods.

6.3. Summary of Primary Normalization Methods

Table 1: summary of normalization methods

	Forecast	Backcast	Standard Conditions
Reporting period energy consumption	Actual reporting period energy consumption	Reporting period model using baseline period conditions	Reporting period model using standard conditions
Baseline period energy consumption	Baseline period model using reporting period conditions	Actual baseline period energy consumption	Baseline period model using standard conditions
Operating characteristics the model is representing	Baseline period operating systems and practices	Reporting period operating systems and practices	Operating systems and practices using standard conditions

6.4. Mean Model

If an adjustment model cannot be developed using one of the three primary normalization methods, a mean model may be used if approval from the utility is obtained. Use of the mean model is not recommended and rational for use shall be documented as part of the Energy

Savings Calculation Report. This modeling method is useful in cases where there is insufficient variation in relevant variables and insufficient correlation between relevant variables and energy consumption. This model is appropriate when the R^2 is very low (e.g. less than 50%).

For a mean model, the baseline energy consumption is the average energy consumption across the baseline period.

This method requires that baseline-operating conditions be thoroughly documented. If plant conditions change significantly between the baseline period and reporting period, the mean model may lose validity.

The mean model method shall not be used if any of the relevant variable values in the reporting period fall more than 10% outside the range of values recorded in the baseline period.

7. Creating and Validating Energy Consumption Adjustment Models

An adjustment model shall be created for each type of energy being considered in the determination of energy savings. The same adjustment model method (forecast, backcast, standard conditions, or mean model) shall be used for all energy types consumed within the facility boundaries for which energy savings are being determined.

7.1. Process for Developing and Validating Energy Consumption Adjustment Models

The following process for developing a valid (Section 7.4) energy consumption adjustment model shall be followed:

- 1. <u>Create and validate a forecast energy consumption hypothesis model:</u> Once 12 months of baseline period energy consumption and relevant variable data has been collected, the implementer shall create and validate a forecast energy consumption model for each energy type under consideration per this Guide. These models are referred to as the hypothesis models. By developing forecast hypothesis energy consumption models at this point (prior to or during achievement period energy accounting), confidence is established that valid energy savings values can be calculated even prior to conducting the energy accounting for the achievement period. In some instances, more than one statistically valid adjustment model can be formed for a given type of energy. In these instances, the implementer and customer shall use engineering judgment to identify the hypothesis model that best represents the operations of the facility. All statistically valid adjustment models and tested as part of the selection of a final model.
 - a. If valid hypothesis models are created, the implementer shall review the models with the customer and explain the relationships between energy consumption and relevant variables that are expressed in the hypothesis models.
 - b. If valid hypothesis models cannot be created using 12 months of baseline period energy consumption and relevant variable data, additional energy consumption and relevant variable data collected for the 12 months prior to the original 12month long baseline period shall be collected and used as part of a 24-month long baseline period.
 - c. If valid hypothesis models cannot be created using 24 months of baseline period energy consumption and relevant variable data, the Energy Data Collection Plan shall be examined by the implementer and customer for modification that would allow for creating of valid hypothesis models based upon what has been learned through earlier attempts to create hypothesis models.
 - d. If all prior attempts to create valid hypothesis models fail, the Energy Data Collection Plan shall be left in its original form and used with the goal of creating a valid backcast or other type of energy consumption adjustment model when all reporting period data have been collected. The implementer shall meet with the customer and explain that no valid forecast hypothesis model was able to be created.

NOTE: Before creating hypothesis models, the rest of this Guide shall be read and understood.

2. <u>Document hypothesis model</u>: Regardless of whether valid hypothesis models were created or not, the implementer shall review efforts to create hypothesis models with the customer and explain the relationships between energy consumption and relevant variables that are expressed in all hypothesis models created. The results of step 1, including information detailing any valid hypothesis models, extensions to the baseline

period, alterations to the Energy Data Collection Plan, and conversations with the customer regarding the M&V process, shall be documented as part of the Energy Savings Calculation Report and shall be reviewed with the utility. If no valid adjustment models can be created, efforts to create models and suspected reasons for no valid model formation shall be documented in the Energy Savings Calculation Report.

- 3. <u>Test the hypothesis models during the first reporting period</u>: Once 6 months of reporting period one energy consumption and relevant variable data have been collected per the Energy Data Collection Plan, the implementer shall apply these data to the hypothesis models to test if the models are able to generate valid results. Results of this testing shall be shared by the implementer with the customer.
 - a. If the hypothesis model testing produces valid results and no issues are identified by the implementer, the hypothesis model can be used by the implementer and customer together, or by the implementer alone if so desired by the customer, to continuously track energy performance improvement as additional data are collected per the Energy Data Collection Plan.
 - b. If the hypothesis model testing does not produce valid results,
 - i. The implementer shall review the hypothesis models and attempt to create hypothesis models that are valid with the data collected.
 - ii. If no such hypothesis models can be created, the implementer shall review the Energy Data Collection Plan to ensure the selected relevant variables and sources of energy consumption and relevant variable data are reflective of the operations of the facility. If discrepancies between the Energy Data Collection Plan and the realities of the facility are found, the implementer shall adjust the Energy Data Collection Plan and review the changes with the customer.
 - iii. If no adjustments can be made to the Energy Data Collection Plan which result in valid hypothesis models, the Energy Data Collection Plan shall be left in its original form and used with the goal of creating a valid backcast or other type of energy consumption adjustment model when all reporting period data have been collected. The implementer shall meet with the customer and explain that no valid forecast hypothesis model was able to be created and shall meet with the utility to discuss modeling options.
- 4. Transition from hypothesis to final models: When all data for the first reporting period have been collected, the implementer shall use the data with the hypothesis models and test for statistical and qualitative validity. If the hypothesis models are valid, they are considered final and are now referred to as the final models. In cases where there are multiple statistically valid hypothesis models for a given type of energy, the implementer and customer shall work together to use engineering judgment to selected the model that best represents the operations of the facility. In some cases, a model that meets the majority but not all of the statistical requirements best represents the operations of the facility. In these cases, the implementer shall obtain permission from the utility to use the less statistically valid model as the final model. If this is done, the final model, the other models not selected, and the rational for selecting the less statistically valid model shall be documented. The final models can be used with data from the first and second reporting periods to calculate energy savings for the two periods per the instructions in this Guide. The implementer is responsible for using the final models as part of the SEM engagement but shall review the final models with the customer and show the customer how the models can be used to understand changes in energy performance as well as be used to gain better operational control of the facility. The final models shall be documented in an Energy Savings Calculation Report.

7.2. Connecting Relevant Variables to Energy Consumption

Adjustment models shall be created based upon an informed understanding of the physical characteristics of the equipment, operations, and processes present within the facility boundaries.

There are no requirements at any point to use any software to create adjustment models. Regardless of any tools used to create adjustment models (using any method), the validity requirements of Section 7.4 must be met.

7.2.1. Establishing Relationships Between Energy Consumption and Relevant Variables Use scatter diagrams to confirm whether a linear relationship exists between the data for energy consumption of each type of energy for which energy savings are being determined and each relevant variable. These graphs shall be included as part of the Energy Savings Calculation Report.

Though not statistically tested at this point, a lack of relationship between energy consumption and a relevant variable for which a relationship was expected shall prompt a discussion between the customer and implementer. This result may be due to poor operational control or a mischaracterization of the facility. These discussions shall be documented as part of the Energy Savings Calculation Report.



Figure 6. Example of a scatter plot (energy vs. production).

NOTE: Facilities that have an ambient-dependent energy profile will often exhibit a "change-point" characteristic. The presence of a "change-point" can be determined by plotting a relevant variable versus energy consumption. Modeling a facility that exhibits a change-point with a single linear model introduces unnecessary error. Consider alternative relevant variables or a Multi-Mode Model if a change-point is observed (Section 7.3.1).



Figure 7. Example of a 3-parameter cooling change-point model.

NOTE: When two or more relevant variables exhibit correlation for a singular energy type, multicollinearity is present. Adding and removing variables from the adjustment model will affect the significance of other variables. The presence of collinear variables can understate the statistical significance of individual relevant variables. Although in many cases multicollinearity is unavoidable, it removes the value of t-stat and standard error metrics. While multicollinearity does not affect the model's predictive capacity, it has the potential to add unnecessary complexity. See Annex C for a discussion on the effect of multicollinearity on an adjustment model.

7.3. Creating Energy Consumption Adjustment Models

Adjustment models shall be created for each type of energy such that the combined models describe energy consumption as a function of relevant variables for each energy type included in the energy accounting plan (i.e. electricity, natural gas). The starting date and duration of the period for which adjustment models for all energy types are created shall be the same.

A minimum of 12 months of data are required when creating an adjustment model. More frequent data may be used per the Energy Data Collection Plan. The data used to create an adjustment model may be at any regular frequency of observation from metering data for each energy type and relevant variable as was collected as part of the energy accounting provided the model significance testing criteria of Section 7.4 are met. The frequency of data used in adjustment models for different types of energy does not have to be the same (e.g., weekly for electricity, monthly for natural gas).

Linear regression is used to create the adjustment models. Linear regression adjustment models allow for multiple relevant variables that affect energy consumption to be taken into account. The model takes the form:

Eq (5) $ECD(*) = b_0 + b_1x_1 + b_2x_2 + ... + b_kx_k$

where x_i is the relevant variable quantity, b_0 is the base load delivered energy consumption not related to relevant variables, and $b_{i>0}$ is the incremental energy consumption per unit of that relevant variable (coefficient).

All energy consumption adjustment model parameters (including the relevant variables, units, and associated coefficients used to make the model) shall be included in the Energy Savings Calculation Report.

NOTE: The linear adjustment model form allowed for in this Guide is not the only form of adjustment model used in various SEM programs around the country. Other adjustment model forms may be included in the Guide in future revisions.

7.3.1. Multi-Mode Models

Many industrial facilities experience seasonal swings in operation. Swings can occur as a result of seasonal changes in product type, product quantity or correlations between ambient temperature and process loads. When operational swings cause a fundamental change in the energy signature of a facility, consider building multiple models with distinct baseline periods.

If seasonal changes are abrupt and extreme, contemplate creating an adjustment model based upon production and another adjustment model based upon other relevant variables. For example, if a frozen vegetable processor only runs processing lines for a few months during harvest season, and acts as a frozen storage warehouse for the remainder of the year, the energy signature of these two operating modes is very different.

If seasonal changes are moderate and gradual, a single model will generally be sufficient to characterize the entire baseline period. For example, production increases at an ice cream manufacturer in the summer, but the mixture of product stays the same. In most cases, the single model will be valid for production and non-production days.

If a facility has a short period of abnormally high or low production with a different energy signature, or a negligible number of shutdown days throughout the year, consider ignoring these periods in the baseline and performance period.

Facilities experiencing swings due to weekend shutdowns are best modeled as one model with Saturday/Sunday/weekend relevant variables for simplicity.

Table 2 outlines the pros and cons for building one model versus two models.

Table 2: Options for modeling for facilities with production swings

Strategy	Pros	Cons
Single model with year-round savings	Captures savings at all intervals Easier to maintain one model than two. Most straightforward method, if energy signature stays consistent.	Periods with abnormally high or low production can skew the model. Seasonal production indicators can lead to complex models with many variables.
Single model with abnormally high or low production periods removed	Improves model accuracy during normal production periods. Works well if energy efficiency opportunities are minimal during excluded periods.	Cannot claim energy savings from excluded periods. Reduces number of baseline data points.
Dual production/non- production model	Each model has fewer variables and is easier to understand. Can improve model fitness compared to single model.	Modeler must maintain two models. Reduces number of baseline data points for each model.

7.4. Validating Energy Consumption Adjustment Models

The validity of applying adjustment models to relevant variables shall be tested through quantitative and qualitative tests. Adjustment models used to calculate adjusted energy consumption shall satisfy the validity requirements described in this section.

The implementer is responsible for establishing the validity of the adjustment model, reviewing the validity with the customer, and preparing documentation supporting adjustment model validity to be included in the Energy Savings Calculation Report.

7.4.1. Valid Quantitative Range of Model Relevant Variables

For an adjustment model to be valid for use to calculate adjusted energy consumption, the mean of the adjustment model's relevant variables used to calculate the adjusted energy consumption shall fall within both:

- The range of observed relevant variable data that went into the model, and
- Three standard deviations from the mean of the relevant variable data that went into the model.

Any outliers excluded when creating the adjustment model shall also be excluded when calculating the valid quantitative range of model-relevant variables.

7.4.2. Model Validity Testing

To establish quantitative validity, all adjustment models shall meet all of the following statistical tests:

Statistical Tests	Statistical Test Threshold Values	
Model R ²	> 0.75	
F-test overall model p-value	< 0.10	
At least one relevant variable	< 0.10	
p-value		
All relevant variables p-value	< 0.20	
Net Determination Bias	< 0.005%	
Coefficient of Variation	< 20% for daily models	
	< 10% for weekly models	
	< 5% for monthly models	

In cases where all of the tests cannot be met but a model passes a majority of the statistical tests and meets the qualitative requirements of section 7.4.3, the implementer shall document why the model should be accepted as valid and shall review the model and justification with the utility. Upon acceptance by the utility, the model will be considered valid.

As a visual check of adjustment model validity, for each adjustment model plot on a scatter diagram observed (actual) energy consumption versus the energy consumption calculated using the adjustment model. Check to see that the point pattern is narrowly clustered and uniformly distributed along the diagonal as illustrated in Figure 8. This graph shall be included in the Energy Savings Calculation Report.



Figure 8. Example of actual vs. predicted scatter plot.

7.4.3. Valid Qualitative Factors

For the adjustment model to be valid for use to calculate adjusted energy consumption, the following qualitative factors shall also be true of the adjustment model period and the application conditions.

- The selection of relevant variables in the adjustment model and the subsequently determined relevant variable coefficients are consistent with a logical understanding of the energy use and energy consumption of the facility.
- No substantial difference between the two periods in product types.
- Meters used were functioning, calibrated and maintained as appropriate.

7.4.4. Documenting Hypothesis Model Validity

Each adjustment model must be supported by documentation including validity statistics and graphics as part of the Energy Savings Calculation Report. The implementer will assemble the adjustment model documentation and review with the customer. Through discussions between the customer and implementer, the customer shall be left in a position to be able to explain the model(s) in its entirety. The documentation shall include for each adjustment model:

- Coefficient values
- R² value
- Coefficient of Variation
- Net Determination Bias
- Overall F-Test p-value
- P-value of each relevant variable
- XY scatterplots for each relevant variable
- Time-series graphs for each relevant variable
- Scatterplot of actual versus predicted energy consumption
- Time series graph of actual versus predicted energy consumption
- Time-series graph of residuals and/or cumulative residuals, with bands at +/- 3 standard deviations and +/-2.5% annual energy consumption as the axis scale.

7.5. Options when a Valid Adjustment Model Cannot Be Created

If a valid adjustment model cannot be created using the forecast normalization method, the customer and implementer shall review why the model cannot be created and document their findings in the Energy Savings Calculation Report. The Energy Data Collection Plan shall be altered if deemed necessary. If the Energy Data Collection Plan is altered to include new relevant variables or data sources, the plan shall be used to collect new baseline period data. An adjustment model based upon the forecast method shall be created using this new data.

7.5.1. Non-Routine Adjustments to the Baseline Energy Consumption

Normalization through adjustment modeling is used to account for regular changes in relevant variables. If non-regular changes have occurred this will negatively impact the ability to create a valid adjustment model. Non-routine adjustments are made to the observed (actual) energy consumption in the baseline and/or reporting periods if one or both of the following have occurred:

- 1. If static factors have changed during the achievement period.
- 2. If relevant variables have been subject to unusual changes in at least one of the two periods.

Examples of events that might require a non-routine adjustment include the following:

- A supplier goes out of business, and an equivalent raw material is not available. A process modification is needed to use a different type of raw material. No data exist for baseline-period operating conditions with the new type of raw material.
- Processes are outsourced, enhancing profitability and decreasing energy consumption.
- Business acquisition occurs which results in data not being available or limits on the data availability for the period prior to the acquisition.

Any numeric inputs to non-routine adjustment calculations shall be based on observed, measured, or metered data.

Non-routine adjustments are typically based on an engineering analysis to calculate energy consumption in the baseline and reporting periods as if static factors were at the same condition in both periods. In this case, the adjustment will be to calculate baseline period energy consumption as if the reporting period condition of the static factors had been the same as in the baseline period.

The method for making the non-routine adjustment and the rationale for that method shall be maintained, including the general reasonableness of the methodology and calculations, the adequacy of the metering and monitoring methodologies, and conformance of the calculations applied. Non-routine adjustments may be used, but only after review and approval from the implementer and a review of the decision with the utility. The method for making the non-routine adjustment and the rationale for that method must be recorded and documented in the Energy Savings Calculation Report.

7.5.2. Modifying an Adjustment Model

Any adjustment model that does not pass the validity requirements of Section 7.4 cannot be used in the calculation of energy savings.

If such a case occurs, the implementer shall first attempt to modify the forecast adjustment model. This process might include modifications to the assumed relevant variables and frequency of data collection.

If the measurement boundary is supplied by multiple meters, disaggregating the meters may result in better model resolution.

In forming an alternative adjustment model, the implementer shall confirm that the characteristic of the equation remains aligned with the operations, equipment, and processes of the facility, and that the baseline data set meets the standards of this Guide.

7.5.3. Use an Alternative Modeling Method

If after attempts to create a forecast adjustment model an adjustment model that meets the validity requirements cannot be created, an alternative modeling method shall be considered. Attempts shall be made to create a valid backcast adjustment model prior to attempting to use the standard conditions method. If all primary adjustment model methods fail, a mean model can be considered with prior approval by the utility.

If all modeling attempts are unsuccessful, a non-modeling approach that relies upon the aggregation of energy savings from individual energy performance improvement actions (EPIAs) can be used. This is performed by aggregating all implemented non-incentivized custom capital energy performance improvement actions documented in the Opportunities Register (see Section 8.2.2). This option shall only be used with prior approval from the utility.

8. Calculating Energy Savings

For each type of energy being considered and all energy types in aggregate, two energy savings values will be calculated:

- 1. Facility-wide energy savings, and
- 2. SEM Program energy savings

The facility-wide energy savings represent the overall energy performance improvement achieved within the facility boundaries. The SEM Program energy savings are those energy savings that the utility can claim as part of the SEM program.

An aggregated Facility-wide energy savings value will be calculated by summing the Facilitywide energy savings for each type of energy. Similarly, an aggregated SEM Program energy savings value will be calculated by summing the SEM Program energy savings for each type of energy.

8.1. Calculating Facility-Wide Energy Savings

For each type of energy, facility-wide energy savings shall be calculated by the implementer by applying the following equation using observed (actual) and estimated (predicted), from the final models, energy consumption values as appropriate.

Modeling Method	Energy Savings Equation	
Forecast	Energy savings = baseline period adjustment model calculated reporting period energy consumption - actual reporting period energy consumption	
Backcast (Reporting Period 2)	RP2 energy savings = actual baseline period energy consumption – RP2 adjustment model calculated baseline energy consumption	
Backcast (Reporting Period 1)	RP1 energy savings = RP2 energy savings – (actual RP1 energy consumption – RP2 adjustment model calculated RP1 energy consumption)	
Standard Conditions	Energy savings = baseline adjustment model calculated energy consumption – reporting period adjustment model calculated energy consumption	
Mean Model	Energy savings = mean value from the baseline period – actual reporting period energy consumption	

8.2. Calculating SEM Program Savings

8.2.1. Adjusting Facility-Wide Energy Savings for Incentivized Projects

The energy savings calculated in Section 8.1 are the Facility-wide energy savings values. These values reflect the overall accomplishments of the customer within the facility boundaries.

For SEM program reporting, energy savings resulting from the implementation of incentivized custom capital projects during the reporting period must be netted out of the Facility-wide SEM energy savings values for each energy type and reported separately. The resulting energy savings value is known as the SEM Program energy savings values.

8.2.2. Opportunity Register

All energy performance improvement actions, regardless of whether the customer did or did not receive an incentive from a utility program outside of the SEM program, shall be documented in the Opportunity Register and reviewed by the implementer. The Opportunity Register documents all the energy performance improvement efforts, both identified and implemented, within the facility boundaries during the reporting period. In addition to being used to net out

energy savings attributable to incentivized custom projects, this documentation provides the customer, implementer, and utility information regarding the types and levels of savings achieved through various individual actions.

The customer shall regularly update and maintain the Opportunity Register for the facility boundaries. The implementer shall verify, at least quarterly, that the Opportunity Register is updated and maintained. Any energy performance improvement actions that identified during the SEM engagement and receive incentives outside of SEM shall be included in the Opportunity Register.

Energy performance improvement opportunities entered into the Opportunity Register must include at least:

- The opportunity name
- A description of the opportunity (including location, system or process, equipment type, size, capacity, load, and operating conditions)
- Type of action (behavioral, operational, capital, or process)
- Date initiated
- Date completed (and if not completed a brief rational)
- Energy type impacted
- Final energy savings for each type of energy impacted, and the method used to calculate the savings.

NOTE: See the California Industrial SEM Design Guide for further reporting requirements for the Opportunity Register

8.2.3. Adjusting Energy Savings for Concurrent Incentivized Projects

SEM Program energy savings are calculated by taking the Facility-wide energy savings values for each type of energy and subtracting energy savings from all incentivized custom energy performance improvement actions included in the Opportunity Register. Utility-approved energy savings value associated with the incentivized EPIAs are used, prorated from the in-service date to the end of the achievement period. The SEM Program energy savings shall be documented as part of the Energy Savings Calculation Report, for each type of energy individually and in aggregate.

8.3. Visualizing Energy Savings

The CUSUM calculation is an effective means of quantifying and visualizing energy savings for each type of energy as well as all energy types in aggregate. In graphical form, the CUSUM provides a powerful illustration of the total savings achieved.

A CUSUM graph is best accompanied by a time-series plot of actual and predicted energy. An example of a hybrid CUSUM graph is shown in Figure 9. A standardization on whether to display savings as a positive or negative CUSUM does not exist, however California SEM programs shall indicate energy savings using a downward trend.

A CUSUM graph using facility-wide SEM energy savings shall be made for each type of energy and for all energy types in aggregate. Using the Opportunity Register, the customer and implementer shall work together to correlate inflections in the cumulative sum of differences (CUSUM) graph to these actions.

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Figure 9. CUSUM graph example.

8.4. Representing Energy Savings as Improvement Percentage

Additionally, energy savings can be represented as an energy performance improvement percentage value. To calculate energy savings as a percentage:

- 1. Calculate energy performance improvement as a ratio using
- 2.
- 3.
- 4.
- 5.

- 6. Table 3. These ratios shall be calculated using facility-wide reporting period energy consumption and baseline period energy consumption, where the energy consumption of one or both periods is adjusted so that they correspond to consistent conditions of relevant variables. A ratio value less than 1.0 indicates that energy performance has improved. The ratio shall be calculated for each energy type for which energy savings are being determined independently as well as for all energy types being considered in aggregate.
- 7. Convert the ratio to energy performance improvement percentage: Energy performance improvement (%) = (1-ratio) x 100 lists the notation used to refer to the actual and

adjusted energy consumption for each normalization method, as well as the data used to create the adjustment model and the data used to apply the adjustment model.

Table 3: Use of observed and adjusted energy consumption for the various normalization methods

	Forecast Method	Backcast Method	Standard Conditions Method	Mean Model Method
Energy performance improvement ratio for the First Reporting Period	$\frac{\text{ECD}(\Sigma)_{r1}^{o}}{\text{ECD}(\Sigma)_{b r1}^{a}}$	$\frac{\left(\frac{\text{ECD}(\Sigma)_{r2 b}^{a}}{\text{ECD}(\Sigma)_{b}^{o}}\right)}{\left(\frac{\text{ECD}(\Sigma)_{r2 r1}^{a}}{\text{ECD}(\Sigma)_{r1}^{o}}\right)}$	$\frac{\text{ECD}(\Sigma)_{r s}^{a}}{\text{ECD}(\Sigma)_{b s}^{a}}$	$\frac{\text{ECD}(\Sigma)_{r2}^{o}}{\text{ECD}(\Sigma)_{b m}^{a}}$
Energy performance improvement ratio for the Second Reporting Period	$\frac{\text{ECD}(\Sigma)_{r2}^{0}}{\text{ECD}(\Sigma)_{b r2}^{a}}$	$\frac{\text{ECD}(\Sigma)_{r2 b}^{a}}{\text{ECD}(\Sigma)_{b}^{o}}$	$\frac{\text{ECD}(\Sigma)_{r2 s}^{a}}{\text{ECD}(\Sigma)_{b s}^{a}}$	$\frac{\text{ECD}(\Sigma)_{r2}^{o}}{\text{ECD}(\Sigma)_{b m}^{a}}$

Forecast Method					
$ECD(\Sigma)_{r1}^{o}$	Observed (actual) first reporting period energy consumption				
$ECD(\Sigma)_{b r1}^{a}$	Modeled baseline period delivered energy consumption adjusted to first reporting				
	period conditions				
$ECD(\Sigma)_{r2}^{o}$	Observed (actual) second reporting period energy consumption				
$ECD(\Sigma)^{a}_{b r2}$	Modeled baseline period delivered energy consumption adjusted to second				
	reporting period conditions				
Backcast M	ethod				
$ECD(\Sigma)_{r2 b}^{a}$	Modeled second reporting period delivered energy consumption adjusted to				
	baseline period conditions				
$ECD(\Sigma)_{b}^{o}$	Observed (actual) baseline period energy consumption				
$ECD(\Sigma)_{r2 r1}^{a}$	Modeled second reporting period delivered energy consumption adjusted to first				
	reporting period conditions				
$ECD(\Sigma)_{r1}^{o}$	Observed (actual) first reporting period energy consumption				
Standard Conditions Method					
$ECD(\Sigma)_{r2 s}^{a}$	Modeled second reporting period delivered energy consumption adjusted to				
	standard conditions				
$ECD(\Sigma)^{a}_{b s}$	Modeled baseline period delivered energy consumption adjusted to standard				
	conditions				
Mean Model Method					
-------------------------	---	--	--	--	--
$ECD(\Sigma)_{r2}^{o}$	Observed (actual) second reporting period energy consumption				
$ECD(\Sigma)^{a}_{b m}$	Modeled baseline period delivered energy consumption adjusted to mean conditions				

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9. M&V Report

The M&V Report is comprised of the:

- 1. Energy Data Collection Plan,
- 2. Energy Data Report, and
- 3. Energy Savings Calculation Report.

The M&V Report is to be finalized by the implementer and reviewed with the customer prior to submission to the utility.

This section outlines major requirements of the three sections that comprise the M&V Report. Relevant section numbers from the M&V Guide are in parenthesis as a reference.

Additional requirements for these three documents may be made by the utility and additional information may be included at the discretion of the implementer and customer. This section shall not be considered as a complete list of requirements for these reports but as a reference. If provided, a sample or template guide shall be followed.

9.1. Energy Data Collection Plan

The Energy Data Collection Plan is included as part of the M&V Report.

Section 5.2 includes required details for the contents for the Energy Data Collection Plan. Those requirements are consolidated here with additional information from other sections of the Guide.

- <u>Time Periods</u>
 - Baseline period dates
 - o Achievement period dates
 - Reporting period dates
- Facility Boundaries
 - Finalization of the facility boundaries described and detailed with line drawing(s)
 - Showing the facility boundaries, buildings, major equipment and processes, energy flows, and utility and relevant variable data meters and submeters
- Energy Consumption Data
 - The types of energy that cross the facility boundaries and are to be included in the energy accounting:
 - Electricity, natural gas, and/or others
 - The types of energy that cross the facility boundaries and are to be omitted from the energy accounting along with the rational for their omission.
 - The energy flows
 - Identification if energy enters or leaves an energy storage system, is delivered away from the facility boundaries, is delivered to the facility boundaries as a feedstock, or is generated or extracted within the facility boundaries
 - The sources of data (meters) from which data for the energy consumption data will be collected, including:
 - Serial number or another unique identifier for each meter, (3.1.2) and
 - The owner of the meter (utility, the facility, or other organization)
 - Equation and conversion factors used to calculate energy consumption values from physical properties such as pressure, temperature, mass, volumetric flow, and heating value (3.1.2)

- The units for which energy consumption data are available and for which they will be recorded.
 - kWh for electricity energy consumption data is recommended
 - MMBTU for natural gas data is recommended
 - NOTE: If natural gas consumption data is only available in units of volume, the heating value of the natural gas must also be recorded as part of the Energy Data Collection Plan. The higher heating value of the natural gas shall be used if this is the case.
- The frequency at which energy consumption data will be recorded from the identified meters.
- \circ The method and location for which energy consumption data will be documented.
- Relevant Variable Data
 - Initial list of potential relevant variables and the energy types they are assumed to affect.
 - \circ $\;$ The relevant variables for which data are to be collected.
 - The sources of data from which relevant variable data will be collected.
 - The units for which relevant variable data are available and for which they will be recorded.
 - The frequency at which relevant variable data will be recorded.
 - The method and location for which relevant variable data will be recorded.

9.2. Energy Data Report

The Energy Data Report the second part of the M&V Report and details alterations to the data collected as part of implementing the Energy Data Collection Plan. Data collected as part of implementing the Energy Data Collection Plan are not included in the M&V Report and are only made available to the utility upon request. Raw data can be recorded in a number of ways including computer based spreadsheets and report style documentation. A combination or recording methods may best serve the customer and implementer.

The Energy Data Report must include, but is not limited to:

- Data collected as a result of implementing the Energy Data Collection Plan. (5.3.1)
- The effect of outliers on the reliability of the adjustment model estimates and the reason for removing them (5.3.2)
- Removal of outliers and the efforts taken to replace the omitted data (5.3.2)
- Discussions related to the effect of outliers on the adjustment model and proposed resolution strategies. (5.3.2)
- Omission of data points (5.3.2)
- Decision to use a time-series adjustment to improve adjust model. (5.3.3)
- All conversion factors used to convert various units to the choses common energy unit (5.4)

9.3. Energy Savings Calculation Report

The Energy Savings Calculation Report is the third part of the M&V Report.

The Energy Savings Calculation Report details the adjustment models created and the resulting energy savings calculated. For each type of energy included in the energy accounting plan, the Energy Savings Calculation Report must include, but is not limited to:

- Information detailing all hypothesis models for the model form that is ultimately used that meet the statistical requirements, why the final models for each energy type were selected over other statistically valid models, any proposed extension to the baseline period, any proposed alterations to the Energy Data Collection Plan, and key conversations with the customer (7.1)
- The final models (coefficients and relevant variables and associated units) (7.1)
- Scatter diagram graphs used to confirm a linear relationship between data for energy consumption of each type of energy for which energy savings are being determined and each relevant variable (7.2.1).
- Discussions related to the visual relationship between relevant variables and energy types (7.2.1)
- Energy consumption adjustment model parameters (including the relevant variables, units, and associated coefficients used to make the models) (7.3)
- Documentation of validity tests and values for each adjustment model (7.4.2)
- For each adjustment model, a scatter diagram of observed (actual) energy consumption versus the energy consumption calculated using the adjustment model. (7.4.2)
- Each adjustment model must be supported by documentation including validity statistics, and graphics (7.4.4)
 - o Coefficient values reported to six significant figures
 - \circ R² value
 - Coefficient of Variation
 - Net Determination Bias
 - Overall F-Test p-value
 - o P-value of each relevant variable
 - XY scatterplots for each relevant variable
 - Time-series graphs for each relevant variable
 - Scatterplot of actual versus predicted energy consumption
 - Time series graph of actual versus predicted energy consumption
 - Time-series graph of residuals and/or cumulative residuals, with bands at +/- 3 standard deviations and +/-2.5% annual energy consumption as the axis scale.
- If applicable, reasons why a forecast adjustment model cannot be created (7.5)
- Method for making non-routine adjustments and the rationale for that method (7.5.1)
- Energy savings for each type of energy individually and in aggregate (8.3) for each type of savings as outlined in Annex E.

10. References

- ASHRAE Guideline 14:2014 Measurement of Energy, Demand and Water Savings
- Bonneville Power Administration Monitoring Tracking and Reporting Reference Guide, Revision 5.0, February 20, 2015
- Energy Trust of Oregon Energy Intensity Modeling Guideline, Version 1.1, January 27, 2016
- International Performance Measurement and Verification Protocol Option C, January 2012.
- ISO 50015:2014 Measurement and verification of energy performance of organizations – General principles and guidance
- ISO 50047:2016 Determination of energy savings in organizations
- U.S. Department of Energy Superior Energy Performance Measurement and Verification Protocol, July 2016

Annex A - Special Cases in Energy Accounting

Energy Accounting of Energy Export and Energy Product

Energy delivered away from the facility boundaries shall be accounted for as either an energy export or energy product.

Energy Export

The maximum allowable amount of energy export is equal to the quantity of energy delivered into the facility boundary of the same energy type such that a net zero level is reached on a delivered energy basis. A facility may not be counted as a net negative consumer of any energy type.

EXAMPLE: A facility purchases 30 GWh of grid electricity and produces 25 GWh of electricity with on-site photovoltaic (PV) panels. The facility consumes 45 GWh and delivers 10 GWh away from the facility boundaries. The 10 GWh delivered away from the facility boundaries is treated as energy export. See figure below.



Energy Product

For each energy type, if a net zero level is reached on a delivered energy basis, any excess energy delivered away from the facility boundaries is accounted for as an energy product. This may result from a facility producing large quantities of on-site energy. Energy product shall be considered as a relevant variable for adjustment models.

EXAMPLE: A facility purchases 30 GWh of grid electricity and generates 100 GWh of electricity with on-site wind turbines. The facility consumes 55 GWh and delivers 75 GWh away from the facility boundaries. A maximum quantity of 30 GWh is treated as energy export. The remaining 45 GWh is treated as energy product. See figure below.



On-site Extraction or Generation of Energy from Natural Resources

Energy from natural resources that are delivered into and consumed within or delivered away from the facility boundaries shall be included in the energy accounting. The point at which onsite extracted or generated energy is metered and accounted for may be selected by the organization so long as it is at a reasonable point along the extraction or generation process flow (e.g., a facility may choose to meter biogas flow and energy content or the resulting electricity and hot water generated from the utilization of the same biogas). This measurement point shall be consistent between the baseline and reporting periods. This allowance is made recognizing that the quantity of energy of some natural resources (e.g., photons or wind) or the energy derived thereof (e.g., biogas) may be difficult to meter. In such cases, the quantity of energy generated within the facility boundaries from the natural resource (e.g., AC electricity from the inverter of a PV panel system) may be metered and included in the energy accounting.

NOTE: While metering energy at a point along the extraction or generation process flow downstream of the facility boundaries may be simpler and more cost effective (e.g. metering hot water produced from a biogas fired boiler, rather than the biogas produced from a sewage fed digester), the effect of energy performance improvement actions implemented upstream of the point of metering may not be reflected in the calculated facility-wide energy performance improvement.

EXAMPLE: A wastewater treatment facility uses sewage to generate biogas, which is used to generate electricity and steam in a CHP system. The facility also purchases grid electricity, and generates on-site electricity with an array of PV panels. As the facility cannot cost-effectively install meters to measure biogas flow and energy content, the facility decides to meter the electricity and steam coming out of the CHP system for energy accounting purposes. In one month, the biogas CHP system produces 60 GWh of electricity and 100 MMBTU of steam. The facility purchases 50 GWh of grid electricity and generates 40 GWh of on-site electricity away from the facility consumes 85 GWh of electricity and delivers 65 GWh of electricity away from the facility boundaries. The facility consumes 80 MMBTU of steam and delivers 20 MMBTU away from the facility boundaries. See figure below.



Electricity: ECD(e) = 50 GWh + 60 GWh + 40 GWh - 50 GWh - 15 GWh = 85 GWh

Feedstock and Resulting Energy Types

In some instances, energy delivered to the facility boundaries may be used as a feedstock rather than consumed as energy. The portion of an energy type used as a feedstock shall be subtracted from the delivered energy. The commodity that is being produced from the feedstock shall be considered as a relevant variable in the energy consumption adjustment model.

Any energy types resulting from the processing of feedstock (e.g., process gas produced during the refining process, heat generated by an exothermic reaction, biogas generated from sewage)

that are consumed within or delivered away from the facility boundaries shall be included in the energy accounting.

EXAMPLE: A facility purchases 1000 Therms of natural gas and uses 750 Therms to produce hydrogen, which is sold as a commodity, while consuming the other 250 Therms within the facility boundary in a boiler. The energy accounting shall include 250 Therms. The production quantity of hydrogen shall be considered as a relevant variable in the energy consumption adjustment model.

Annex B - Selecting Production Relevant Variables

Raw material, in-line production, and finished product metrics each have pros and cons that shall be considered when selecting production relevant variables. An informed decision will take into account factors such as lead time, the desire to account for yield effects, as well as the prevalence of inventory fluctuations in-process or at the finished-product stage.

Measurement Points	Pros	Cons
Raw material input	Provides a mechanism for capturing the effects of different types of raw materials.	Fails to provide a mechanism for understanding energy impact of yield/productivity improvements.
In-line metric	Allows for the selection of a production variable at energy-intensive processes, thereby minimizing a time-series shift.	Fails to provide a mechanism for incentivizing the energy impact of yield/productivity improvements downstream, from point of measurement.
End-of-line metric	Provides a mechanism for incentivizing the energy impact of yield/productivity improvements.	May induce a time-series shift for long lead-time processes.
Finished product shipped	Data can be captured via accounting systems.	May not sync with production depending on dwell time in the warehouse.

Table 4: Options for Production Variable Measurement Points

Assess where production data is available, relative to the energy-intensive process steps. If a significant time offset exists between the energy-intensive process step and the measurement point, consider adding a time-shift in interval data to align the production data with energy data.

If multiple production variables are available, use process flow diagrams and energy maps to identify potential interactive effects and correlations. Using multiple measurement points in the same process line may not be necessary or beneficial.

Annex C - Multicollinearity

Multicollinearity is present when two or more relevant variables in a regression model are correlated between themselves. When two relevant variables are correlated, including both variables, instead of just one, may not add appreciably to the model's explanatory power.

Keep the following points in mind when validating an adjustment model:

- The presence of correlated variables should serve as a warning that the statistical significance of a variable in a particular regression does not, by itself, indicate how closely that variable is correlated with energy consumption. The modeler should use caution in excluding any variables that may actually be relevant variables, but are masked by correlated variables.
- Multicollinearity has limited influence on the predictive capability of the final model if
 operating conditions stay relatively consistent. However, if the relationship between the
 correlated relevant variables changes during the reporting period, the model will lose
 predictive power.
- Multicollinearity can be identified by using XY scatterplots to view the relationship between two relevant variables. Additionally, the coefficients in a model will swing drastically if a variable with multicollinearity is added or removed.
- Perform a general assessment of multicollinearity by regressing each variable against the other hypothesis variables and examine the R² of each relationship. As a rule of thumb, any bivariate correlation with R² > 0.7 is an indication that multicollinearity needs to be carefully considered in the variable selection process.
- Multicollinearity can also be identified by calculating the variance inflation factor (VIF), which describes the increase in standard error compared to the standard error if the variable were uncorrelated with the other predictor variables.
- The simplest solution to addressing multicollinearity is to drop one of the variables from the regression analysis. However, this approach may negatively affect the model's predictive capability. The modeler should use his/her best engineering judgment along with an understanding of how the customer's facility uses energy to include or exclude variables, while considering factors such as data availability and model complexity.

EXAMPLE: At a soft drink bottling facility, energy consumption and production increase in the summer, due to higher seasonal sales. Both energy and production show a strong correlation with ambient, dry bulb temperature. The modeler includes the production variable in the adjustment model, but is unsure whether to include the ambient temperature variable. In this example, plot the production variable against the temperature variable to determine the correlation. If the R² is greater than 0.7, consider removing the temperature variable from the model. Justify the decision using engineering knowledge about the temperature dependency of equipment and loads at the facility.

Annex D - Autocorrelation

Autocorrelation is present when the error term in a time period is related to the error term in a prior time period. In other words, autocorrelation is characterized by a correlation in the residuals.

Calculate the autocorrelation coefficient and plot model residuals over the baseline period. If autocorrelation is detected, the number of independent baseline points is effectively reduced. The typical remedy involves increasing the sample size, or selecting a different data interval. For annual models with daily baseline intervals, moderate autocorrelation may not be a concern.

Typically, regression-based energy models exhibit positive autocorrelation. Positive autocorrelation occurs when the sign change of the residuals is infrequent. Conversely, too frequent sign changes in the residual pattern results in negative autocorrelation.

There is no defined threshold for the autocorrelation coefficient in the model development phase. Autocorrelation becomes a factor in the fractional savings uncertainty analysis when it has the mathematical effect of reducing performance period energy data samples.

The Durbin-Watson test can also be used to determine if autocorrelation is statistically significant. For uncorrelated errors, the Durbin-Watson number, d, should be approximately 2. The upper and lower bounds for the Durbin-Watson statistic are a function of sample size, the number of predictor variables and desired confidence level.

Annex E – Addressing Incented and Custom Capital Projects in Relation to California Industrial SEM Programs

California Industrial SEM programs take a facility-wide approach to the determination of energy savings. Because of this, in some instances the energy savings that result from the implementation of projects incented through other programs (such as custom capital projects) must be netted out of this facility-wide energy saving value.

This Annex provides details for how to account for energy savings resulting from the implementation of projects incented outside SEM.

Custom capital projects, in this context, are defined as technology based energy efficiency projects that are designed and implemented specifically for a given industrial facility and for which the outlay of required capital is considered large with respect to other energy efficiency projects undertaken by the facility.

In all cases, the SEM Implementer, or Coach shall work with the facility and utility to complete an Opportunity Register. The Opportunity Register includes shall include details about all identified and implemented energy performance improvement actions, whether incented outside of SEM or not. These energy performance improvement actions could be capital, behavioral, operational, or other. Care shall be taken to identify energy performance improvement actions that were identified, or for which implementation was begun but not been completed, prior to the SEM engagement. As part of the Opportunity Register, documentation demonstrating the implementer and utility influence on the identification and decision to implement actions that were identified prior to the SEM engagement shall be included.

At the start of the SEM engagement, the implementer, working with the utility and facility, is responsible for the creation of, and subsequent updates to, a "Scoping Report." This Scoping Report is detailed in the Design Guide and includes a summary of custom capital projects (incentivized and non-incentivized) that are included as part of the Opportunity Register before the start of the SEM engagement. The Scoping Report provides information beyond what is required of the Opportunity Register including inclusion of historical records documenting the identification and subsequent implementation (if applicable) of each project and if the project had been identified prior to the SEM engagement.

The process by which to determine how to address energy savings resulting from custom capital projects can be divided into two cases:

- 1. In which an incented project (i.e. custom capital project) has been identified prior to the SEM engagement, and
- 2. In which an incented project (i.e. custom capital project) has been identified during the SEM engagement.

Energy savings terminology for California industrial SEM programs

Savings for California Industrial SEM programs will be reported as follows:

- 1. *Facility-wide Energy Savings*: The overall savings the facility achieved during the reporting period. This includes all savings listed below and is used by the facility to estimate their performance improvement versus goal.
- 2. **Non-SEM Savings**: Pre-existing projects identified and planned prior to SEM engagement and implemented during the SEM engagement, whether receiving incentives or not.
- 3. **SEM Program Savings**: Facility-wide Energy savings minus Non-SEM Savings, used by the program to calculate program effectiveness.

- 4. **SEM Incented Project Savings**: Incented projects (i.e. custom projects) identified, planned, and implemented during the SEM engagement receiving incentives at or near the incentive rate for another program (i.e. "capital project" incentive rate).
- 5. SEM O&M Savings: SEM Program Savings minus SEM Incented Project Savings.

Below is a visual representation of the savings.



Case 1 – In which an incented (i.e. custom capital) project has been identified prior to the SEM engagement

For projects included in the Scoping Report that were identified prior to the SEM engagement, the treatment of resulting energy savings will be determined by whether the utility has or will be providing an incentive.

- 1. Pre-existing incented or custom capital projects completed during SEM engagement and receiving a utility incentive:
 - a. Savings from any incented or custom capital projects receiving an incentive must be netted out of the SEM savings. Project savings will be calculated using the custom project M&V process.
 - b. These projects will be reported as "Non-SEM Savings" by the SEM implementer
- 2. Pre-existing custom capital projects completed during SEM engagement not receiving utility incentives that are not influenced by the SEM program:
 - a. These projects will not be M&V'ed by the utility, savings cannot be accurately recorded without some level of program effort.
 - b. Savings will be estimated with best available engineering calculations based on data available and collected by the program.
 - c. Savings will be backed out of "Facility Savings" as "Non-SEM Savings".
- 3. Pre-existing custom capital projects not receiving utility incentives that are influenced by the SEM program.
 - a. The program will delineate where project planning was prior to SEM engagement. Similar to any other capital projects in the custom capital track, the program must be able to prove program influence and must calculate NTG according to custom capital project rules and processes. Potential program influence may include:
 - i. Project was identified but lacked sufficient information to act on the project (i.e. no calculations of savings, no cost estimates, no identified owner or timeline) and SEM program assisted in defining and

implementing the project. The SEM program must show its influence on the project definition and implementation (i.e. development of calculations, cost estimates, timelines, implementation plans, etc.).

- ii. Project was identified and had information to act but SEM program influenced to go to more efficient option. The program must show its influence on the more efficient option selected (i.e. efficient options presented to the customer, calculations created with customer, etc.)
- iii. Project was identified and planned for the long-term but the SEM program significantly accelerated implementation. The SEM program must show its influence on implementation timeline.

Case 2 – In which an incented (i.e. custom capital) project is identified during the SEM engagement

The SEM implementer, with assistance from the utility and facility, must document how the incented or custom capital project was identified, establish program influence on the project, planned implementation date, etc., per custom capital project guidelines and processes. If the project was identified during the SEM "Treasure Hunt", the Treasure Hunt Report must document that project and the role the program took in identifying and documenting the project. This project must be included in the Opportunity Register.

For projects included in the Opportunity Register that were identified during the SEM engagement, the treatment of resulting energy savings will be determined by whether the utility has or will be providing an incentive.

- 1. If the project is completed during SEM engagement and qualifies for a custom program incentive:
 - a. The project will receive an incentive near the current custom capital project incentive rate
 - b. Project savings will be estimated using custom capital project M&V process
 - c. As outlined in the M&V Guide, the project savings will be deducted from the facility-wide savings
 - d. The project will follow custom capital projects M&V requirements (ex ante, ex post, etc.) and savings will be estimated using processes outlined in current custom project processes.
 - e. Project savings will be reported as "SEM Custom Savings" by the Coach.
- 2. If the project is completed during SEM engagement but does not qualify for custom project incentives:
 - a. Project savings will be kept in the SEM Program Savings and will be incented per the SEM O&M incentive level.
- 3. If project is identified during SEM engagement, qualifies for a custom program incentive, but is not completed during the SEM engagement (i.e. facility "drops out" of SEM after two years and completes project in year 3)
 - a. Project will be treated as a custom project and will follow custom project M&V processes for projects that are not finished during an engagement.

Annex F – Establishing Statistical Confidence

Fractional savings uncertainty (FSU) analysis is a method for judging the validity of energy savings based on regression modeling. FSU is not a requirement of this Guide or reports but should be considered and is highly recommended. This annex is included as an informational piece for consideration when evaluating energy savings and as a basis from which future versions of this Guide may further develop guidance or requirements. A deeper analysis of FSU is provided in ASHRAE Guideline 14-2002 Annex B.

The fractional uncertainty can be estimated as follows:

$$\frac{\Delta E_{save,m}}{E_{save,m}} = t \cdot \frac{1.26 \cdot CV((\frac{n}{n'})(1+\frac{2}{n}) \cdot \frac{1}{m})^{\frac{1}{2}}}{F}$$

Where:

- t= t-statistic for desired confidence level
- CV= coefficient of variation
- n= number of observations in the baseline period
- m = number of observations in the reporting period
- F= observed savings during reporting period
- n'= number of independent baseline period observations
- ρ= auto-correlation coefficient

$$n' = n \frac{(1-\rho)}{(1+\rho)}$$

ASHRAE Guideline 14-2002, Section 5.3.2.2 specifies that the level of uncertainty must be less than 50% of the annual reported savings, at a confidence level of 68%.

While the preceding methodology is generally applied to analyze savings uncertainty in an expost analysis, the same analysis can be used to inform model development, for example, FSU can assist with the following decisions:

- Relevant variable selection
- Minimum number of reporting period observations
- Minimum energy savings needed to make the model statistically meaningful

Though not required, FSU and the guidance of ASHRAE Guideline 14-2002 would promote that if the uncertainty in the modeled savings is higher than 50% at a 68% confidence interval, the baseline model should be adjusted.

The below table provides additional information for difference uncertainty scenarios.

AI #05_C.4 Att.: Draft First Agreement with CLEAResult Consulting, Inc. DRAFT

Weekly Model

20.0% 6% 12% 23% 35% 47% 70%

Fractional Savings Uncertainty Scenarios

Daily Model

68% confidence, 365 baseline intervals, 90 reporting intervals

	F (% savings)					
с٧	2.5%	5.0%	10.0%	15.0%	20.0%	
0.03	23%	12%	6%	4%	3%	
0.05	46%	23%	12%	8%	6%	
0.10	92%	46%	23%	15%	12%	
0.15	139%	69%	35%	23%	17%	
0.20	185%	92%	46%	31%	23%	
0.30	277%	139%	69%	46%	35%	

68%	confider
1.00	T-stat
365	baseline
90	reporting
0.5	autocori
121.67	n-prime

3%	confidence
.00	T-stat
65	baseline intervals
90	reporting intervals
0.5	autocorrelation coefficient

_	68% confidence, 52 baseline intervals, 13 reporting intervals							
		F (% s	avings)					
]	CV	2.5%	5.0%	10.0%	15.0%	20.09		
	0.03	47%	23%	12%	8%	6%		
	0.05	93%	47%	23%	16%	12%		
	0.10	187%	93%	47%	31%	23%		
	0.15	280%	140%	70%	47%	35%		
	0.20	374%	187%	93%	62%	47%		
	0.30	561%	280%	140%	93%	70%		
	68%	confid	ence					



Monthly Model

68% confidence, 12 baseline intervals, 3 reporting intervals

	F (% savings)						
cν	2.5%	5.0%	10.0%	15.0%	20.0%		
0.03	82%	41%	20%	14%	10%		
0.05	164%	82%	41%	27%	20%		
0.10	327%	164%	82%	55%	41%		
0.15	491%	246%	123%	82%	61%		
0.20	655%	327%	164%	109%	82%		
0.30	982%	491%	246%	164%	123%		

confidence
T-stat
baseline intervals
reporting intervals
autocorrelation coefficient
n-prime

Notes: ASHRAE guidelines specify 50% uncertainty at 68% confidence.

100% uncertainty means that the savings are not negative.

Uncertainty higher than 100% means there is a chance that savings are negative.

Monthly models will generally not show autocorrelation.

Daily and weekly models will generally show autocorrelation. Usually the addition of production data lowers the autocorrelation.



March 21, 2019

TO:	MCE Board of Directors
FROM:	Alexandra McGee, Community Power Organizer
RE:	Presentation of Charles F. McGlashan Advocacy Award (Agenda Item #06)

Dear Board Members:

SUMMARY:

On June 2, 2011, MCE's Board established the Charles F. McGlashan Advocacy Award to recognize individuals and organizations who have demonstrated passion, dedication, and leadership on behalf of MCE. The annual award also honors and commemorates the life and legacy of environmental leadership left behind by former founding MCE Chairman Charles F. McGlashan.

To date, this Advocacy Award has been awarded to:

- Barbara George of Women's Energy Matters (2011)
- The Mainstreet Moms (2012)
- Lea Dutton of the San Anselmo Quality of Life Commission (2013)
- Doria Robinson of Urban Tilth (2014)
- Constance Beutel of Benicia's Community Sustainability Commission (2015)
- Sustainable Napa County (2016), and
- The El Cerrito Environmental Quality Committee (2017).

Award recipients are inscribed on the plaque displayed outside the Charles McGlashan Room at the MCE office in San Rafael, and are presented with the award at a regular meeting of the MCE Board of Directors. Recipients are also recognized in MCE's enewsletter, online blog, and social media.

On December 7, 2018, the MCE Executive Committee unanimously approved a motion to change the previous practice of presenting this award to a single nomination to recognizing all three 2018 Charles McGlashan Advocacy Award nominees.

2018 NOMINEES:

Sustainable Lafavette

In celebration of the City of Lafayette's 50th anniversary of incorporation this year, local nonprofit Sustainable Lafayette has spearheaded a community-wide campaign to encourage residents and businesses to opt up to Deep Green. With a goal to become the #1 Deep Green community among MCE's 33 members, Sustainable Lafayette set a

goal to get to 1,000 accounts opted up. To do so, they coordinated MCE's presence at more than 10 community events, raised public awareness through presentations to neighborhood groups and houses of worship, as well as helped create a video spotlighting Director Tatzin's endorsement of Deep Green. By November 2018, there were 189 unique Lafayette Deep Green customer engagements facilitated through this campaign.

In January 2018, Lafayette had 3.16% of all MCE accounts in Deep Green (308 accounts), putting them in 10th place behind San Rafael (3.68%). As of January 2019, Lafayette is now in 6th place, with 5.1% of accounts in Deep Green (505 accounts). Their efforts are proof of the real impact that dedicated community members can have on shifting the electric profile and emissions of an entire community.

Resilient Neighborhoods

Marin nonprofit Resilient Neighborhoods has been encouraging carbon footprint reduction and emergency preparedness since 2012. As part of an integrated, holistic community strategy facilitated by Climate Action Teams, they have encouraged residents and businesses to be wise about their electricity and energy options. Through their actions in 2018, thus far 51 households opted for 100% renewable energy, 63 invested in energy efficiency, and 5 installed solar systems. Additionally, since their inception, they've prompted 203 community members to go Deep Green and 62 to purchase electric vehicles. Their Board members include community leaders who have been fighting for MCE since the beginning. Their diligent efforts encouraging small individual changes to reduce personal emissions has led to the cumulative reduction of 5,422,612 pounds of CO2 emissions (2012-2018).

Verna Causby-Smith with EAH Affordable Housing

Verna Causby-Smith has been a longtime advocate of MCE's Multifamily Energy Savings and Low Income Families and Tenants (LIFT) Pilot Program. In her role as Development Asset Manager at EAH Affordable Housing, Verna has worked with properties across MCE's service territory to advocate for and encourage her colleagues at EAH to participate in MCE's energy savings programs. Recently, Verna was responsible for recruiting the 378-unit Crescent Park Homes, located in Richmond, and she has done the same for affordable housing properties including Hamilton Meadows in Novato and Farley Place in Belvedere. As a trusted nonprofit housing partner, her promotion of MCE's programs has been invaluable in continuing to serve multifamily affordable housing properties in our communities.

Fiscal impact: None

Recommendation: Honor Sustainable Lafayette, Resilient Neighborhoods, and Verna Causby-Smith with EAH Affordable Housing as the recipients of the 2018 Charles F. McGlashan Advocacy Award.

MCE Board Offices and Committees

Board Offices:

Kate Sears, Chair Tom Butt, Vice Chair Denise Athas, Auditor/Treasurer (Proposed Treasurer: Vicken Kasarjian) Dawn Weisz, Secretary

Executive Committee

- 1. Tom Butt, Chair
- 2. Denise Athas
- 3. Sloan Bailey
- 4. Lisa Blackwell
- 5. Barbara Coler
- 6. Federal Glover
- 7. Ford Greene
- 8. Kevin Haroff
- 9. Bob McCaskill
- 10. Kate Sears
- 11. (Renata Sos Interested)
- 12. (Tim McGallian Interested)

Ad Hoc Ratesetting Committee 2019

- 1. Sloan Bailey
- 2. Ford Greene
- 3. Kevin Haroff
- 4. Greg Lyman
- 5. Bob McCaskill
- 6. Sashi McEntee
- 7. Scott Perkins
- 8. Ray Withy

(Ad Hoc Audit Committee 2018)

- 1. Bob McCaskill
- 2. Andrew McCullough
- 3. Ray Withy

Technical Committee

- 1. Kate Sears, Chair
- 2. Kevin Haroff
- 3. Greg Lyman
- 4. Scott Perkins
- 5. Rob Schroder
- 6. Ray Withy



March 21, 2019

TO:	MCE Board of Directors
FROM:	Garth Salisbury, Director of Finance Maira Strauss, Senior Financial Analyst
RE:	Proposed Budgets for Fiscal Year 2019/20 (Agenda Item #08)
ATTACHMENT:	Proposed FY 2019/20 Operating Fund, Energy Efficiency Program Fund, and Local Renewable Energy and Program Development Fund Budgets
Dear Board Members	

SUMMARY:

Before the end of every fiscal year (FY), MCE's staff presents Budgets to the Executive Committee and the Board for consideration for MCE's Operating Fund, Energy Efficiency (EE) Program Fund, and Local Renewable Energy Development Fund for the upcoming FY. These Budgets authorize Staff to:

- 1) spend funds within the limits set forth in each budget line item;
- 2) fund MCE's Local Renewable Energy Development Fund, Electric Vehicle and other customer programs; and
- 3) add to MCE's Operating Fund balances and reserves.

For the 2019/20 Budget year and going forward, staff and the Executive Committee propose consolidating the Local Renewable Energy Development Fund and Renewable Energy Reserve Fund and renaming the fund the Local Renewable Energy and Program Development Fund (LREPDF). This will facilitate more efficient fund and program management and expand MCE revenue funded initiatives from the LREPDF to include not only local renewable energy development, but EV charging and other current and future local programs.

The attached proposed Budgets reflect MCE's projected revenue, expenditures and contingencies for FY 2019/20 and are anticipated to allow MCE to continue delivering a minimum of 60% Renewable Energy and a further goal of 90% GHG free energy to our customers. The proposed FY 2019/20 Operating Fund Budget is projected to result in an increase of \$14,339,000 to MCE's net position at the end of the fiscal year assuming continuation of the current rate schedule and subject to load and market variation. This is a 4% contribution to reserves which falls within MCE's typical 3-4% annual contribution to reserves, as shown in the chart below.

HISTORICAL AND PROJECTED ADDITIONS TO MCE NET POSITION

	FY 2013/14 Audited	FY 2014/15 Audited	FY 2015/16 Audited	FY 2016/17 Audited	FY 2017/18 Audited	FY 2018/19 Projected Budget	FY 2019/20 Proposed Budget
TOTAL INCOME	\$ 85,570,724	100,658,412	151,676,957	181,271,760	206,078,322	356,327,000	358,698,000
TOTAL EXPENSES	83,925,562	96,960,129	135,402,206	166,143,113	200,006,736	322,194,500	344,358,843
CHANGE IN NET POSITION	1,645,162	3,698,283	16,274,751	15,128,647	6,071,586	34,132,500	14,339,157
% Contributiuon to Net Position	1.92%	3.67%	10.73%	8.35%	2.95%	9.58%	4.00%

Staff and the Executive Committee requests that the Board of Directors review and approve:

- 1) the proposed Budgets for FY 2019/20; and
- the consolidation of the Local Renewable Energy Development Fund and the Renewable Energy Reserve Fund and to rename the fund the Local Renewable Energy and Program Development Fund.

OPERATING FUND BUDGET HIGHLIGHTS

Attached is the Proposed FY 2019/20 Operating Fund Budget. For comparison purposes, FY 2019/20 is compared to the Projected FY 2018/19 Actuals (April – December 2018 actuals and projections for January – March 2019). Proposed FY 2019/20 Budget comparisons (+/-) are made against the Projected FY 2018/19 Actuals.

Revenue – electricity (+823,000, 0.23% increase): Sales of electricity are projected to be basically flat compared to the projected current fiscal year at \$355.5 million reflective of no expansion of MCE's service area and nominal new customer accounts/opt-ins in the existing service area. Electricity revenues also include revenues associated with MCE's Deep Green program, wholesale sales of energy to third parties and an allowance for uncollectable accounts.

Cost of energy (+\$19,279,000, 6.5% increase): Cost of energy includes expenses associated with the purchase of energy, charges by the California Independent Systems Operator (CAISO) for scheduled load, services performed by the CAISO, Resource Adequacy (RA) costs and other regulatory requirements necessary to meet the energy needs of our customers. Energy costs are anticipated to increase related to increases in prices for unhedged system energy, RA and the rolling off of attractively priced hedges executed in previous years.

Personnel (+\$716,000, 8.9% increase): Increased budgeted personnel costs result from the full year impact of staff added during FY 2018/19 pursuant to the Board-approved FY 2018/19 Operating Fund Budget, the application of Cost of Living Adjustments (COLA) effective January 1st of each year, and performance-based increases to current staff salaries consistent with MCE's Board-approved Employee Handbook. Personnel cost are net of a \$764,000 allocation of MCE staff time to Energy Efficiency Program administration.

Legal and Policy services (+\$342,000, 48% increase): Legal counsel expenses support MCE's contracting and regulatory activities including market restructuring issues. Legal counsel expenses are expected to increase to offset reductions in in-house counsel staff, support increased regulatory activity and support/advise MCE's staff on issues related to employment law and the PG&E bankruptcy.

Communications and related services (+\$389,000, 33% increase): Communications and related services include the costs associated with print, online, and other advertising; printing and mailing customer notices; maintaining the website; community outreach and sponsorships; and special events. Expenditures in the current fiscal year are projected to be under budget by ~\$700,000 due to previously proposed campaigns put on hold during new department director transition, 2018 focus on new community enrollments and planned leave by key marketing staff. Customer outreach and engagement is expected to increase in FY 2019/20 compared to FY 2018/19 actual expense but will still be less than FY 2018/19 original budget.

Other services (-\$395,000, 25% decrease): Other services encompass expenses which are not captured in other budget categories, including information technology and other professional services. Decreases in cost are primarily related to the transfer of accounting, auditing and other finance related costs, which are now funded in the newly created Finance and Contingency line item.

General and administration (+\$361,000, 28% increase): General and administration costs include office supplies, data, travel, dues and subscriptions, support for California Community Choice Association (CalCCA), and other related expenses. Increased costs are associated with an increased number of employees and additional software for information security and human resources platforms.

Occupancy (+\$276,000, 37% increase): Occupancy costs include the costs of leasing MCE's offices, utilities, and building maintenance. Increased occupancy costs result from the full year effects of leasing MCE's Concord office.

Finance and contingency (new budget line designation): As MCE's finances become more complicated and specialized, staff has designated a new departmental area with two full time employees (FTEs) and a segregated budget. Finance will be focused on enhancing MCE's credit ratings and liquidity, maximizing investment earnings/returns and managing credit risk across our platform with our renewable energy providers and numerous contractual counterparties and service providers. Finance will also be evaluating ways to reduce the cost of energy through third party credit intermediaries, prepayments of energy and other recourse and non-recourse transactions.

Improved budgetary accuracy, discipline and accountability will be a primary function of Finance. In the past a contingency of approximately 8-10% was added to each functional budget line item given the continued growth of the organization and the consequent difficultly in accurately budgeting costs. In FY 2019/20, staff is proposing that contingency be reduced to approximately 4% of the Operating Budget (\$850,000) and that it be managed/allocated in Finance based upon actual outcomes and needs within the group budgets throughout the fiscal year.

Grant and other income (+\$1,200,000, 218% increase): MCE receives grants from government and non-profit organizations to support certain activities connected to MCE's mission. Included are:

- MCE's Building Energy Optimization project, in part funded by the California Energy Commission. This project includes, among other things, a focus on optimizing Distributed Energy Resources in the CCA marketplace;
- Fire Rebuild Program, in part funded by the Bay Area Air Quality Management District. This
 program provides incentives for property owners who are rebuilding properties lost in the
 October 2017 and 2018 wildfires; and
- 3) Green & Healthy Homes Initiative (GHHI Marin) funded in part by the Marin Community Foundation. GHHI is a partnership of local nonprofits, governments, and utilities that deliver services and education to create healthy, safe and energy efficient homes.

Interest income (+\$350,000, 33% increase): Increased interest income is expected to result from a comprehensive reallocation of investments in accordance with the Investment Policy and higher balances in MCE's accounts.

Capital outlay (-\$660,000, 72% decrease): Expenditures associated with capital outlay include various leasehold improvements to MCE's facilities and furniture and equipment purchases. The decrease from the current fiscal year relates to the near completion of construction of a solar canopy and EV chargers in MCE's San Rafael parking lot as well as leasehold improvements to MCE's Concord office. **ENERGY EFFICIENCY PROGRAM FUND**

The Energy Efficiency Program Fund uses funding authorized by the California Public Utilities Commission (CPUC) to support multifamily, commercial, agricultural, industrial, single family and workforce development sub-programs. The Energy Efficiency Program Fund supports the activities of the Energy Efficiency Program and the Low Income Families and Tenants (LIFT) Pilot Program. Both programs involve the reimbursement of eligible expenses by the CPUC and accordingly, revenues and expenses for these programs offset each other.

Energy Efficiency Program

Energy efficiency has always been an integral component of the MCE vision. In July 2012, MCE submitted an application for funding under the 2013-2014 Energy Efficiency Funding Cycle (A. 12-11-007). The application was based on the initial Energy Efficiency Plan, and included the following proposed sub-programs:

- 1. Multifamily
- 2. Single family utility demand reduction pilot program
- 3. Small commercial
- 4. Financing pilot programs

This application was approved in November 2012, allocating over \$4 million to MCE for the implementation of energy efficiency programs. In November 2014, the CPUC voted to extend the funding at annual levels through 2025, or until the CPUC moves otherwise.

In May 2016, the CPUC authorized an additional \$366,090 per year to support the September 2016 inclusion of new communities in MCE's service area. MCE used these funds to support existing rebate programs and initially target east bay communities of San Pablo, El Cerrito, and Benicia. The CPUC authorized additional funding to support Evaluation, Monitoring, and Verification (EM&V) for the purposes of conducting studies on the efficacy of CPUC-funded program process and program impacts (i.e. did the lightbulb reduce energy savings as expected).

In June 2018, the CPUC voted to approve MCE's Energy Efficiency Business Plan, which requested an increase in annual budget ranging from \$8-\$12 million per year in the years 2018-2025. PUC decision D. 18-05-041 also authorized an expansion of MCE's portfolio into sectors that it had not previously had programs to serve, namely, large commercial, industrial and agriculture and gave MCE a budget specifically allocated to do workforce development activities.

MCE's 2019 energy savings programs will provide technical assistance, including site assessments and verification, and cash incentives to commercial, agricultural, and industrial property and business owners as well as multifamily property owners and managers. In the single family sector, MCE will pilot a pay for performance program using advanced metering infrastructure (AMI) data to quantify and pay for energy savings. MCE will also continue the deployment of its Seasonal Savings program, which remotely modifies set points on heating, ventilation, and air conditioning (HVAC) equipment to achieve savings on heating and cooling energy usage. MCE's Multifamily Energy Savings Program is blending funds and services with the Low Income Families and Tenants (LIFT) Pilot to provide income-qualified properties and residents with additional funds to achieve greater in-unit savings and utility bill reductions while addressing the split incentive issue (tenants pay utility bills but landlords control energy efficiency improvement decisions). MCE is currently in the design phase for its agricultural and industrial programs and will be soliciting ideas from the community for workforce development opportunities in Q2 2019.

Programs (\$)	FY 2018/19 Budget	FY 2019/20 Budget	Variation
Residential	1,642,000	4,668,978	3,026,978
Commercial	696,000	1,712,525	1,585,294
Financing	27,000	0	(27,000)
Industrial	0	838,716	838,716
Agriculture	0	888,152	888,152
Workforce Development	0	206,667	206,667
Program Subtotal	2,365,000	8,315,038	5,950,038
Evaluation Measurement and Verification (EM&V)	18,000	138,584	120,584
Total	2,383,000	8,453,622	6,070,622

Energy Efficiency Sub Program Budget Detail

Low Income Families and Tenants (LIFT) Pilot Program

In November 2016, the CPUC authorized MCE to administer \$3.5 million in low income program funding over a two-year period in support of its proposed Low Income Families and Tenants (LIFT) Pilot Program (Decision 16-11-022.). This Pilot provides funding to deepen the impact of MCE's multifamily energy efficiency program for income-qualified properties, specifically by providing full cost coverage for improvements that directly benefit tenants (for example, in-unit upgrades and common area measures that provide services to tenants, such as central hot water systems). The Pilot also tests the implementation of heat pumps – high efficiency electric heating equipment – which can facilitate switching a building off of carbon-based fuels and enabling deeper greenhouse gas reductions. MCE will also test the ability of working with local community-based organizations to engage community members who are not participating in the program due to real or perceived barriers.

The LIFT program launched in April 2017 and is funded the CPUC's Energy Savings Assistance Programs (ESAP) funds. Of the \$3.5 million authorized by the CPUC over a two-year period, Staff proposes to budget revenues and expenditures equal to \$2,198,738 million in FY 2019/20.

Proposed revenues and expenditures for the Energy Efficiency Program Fund total \$10,652,360, which is equal to an increase of \$6,519,000 (260%) from the previous year.

LOCAL RENEWABLE ENERGY AND PROGRAM DEVELOPMENT FUND

The Executive Committee has recommended that the Local Renewable Energy Development Fund (LREDF) be renamed the Local Renewable Energy and Program Development Fund (LREPDF). This fund is financed by a transfer from the Operating Fund equal to 50% of the 1¢/kWh premium for Deep Green service. The Executive Committee also recommended that the balance in the Renewable Energy Reserve Fund totaling \$1,222,000 be transferred into the LREPDF and that the Renewable Energy Reserve Fund be closed. These resources have historically been used to plan and develop local renewable energy projects. In FY 2014/15, FY 2015/16, FY 2016/17 and FY 2017/18, expenditures from the LREDF supported the development of MCE Solar One. In the current fiscal year FY 2018/19, no funds were expended from the LREDF. In FY 2019/20 with the additional funding from the transfer from the Renewable Energy Reserve Fund and the annual transfer from the Operating Fund the Executive Committee recommends funding MCE's local pilot programs including the Electric Vehicle (EV) charging program and the low-income solar programs.

Local pilot programs (+\$1,342,000, 195% increase): Actual expenditures in the Pilot Programs in the current fiscal year are expected to be 46% of budget with expenditures expected to increase significantly in the next fiscal year. Increased budgeted amounts are intended to fund MCE's electric vehicle program (MCEv) which promotes Electric Vehicle adoption through rebates for charging infrastructure at work places and multi-family dwellings, vehicle rebates for low income customers, and

regional planning and permitting support. The MCEv started in 2018 and is expected to accelerate in FY 2019-20.

Low income solar programs (+\$115,000, 153% increase): Low income solar programs support residential rooftop solar installations for low income participants. MCE is increasing activity in this area and is currently evaluating proposals to determine specific program elements. \$75,000 is anticipated to be actually be spent this fiscal year and the budget for FY 2019/20 is the same as originally projected for this year at \$190,000.

FISCAL IMPACT: The net impact of the Proposed Operating Fund Budget is a \$14,339,000 contribution to MCE's net position during FY 2019/20 assuming no change to MCE's current rates. If approved, budgeted revenues will fund some of the expenditures in the Energy Efficiency Program Fund and Local Renewable Energy and Project Development Fund.

ANTICIPATED FY 2019/20 BUDGET IMPACTS: A number of anticipated events could have a measurable effect on MCE's finances in the coming fiscal year. These include:

- 1) Power Cost Indifference Adjustment PCIA rate is expected on or after March 1, 2019 to be effective May 1;
- 2) PG&E's ERRA filing the Energy Resource Recovery Account is PG&E's energy cost filing that affects their generation rates – PG&E bifurcated their filing with some information available now and the rest to come later in 2019 – basically on the same timeline as the PCIA; and
- Time of Use (TOU) Rates PG&E's reform of its TOU rates will likely require corresponding changes to MCE rates. Staff expects a CPUC decision on implementation dates in the next few months.
- Customer energy usage Staff has limited historical data on customer usage for the most recent phase of expansion and sales projections may change as additional data becomes available.

These events may affect MCE's finances such that staff may be required to come back to the Board for Budget Amendments if revenue or cost impacts are significant.

RECOMMENDATION: Staff and the Executive Committee recommend that the Board of Directors approve:

- 1) the proposed Budgets for FY 2019/20 and
- 2) the consolidation of the Local Renewable Energy Development Fund and the Renewable Energy Reserve Fund and rename the fund the Local Renewable Energy and Program Development Fund.

AI #08 Att.: Prop. FY 2019/20 Operating Fund, Energy Efficiency Program Fund, and Local Renewable Energy and Program Development Fund Budgets

Marin Clean Energy Operating Fund Proposed Budget FY 2019/2020 From April 1, 2019 through March 31, 2020

				Variance	Variance %	
		FY 2018/19	FY 2019/20	(Proposed,	(Proposed,	
	Pro	jected Budget	Proposed Budget	Projected)	Projected)	Budget
ENERGY REVENUE						
Revenue - Electricity (net of allowance)	\$	354,727,000	355,550,000	823,000	0.23%	
ENERGY EXPENSE						
Cost of energy		297,840,000	317,119,000	19,279,000	6.47%	89.19%
Net Energy Revenue		56,887,000	38,431,000	(18,456,000)	-32.44%	
OPERATING EXPENSE						
Personnel		8,075,000	8,791,000	716,000	8.87%	2.47%
Data Manager, Calpine		6,576,000	6,270,000	(306,000)	-4.65%	1.76%
Technical and scheduling services		897,000	917,000	20,000	2.23%	0.26%
Service fees - PG&E		2,173,000	2,073,000	(100,000)	-4.60%	0.58%
Legal and Policy Services		718,000	1,060,000	342,000	47.63%	0.30%
Communication Services		1,184,000	1,573,000	389,000	32.85%	0.44%
Other Services		1,579,000	1,184,000	(395,000)	-25.02%	0.33%
General and Administration		1,303,000	1,664,000	361,000	27.71%	0.47%
Occupancy		738,000	1,014,000	276,000	37.40%	0.29%
Finance and Contingency		-	1,370,000	1,370,000		0.39%
Local pilot programs		689,000	-	(689,000)	-100.00%	0.00%
Low income solar programs		75,000	-	(75,000)	-100.00%	0.00%
TOTAL OPERATING EXPENSES		24,007,000	25,916,000	1,909,000	7.95%	7.29%
OPERATING INCOME		32,880,000	12,515,000	(20,365,000)	-61.94%	3.52%
						100.00%
NONOPERATING REVENUES						
Grants		550,000	1,748,000	1,198,000	217.82%	
Interest income		1,050,000	1,400,000	350,000	33.33%	
TOTAL NONOPERATING REVENUES		1,600,000	3,148,000	1,548,000		
NONOPERATING EXPENSES						
Banking Fees and Financing Costs		167,500	253,000	85,500	51.04%	
Grant Expense		-	1,071,000	1,071,000		
Depreciation		180,000	-	(180,000)		
TOTAL NONOPERATING EXPENSES		347,500	1,324,000	976,500		
CHANGE IN NET POSITION		34,132,500	14,339,000	(19,793,500)		4.00%
Budgeted net position beginning of period		52,633,717	86,135,000	33,501,283		
Budgeted net position end of period		86,766,217	100,474,000	13,707,783	15.80%	
CAPITAL EXPENDITURES, INTERFUND TRANSFERS & OTHER						
Capital Outlay		919,000	259,000	(660,000)	-71.82%	
Depreciation		(180,000)	-	180,000		
Transfer to Local Renewable Energy Development Fund		428,000	846,000	418,000	97.66%	
TOTAL CAPITAL EXPENDITURES, INTERFUND						
TRANSFERS & OTHER		1,167,000	1,105,000	(62,000)		
BUDGETED NET INCREASE IN OPERATING FUND BALANCE		32,965,500	13,234,000	(19,731,500)		

Marin Clean Energy Energy Efficiency Fund Proposed Budget FY 2019/2020 From April 1, 2019 through March 31, 2020

	F Appr	Y 2018/19 roved Budget	FY 2019/20 Proposed Budget
REVENUE AND OTHER SOURCES:			
Public purpose energy efficiency program	\$	2,383,000	8,398,000
Public purpose Low Income Family and Tenants pilot program		1,750,000	2,198,000
TOTAL REVENUE AND OTHER SOURCES		4,133,000	10,596,000
EXPENDITURES AND OTHER USES:			
Public purpose energy efficiency program	\$	2,383,000	8,398,000
Public purpose Low Income Family and Tenants pilot program		1,750,000	2,198,000
TOTAL EXPENDITURES AND OTHER USES:		4,133,000	10,596,000
Net increase (decrease) in fund balance	\$	-	\$-

Marin Clean Energy Local Renewable Energy & Program Development Fund Proposed Budget FY 2019/2020 From April 1, 2019 through March 31, 2020

	FY 2018/19		FY 2019/20	
	Approved Budget		Proposed Budget	
REVENUE AND OTHER SOURCES:				
Transfer from Operating Fund	\$	428,000	846,000	
Transfer from Renewable Energy Reserve Fund		-	1,222,000	
TOTAL REVENUE AND OTHER SOURCES			2,068,000	
EXPENDITURES AND OTHER USES:				
Capital outlay and other expenditures		150,000	-	
Local pilot programs			2,031,000	
Low income solar programs			190,000	
TOTAL EXPENDITURES AND OTHER USES:			2,221,000	
Fund balance at the beginning of period		124,000	402,000	
Net increase (decrease) in fund balance		278,000	(153,000)	
Fund balance at end of period	\$	402,000	\$ 249,000	



March 21, 2019	
TO:	MCE Board of Directors
FROM:	Dawn Weisz, CEO
RE:	Resolution No. 2019-02 Appointing Chief Operating Officer as Treasurer (Agenda Item #09)
ATTACHMENT:	Proposed Resolution 2019-02 Appointing Chief Operating Officer as Treasurer

Dear Board Members:

SUMMARY:

MCE has relied on Director Denise Athas to serve as its Treasurer, in accordance with Government Code 6505.5. In light of the increasing responsibilities this position is tasked with carrying out, it is in the best interest of MCE to appoint an in-house Treasurer. The current Chief Operating Officer (COO), Vicken Kasarjian, has the requisite qualifications and experience to serve as the MCE Treasurer.

1. Responsibilities and Duties of Treasurer:

Government Code Section 6505.5 identifies the duties of an agency treasurer:

- a. Receive and receipt for all money of the agency or entity and place it in the treasury of the treasurer so designated to the credit of the agency or entity.
- b. Be responsible, upon his or her official bond, for the safekeeping and disbursement of all agency or entity money so held by him or her.
- c. Pay, when due, out of money of the agency or entity held by him or her, all sums payable on outstanding bonds and coupons of the agency or entity.
- d. Pay any other sums due from the agency or entity from agency or entity money, or any portion thereof, only upon warrants of the public officer performing the functions of auditor or controller who has been designated by the agreement.
- e. Verify and report in writing on the first day of July, October, January, and April of each year to the agency or entity and to the contracting parties to the agreement the amount of money he or she holds for the agency or entity, the amount of receipts

since his or her last report, and the amount paid out since his or her last report.

2. Authority to Appoint Officer

Government Code Section 6505.6 and Section 4.13.3 of the MCE Joint Powers Agreement provide that MCE may appoint one of its own officers or staff to serve as its Treasurer. Following his or her appointment, the officer must contract with a certified public accountant to conduct an annual independent audit pursuant to Government Code Section 6505.

3. Qualifications of Chief Operating Officer

Current MCE COO Vicken Kasarijan possesses a wide range of experience that gualifies him to carry out the functions and duties of the Treasurer as described above. Vicken Kasarjian has over 33 years of progressively complex experience in many facets of electric and water utility finance and operations. Vicken has worked on several multimillion-dollar debt refinancing, refinancing and repurposing of approved-for-construction extra high voltage transmission developments, preparing for sale and marketing tens of millions of dollars of bond issues, and the development, justification and management of \$700 million per year in capitol and operations and maintenance budget. In addition, Vicken has experience assessing and implementing different financial models and approaches to construct large renewable energy sources, particularly for low-income customers and communities. Since 2003, Vicken has been involved in utilizing complex financial models and performance criteria to proactively perform risk assessments, market-to-market transaction reviews, including credit and collateral assessments in energy related transactions. Lastly, Vicken has significant background in many types of Federal Energy Regulatory Commission approved transactions in organized markets like the California Independent System Operator and the Pennsylvania-New Jersey-Maryland Interconnection.

Fiscal Impacts: None.

<u>Recommendation</u>: Staff and the Executive Committee recommend your Board adopt proposed Resolution 2019-02 Appointing Chief Operating Officer as Treasurer of MCE.

RESOLUTION 2019-02

A RESOLUTION OF THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY APPOINTING THE CHIEF OPERATING OFFICER AS TREASURER

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 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 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 Walnut Creek, and the Town of Yountville; and

WHEREAS, pursuant to Government Code Section 6505.6 and Section 4.13.3 of MCE's Joint Powers Agreement, as amended, dated December 19, 2008 (JPA), MCE may appoint one of its officers or employees to either or both of the positions of Treasurer or of Auditor-Controller, and such person or persons shall comply with the duties and responsibilities of the office or officers as set forth in subdivisions (a) to (e), inclusive, of Government Code Section 6505.5; and

WHEREAS, Vicken Kasarjian, who currently serves as the Chief Operating Officer of MCE, is qualified to serve as Treasurer and can perform the required functions and duties of Treasurer.

NOW, THEREFORE, BE IT RESOLVED, by the MCE Board of Directors, as authorized by Government Code 6505.6 and Section 4.13.3 of the MCE JPA, hereby appoints the Chief Operating Officer, Vicken Kasarjian, as Treasurer of MCE, effective immediately upon the passage and adoption of this resolution.

PASSED AND ADOPTED at a regular meeting of the MCE Board of Directors on this 21st day of March, 2019, 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 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 San Ramon		
City of Richmond		
Town of Ross		
Town of San Anselmo		
City of San Pablo		
City of San Rafael		
City of Sausalito		
City of St. Helena		
Town of Tiburon		
City of Walnut Creek		
Town of Yountville		

CHAIR, MCE

Attest:

SECRETARY, MCE



March 21, 2019TO:MCE Board of DirectorsFROM:Garth Salisbury, Director of Finance
Maira Strauss, Senior Financial AnalystRE:Amendment to MCE Policy 014: Investment Policy (Agenda Item #10)ATTACHMENTS:Proposed Amended MCE Policy 014: Investment Policy in
Strikeout/Underline Format

Dear Board Members:

SUMMARY:

In April 2018, your Board approved MCE Policy 014: Investment Policy to guide the investment of MCE's cash and investments. The objectives of the Investment Policy are to ensure the safety and liquidity of MCE funds while earning a market rate of return. MCE's current Investment Policy limits the investment of funds in commercial bank checking and savings accounts, certificates of deposit, the California State Treasury's Local Agency Investment Fund (LAIF), U.S. Treasury obligations, and Federal Deposit Insurance Corporation insured certificates of deposit with terms to maturity not exceeding five years.

The proposed amendments to MCE's Investment Policy expand eligible investments to include:

Investment Description	Additional Yield (bps)*	Term Limitation	Portfolio Limitation
US Federal Agency Securities	+25-35	5 years	Unlimited
Bankers Acceptances	+ 50	180 days	30%
Placement Service Deposits (FDIC insured)	+ 35	NA	30%
Money Market Funds	+ 10-20	NA	20%
Commercial Paper	+ 25-50	270 days	25%

*Additional yield is in addition to the yield available in MCE's checking/savings bank accounts. "bps" = basis points, or 0.0001%

The purpose of expanding eligible investments is to provide higher return options with little incremental risk. Staff completed a survey of the Investment Policies of seven MCE member communities including Marin County, Napa County, Contra Costa County, the Cities of San Rafael and Concord, and the Towns of Corte Madera and Tiburon. The proposed additional investment options of Federal Agency Securities, Bankers' Acceptances, Placement Service Deposits, Money Market Funds and Commercial Paper are eligible investments in each of these members' Investment Policies.

The proposed amendments also prohibit investment in any security that, if held to maturity, could result in a zero-interest accrual or less. The proposed amendments to MCE's Investment Policy also confirm that the Treasurer of MCE has the authority to invest or reinvest funds and to sell or exchange securities so purchased, as provided in California Government Code Section 53607, for the period of one year. Subject to review at the close of each fiscal year, the investment authority delegated to the Treasurer of MCE could be renewed. The MCE Treasurer would be authorized to 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. The Investment Policy would be reviewed annually by the Treasurer. Any recommended Policy changes would be submitted to the Board for approval. The amended Policy would require annual reports of investments to the Board and monthly reports to the Board of investment transactions defined as purchases, reinvestments or sales of securities following the month in which they occur.

<u>Fiscal Impacts</u>: Interest rates vary on a daily basis, and the incremental return on investments arising from amendments to the Investment Policy cannot be determined with certainty.

<u>Recommendation</u>: Staff and the Executive Committee recommend the Board approve the proposed amended MCE Policy 014: Investment Policy.



POLICY 014: Investment Policy

This Investment Policy establishes guidelines for the management of cash, deposits and investments (together, "funds") at MCE. 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.

<u>Safety:</u> 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.

<u>Liquidity:</u> The funds of the 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.

<u>Return on Investment</u>: 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 53600.3.1¹: "Governing bodies of local agencies or persons authorized to make investment decisions on behalf of those local agencies investing public funds 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."

Pursuant to Section 53607, the responsibility to manage funds is delegated to the Manager<u>Treasurer</u> of Finance or in lieu thereof the Chief Executive Officer<u>MCE</u>. 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.

Authorized Investments

The following types of investments are permitted:

¹ All further statutory references are to the California Government Code unless otherwise stated.

<u>Deposits at Bank(s)</u>: 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. in an amount equal to no less than 110% of as currently stated in the value of the deposits.statute. The Treasurer, or a duly appointed Deputy Treasurer, will monitor the credit quality of eligible banks to ensure the safety of MCE deposits.

<u>Local Agency Investment Fund (LAIF)</u>: 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 quasigovernmental 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.

<u>US Treasury Obligations:</u> Funds may be invested in United States Treasury obligations with a term to maturity not exceeding 5 years 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 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;

i-ii. A credit rating of A-1 or better; and

ii. A senior debt rated at A or better.

Bankers' Acceptances: Funds may be invested in Banker's Acceptances provided that they are issued by institutions which have short-term debt obligations fated "A-1" or its equivalent of better by at least one NRSRO. Not more that 40% of the portfolio may be invested in Bankers' Acceptances, and no more that 5% of the portfolio may be invested in any single issuer. The maximum maturity shall not exceed 180 days.

<u>Negotiable Certificates of Deposit: Funds may be invested in negotiable certificates of deposit in accordance with the requirements of Section 53601 and 53601.8, and subject to the following limitations:</u>

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.

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, Certificate of deposits and Negotiable Certificates of Deposits is limited to 30 percent and the maximum investment maturity will be restricted to five years.

Money Market Funds: Funds may be invested in money market funds pursuant to Section 53601(I)(2) and subject to Section 53601(I)(4).

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.

Investment Portfolio Management

The <u>average</u> term to maturity of <u>any</u> funds <u>invested</u> shall not exceed <u>36 months.5 years pursuant</u> to <u>Section 53601</u>. The <u>Treasurer</u>, or a <u>duly appointed Deputy Treasurer</u>, 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

Broker/dealers shall be selected by the Chief Executive Officer upon recommendation by the <u>Treasurer</u>, 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 <u>Section 53601.5</u>. 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.

<u>Losses</u>

Losses are acceptable on a sale before maturity and may be taken if required to meet the liquidity needs of the 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 <u>Treasurer</u>, or a duly appointed <u>Deputy</u> <u>Treasurer</u>, and in accordance with Section 53608. The Director of <u>OperationsFinance</u> or their designee shall review all transaction confirmations for conformity with the original transaction.

Conflict of Interest

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.

<u>Audits</u>

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 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.

<u>Reports</u>

<u>Monthly: So long as the Board</u> of Finance and designated staffDirectors' 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:

- A list identifying the type of investment, issuer, date of maturity and yield of investments, par and provide such reports to the Executive Committee. 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 <u>Treasurer</u>, or a duly appointed <u>Deputy</u> <u>Treasurer</u>. Any changes to the Investment Policy will be submitted to the Board for approval.



March 21, 2019

TO:

FROM: Garth Salisbury, Director of Finance Maira Strauss, Senior Financial Analyst

MCE Board of Directors

- RE: Resolution No. 2019-01 Regarding LAIF Investments (Agenda Item #11)
- ATTACHMENTS: A. Proposed Resolution No. 2019-01 Rescinding Resolution No. 2018-05 and Authorizing Investment of Monies in the Local Agency Investment Fund B. Resolution No. 2018-05 Authorizing Investment of Monies in the Local Agency Investment Fund

Dear Board Members:

SUMMARY:

On April 19, 2018 your Board approved Resolution No. 2018-05 Authorizing Investment of Monies in the Local Agency Investment Fund (LAIF). Resolution 2018-05 authorized the deposit and withdrawal of MCE monies in the LAIF, by CEO Dawn Weisz and Manager of Finance David McNeil.

As a result of staff changes including the addition of MCE's COO, the departure of the Manager of Finance, and the appointment of a Director of Finance, it is necessary to rescind Resolution No. 2018-05 and replace it with Proposed Resolution No. 2019-01. The new Resolution designates certain members of staff (CEO, COO, and Director of Finance) to direct investments in and withdrawals from the LAIF.

<u>Fiscal Impacts</u>: Interest rates vary on a daily basis, and the incremental return on investments arising from investment in LAIF cannot be determined with certainty.

<u>Recommendation</u>: Staff and the Executive Committee recommend that the Board adopt proposed Resolution 2019-01 Rescinding Resolution No. 2018-05 and Authorizing Investment of Monies in the Local Agency Investment Fund.

RESOLUTION NO. 2019-01

A RESOLUTION OF THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY AUTHORIZING INVESTMENT OF MONIES IN THE LOCAL AGENCY INVESTMENT FUND

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 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 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 Walnut Creek, and the Town of Yountville; and

WHEREAS, the Local Agency Investment Fund (LAIF) is established in the State Treasury under Government Code section 16429.1 et. seq. for the deposit of money of a local agency for purposes of investment by the State Treasurer; and

WHEREAS, the MCE Board of Directors hereby finds that the deposit and withdrawal of money in the LAIF in accordance with Government Code section 16429.1 et. seq. for the purpose of investment as provided therein is in the best interests of MCE;

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

- A. The Board of Directors hereby authorizes the deposit and withdrawal of MCE monies in the LAIF in the State Treasury in accordance with Government Code section 16429.1 et. seq. for the purpose of investment as provided therein and under the guidelines established in MCE Policy No. 14: Investment Policy.
- B. The following MCE employees holding the title(s) specified herein below or their successors in office are each hereby authorized to order the deposit of withdrawal of monies in the LAIF and may execute and deliver any and all documents necessary or advisable in order to effectuate the purposes of this resolution and the transactions contemplated hereby:

Dawn Weisz	Vicken Kasarjian	Garth Salisbury
(NAME)	(NAME)	(NAME)
Chief Executive Officer	Chief Operating Officer	Director of Finance
(TITLE)	(TITLE)	(TITLE)
(SIGNATURE)	(SIGNATURE)	(SIGNATURE)

C. This resolution shall remain in full force and effect until rescinded by the MCE Board of Directors by resolution and a copy of the resolution rescinding this resolution is filed with the State Treasurer's Office.

PASSED AND ADOPTED at a regular meeting of the MCE Board of Directors on this 21st day of March, 2019, 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 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 San Ramon				
City of Richmond				
Town of Ross				
Town of San Anselmo				
City of San Pablo				
City of San Rafael				

AI #11 Att. A: Prop. Reso. No. 2019-01 Rescinding Reso. No. 2018-05 and Auth. Investment of Monies in the Local Agency Investment Fund

City of Sausalito		
City of St. Helena		
Town of Tiburon		
City of Walnut Creek		
Town of Yountville		

CHAIR, MCE

Attest:

SECRETARY, MCE

RESOLUTION NO. 2018-05

APR 1 9 2018

A RESOLUTION OF THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY AUTHORIZING INVESTMENT OF MONIES IN THE LOCALENERGY AGENCY INVESTMENT FUND

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 Napa, the City of American Canyon, the City of Belvedere, the City of Benicia, the City of Calistoga, the Town of Corte Madera, the City of El Cerrito, the Town of Fairfax, the City of Lafayette, the City of Larkspur, the City of Mill Valley, the City of Napa, the City of Novato, 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 Walnut Creek, and the Town of Yountville; and The City of Concord, The Town of Danville, The City of Martinez, The Town of Moraga, The City of Oakley, The City of Pinole, The City of Pittsburg, The City of San Ramon and Unincorporated Contra Costa County; and

WHEREAS, the Local Agency Investment Fund (LAIF) is established in the State Treasury under Government Code section 16429.1 et. seq. for the deposit of money of a local agency for purposes of investment by the State Treasurer; and

WHEREAS, the MCE Board of Directors hereby finds that the deposit and withdrawal of money in the LAIF in accordance with Government Code section 16429.1 et. seq. for the purpose of investment as provided therein is in the best interests of MCE;

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

- A. The Board of Directors hereby authorizes the deposit and withdrawal of MCE monies in the LAIF in the State Treasury in accordance with Government Code section 16429.1 et. seq. for the purpose of investment as provided therein and under the guidelines established in MCE Policy No. 14: Investment Policy.
- B. The following MCE employees holding the title(s) specified hereinbelow or their successors in office are each hereby authorized to order the deposit of withdrawal of monies in the LAIF and may execute and deliver any and all documents necessary or advisable in order to effectuate the purposes of this resolution and the transactions contemplated hereby:

Dawn Weisz	David McNeil
(NAME)	(NAME)
Chief Executive Officer	Manager of Finance
(TITLE) (SIGNATURE)	(SIGNATURE)

C. This resolution shall remain in full force and effect until rescinded by the MCE Board of Directors by resolution and a copy of the resolution rescinding this resolution is filed with the State Treasurer's Office.

PASSED AND ADOPTED at a regular meeting of the MCE Board of Directors on this 19th day of April, 2018, by the following vote:

	AYES	NOES	ABSTAIN	ABSENT
City of American Canyon	\checkmark			
City of Belvedere				
City of Benicia				\checkmark
City of Calistoga	\checkmark			
City of Concord	$\overline{\checkmark}$			
Unincorporated Contra Costa County				
Town of Corte Madera				
Town of Danville	\checkmark			
City of El Cerrito	\checkmark			
Town of Fairfax	\checkmark			
City of Lafayette	\checkmark			
City of Larkspur	\checkmark			
County of Marin	\checkmark			
City of Martinez				\checkmark
City of Mill Valley				\checkmark
Town of Moraga	\checkmark			
City of Napa	\checkmark			
County of Napa	\checkmark			
City of Novato	\checkmark			
City of Oakley	\checkmark			
City of Pinole	\checkmark			
City of Pittsburg	\checkmark			
City of Richmond	\checkmark			
Town of Ross	\checkmark			
Town of San Anselmo				
City of San Pablo				\checkmark
City of San Rafael	\checkmark			
City of San Ramon	\checkmark			
City of Sausalito	\checkmark			
City of St. Helena	\checkmark			

AI #11 Att. B: Reso. No. 2018-05 Auth. Investment of Monies in the Local Agency Investment Fund

Town of Tiburon		
City of Walnut Creek		
Town of Yountville	\checkmark	

Scary

CHAIR, MCE

Attest:

de SECRETARY, MCE



March 21, 2019

TO:MCE Board of DirectorsFROM:Catalina Murphy, Legal CounselRE:Ordinance 2018-02 Establishing an Alternative Claims Procedure
(Agenda Item #12)
a) Second Reading and Adoption of Ordinance 2018-02 Establishing
an Alternative Claims Procedure pursuant to Government Code
Section 935ATTACHMENT:Proposed Ordinance 2018-02 Establishing an Alternative Claims
Procedure pursuant to Government Code Section 935

Dear Board Members:

SUMMARY:

Pursuant to California Government Code Section 935, a public entity may prescribe the process in which certain claims for money or damages may be made against the entity. In order to better protect MCE in the event of such a claim, MCE staff has developed a claims procedure pursuant to Government Code Section 935. To utilize this claims procedure, your Board must enact a Claims Procedure Ordinance as required by Government Code Section 935(a). Specifically, the Ordinance provides for the prerequisites to bringing a suit against the agency, the time of presentation, and the form and method by which the Board or Executive Committee reviews claims. No legal action may be maintained by a person who has not complied with the procedures set forth in this Ordinance.

On October 18, 2018 your Board introduced the Ordinance for first reading by title only. Staff recommends adopting Ordinance 2018-02.

Fiscal Impact: None.

Recommendation: Waive second reading and adopt Ordinance 2018-02 of the Board of Directors of Marin Clean Energy Establishing an Alternative Claims Procedure pursuant to Government Code 935.

ORDINANCE 2018-02

AN ORDINANCE OF THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY ESTABLISHING AN ALTERNATIVE CLAIMS PROCEDURE PURSUANT TO GOVERNMENT CODE SECTION 935

WHEREAS, the Government Claims Act (Government Code section 900 et seq.) (hereinafter "Act") sets forth the general procedure for the presentation of claims as a prerequisite to commencement of actions for money or damages against local public entities; and

WHEREAS, the Act excepts certain claims against local public entities from the presentation procedures of the Act; and

WHEREAS, the Act also specifies that local public entities may adopt a procedure for claims excepted under the Act and which are not governed by any other statutes or regulations; and

WHEREAS, the Board now desires to adopt a procedure to govern the presentation requirements of those excepted claims to establish an alternative claims procedure pursuant to Government Code section 935.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF MARIN CLEAN ENERGY DOES ORDAIN AS FOLLOWS:

Section 1. <u>Claims for money or damages.</u>

All claims against Marin Clean Energy, for money or damages, which are excepted by section 905 from Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 within Division 3.6 of Title 1 of the California Government Code and which are not otherwise governed by any other statute or regulation expressly related thereto, shall be governed by the procedure prescribed in this Ordinance, in accordance with Government Code section 935, as it may be amended.

Section 2. <u>Claim prerequisite to suit</u>.

All claims shall be presented as provided in this Ordinance and acted upon by Marin Clean Energy prior to the filing of any legal action on such claims. No such action may be maintained by a person who has not complied with the procedures set forth in this Ordinance.

Section 3. <u>Time of presentation.</u>

The claim must be presented to the Secretary of the Board within the time requirements set forth in Government Code section 911.2. For purposes of determining whether a claim is timely presented, a claim is presented to the Secretary when it is received at the mailing address for the Board.

Section 4. Form.

All claims shall be made in writing and verified by the claimant or by his or her guardian, conservator, executor or administrator. No claims may be filed on behalf of a class of persons unless verified by every member of that class as required by this section. In addition, all claims shall contain the information required by Government Code section 910.

Section 5. <u>Review of claims.</u>

All claims shall be reviewed and audited by the Secretary for the Board for compliance with this Ordinance and submitted to the Board or the Executive Committee for approval or rejection. The Board or the Executive Committee shall act on a claim in the manner provided in Government Code sections 912.4, within 45 days after the claim has been presented. If a claim is amended, the Board or Executive Committee shall act on the amended claim within 45 days after the amended claim is presented.

Section 6. Notice and effect.

This Ordinance shall take effect and be in force thirty (30) days from the date of its passage, and before the expiration of fifteen (15) days after its passage, it or a summary of it, shall be published once, with the names of the members of the Board of Directors voting for and against the same in the Marin Independent Journal, a newspaper of general circulation published in the County of Marin.

PASSED, APPROVED, and ADOPTED by the Board of Directors of Marin Clean Energy, Marin County, State of California, this 21st day of March, 2019, 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 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 San Ramon		
City of Richmond		
Town of Ross		
Town of San Anselmo		
City of San Pablo		
City of San Rafael		
City of Sausalito		
City of St. Helena		
Town of Tiburon		
City of Walnut Creek		
Town of Yountville		

CHAIR, MCE

Attest:

SECRETARY, MCE



March 21, 2019

TO:MCE Board of DirectorsFROM:Heather Shepard, Director of Public AffairsRE:Update on MCE Community Activities and Interface (Agenda Item #13)ATTACHMENT:Overview of MCE 2018 Community Activities and 2019 Priorities

Dear Board Members:

SUMMARY:

Below is a summary of 2018 Community Engagement Activities and Priorities for 2019.

2018 Highlights:

- Participation rates across service area steady at ~86%.
- Successful enrollment of 9 new Contra Costa Communities adding over 200k accounts.
- Participated in more than 200 outreach events in 2018.

2019 Priorities:

- Focus on deepening engagement with key customers and stakeholders including launch of PowerHour lunch and learn series for top customers and partners.
- Maintaining excellence in customer operations.
- Website refresh planned to improve navigation, customer experience and content, increase e-news and digital engagement.
- Targeted campaigns include year long effort to double Deep Green enrollment to 20k by 2020 10 years of service milestone and local community print advertising campaign (Fall 2019).

Recommendation: Discussion only.

Community Activities Board Update March 21, 2019

Heather Shepard Director of Public Affairs, MCE



- 2018 Highlights
- 2019 Community Engagement
- Questions / Discussion

MCE Customers at a Glance



Enrollment Rates by Jurisdiction



- The opt out rates for new jurisdictions compare favorably overall
- Most new jurisdictions are above the average participation rate

Existing

New



Average Enrollment rate (86.3%)

2018 Accounts Dashboard

	2017-2018		Dec 2018
Accounts	86%	1	473,553
Deep Green	40%		9,958
Net Energy Metering	155%		31,440
Local Sol	29%		179

Marketing Dashboard





2018 Customer + Community Engagement

- Smoothly enrolled 9 Contra Costa Communities and 215K+ accounts
- 33,000+ calls to call center
- Solano County voted to join MCE
- Community Power Coalition 35 member organizations – 1st CPUC guest speaker
- MCEv 300 customers reached for charging and low-income rebates
- Napa Rebuild multi-lingual outreach to Napa Valley residents impacted by wildfires
- > 200 meetings + events

2019 Community Partnering

- Joint Municipal outreach (email + workshops)
- Key Customer engagement
- Local print advertising campaign Fall 2019

TAKE THE DRIVER'S SEAT with MCE's Low-Income EV Rebate



Hello Heather,

The City of Pinole and MCE are proud to announce that you may be eligible to save \$3,500 on the purchase or lease of an electric vehicle (EV).

MCE's generous **rebate for low-income qualifying customers** gives you a great deal on a cutting-edge, new or used EV, especially when you combine it with up to \$8,800 in other incentives from the federal government, State of California, and PG&E.

EVs are zero-emission vehicles that offer significant savings on fuel and maintenance costs, and also reduce air pollution in your community.

ELECTRIC VEHICLE CHARGING STATIONS AND THE WORKPLACE

t MCE's EV Rebate Program

Thursday, January 31, 2019 12:00 - 1:30 PM MCE, 2300 Clayton Road, 11th Floor Concord, CA 94520

New Community Inclusion Period (Jan-June 2019)

Solano	Contra Costa
Fairfield	Pleasant Hill
Suisun City	Brentwood
Dixon	Antioch
Vacaville	Clayton
Vallejo	Hercules
Rio Vista	Orinda



2019 Campaigns

THANK YOU FOR PROTECTING OUR ENVIRONMENT

SHOW YOUR PRIDE Put this sticker on your window, water bottle, computer, bike, or favorite item. Share on social with #optUP.

REFER A FRIEND

Together we can double our environmental impact and power a clean energy future! **Refer a pal, neighbor, or colleague and help us reach 20,000 Deep Green customers by 2020.**

mceCleanEnergy.org/optUP

- Deep Green 20k by 2020
- Solar + EV parking lot ribbon cutting (April 2019)
- Website refresh with new community resource content (June 2019)
- Local print campaign (Fall 2019)

POWERED BY MCE DEEP GREEN 100% RENEWABLE

DIDIT

PROUD MEMBER OF 1ST 10K!

Questions?

Heather Shepard Director of Public Affairs, MCE (415) 464-6024 hshepard@mcecleanenergy.org

Thank you for your partnership!