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BENICIA | CONCORD | DANVILLE | EL CERRITO | LAFAYETTE | MARTINEZ | MORAGA
OAKLEY | PINOLE | PITTSBURG | RICHMOND | SAN PABLO | SAN RAMON | WALNUT CREEK

Agenda Page 1 of 1

Technical Committee Meeting Thursday, November 2, 2017 9:00 A.M.

The City of Concord
Permit Center Conference Room
1950 Parkside Drive, Concord, CA 94519

Remote locations:

The Barbara George Conference Room, 1125 Tamalpais Avenue, San Rafael, CA 94901
Marten Law, PLLC, 555 Montgomery Street, Suite 820, San Francisco, CA 94111-2560

1. Board Announcements (Discussion)
2. Public Open Time (Discussion)
3. Report from Chief Executive Officer (Discussion)
4. 9.7.17 Meeting Minutes (Discussion/Action)
5. MCE 2018 Integrated Resource Plan (Discussion/Action)
6. Power Resources Expansion Update (Discussion)
7. Feed-in Tariff and Expanded Feed-in Tariff (Discussion)
8. Committee Member & Staff Matters (Discussion)
9. Adjourn



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DRAFT

**MCE
TECHNICAL COMMITTEE MEETING
September 7, 2017
9:00 A.M.**

**The Barbara George Conference Room
1125 Tamalpais Avenue, San Rafael, CA 94901**

**Marten Law, PLLC
555 Montgomery Street, Suite 820
San Francisco, CA 94111-2560**

**3675 Mt. Diablo Blvd., Room 265
Lafayette, CA 94549**

Roll Call

Present: Ford Greene, Town of San Anselmo
Kevin Haroff, City of Larkspur
Greg Lyman, City of El Cerrito (Dialing in)
Emmett O'Donnell, Town of Tiburon
Kate Sears, County of Marin, Chair
Don Tatzin, City of Lafayette (Dialing in)
Ray Withy, City of Sausalito

Staff: Rebecca Boyles, Account Manager
David Potovsky, Power Supply Contracts Manager
Byron Vosburg, Power Supply Contracts Manager
Dawn Weisz, Chief Executive Officer

Action Taken:

Agenda Item #3 – CEO Report (Discussion)

CEO Dawn Weisz reported on the following:

- AB 726
- AB 813
- SB 100

Agenda Item #4 – Approval of Minutes from 7.6.17 Meeting (Discussion/Action)

ACTION: It was M/S/C (Haroff/Lyman) to **approve minutes from 7.6.17 meeting**. Motion carried by unanimous 7-0 vote. (Abstain: Director Withy)

DRAFT

Agenda Item #5 – Integrated Resource Plan: Review of Goals and Policies (Discussion)

Byron Vosburg, Power Supply Contracts Manager, presented this item and addressed questions from the Committee.

ACTION: No action required.

Agenda Item #6 – Power Resources Expansion Update (Discussion)

David Potovsky, Power Supply Contracts Manager, presented this item and addressed questions from the Committee

ACTION: No action required.

Agenda Item #7 – Bill Protection in the Time-of-Use Pilot (Discussion/Action)

Rebecca Boyles, Account Manager, presented this item and addressed questions from the Committee.

ACTION: It was M/S/C (Haroff/Withy) to **approve the provision of Bill Protection for customers adversely affected by participating in the Default TOU Pilot for a 12-month period, except in exclusionary cases (as defined in Attachment A).**

Agenda Item #8 – MCE Local and Union Workforce Update (Discussion)

CEO Dawn Weisz presented this item and addressed questions from the Committee.

ACTION: No action required.

The meeting was adjourned to the next scheduled meeting on October 5, 2017.

Kate Sears, Chair

ATTEST:

Dawn Weisz, Chief Executive Officer



November 2, 2017

TO: MCE Technical Committee
FROM: Byron Vosburg, Power Supply Contracts Manager
RE: MCE 2018 Integrated Resource Plan (Agenda Item #05)
ATTACHMENT: Draft MCE 2018 Integrated Resource Plan

Dear Technical Committee Members:

BACKGROUND:

MCE's Integrated Resource Plan ("IRP") is intended to articulate the energy procurement targets adopted by MCE's Board of Directors ("Board") and serves as a guideline to MCE staff regarding day-to-day operations and long-term portfolio planning and procurement activities. Your Board first approved MCE's ten-year resource plan in Chapter 6 ("Load Forecast and Resource Plan") of the Community Choice Aggregation Implementation Plan and Statement of Intent ("Implementation Plan"), dated January 2010. Regular updates to MCE's resource plan have been approved by your Board via subsequent revisions of the Implementation Plan and, since November 2012, annual IRP updates. In May 2016, your Board delegated authority to approve IRP updates to the Technical Committee via approval of the "Technical Committee Overview."

The IRP has four primary purposes:

1. Quantify resource needs over the ten-year Planning Period, which, in the current IRP update, includes calendar years 2018 through 2027;
2. Prioritize resource preferences and articulate relevant energy procurement policies;
3. Provide guidance to the energy procurement processes undertaken by MCE staff; and
4. Communicate MCE's resource planning policies, objectives and planning framework to the public, energy marketers, and key stakeholder groups.

MCE's key resource planning policies, as set forth in the IRP, are as follows:

1. Reduce GHG emissions and other pollutants associated with the electric power sector through increased use of renewable, GHG-free, and low-GHG energy resources.
2. Maintain competitive electric rates and increase control over energy costs through management of a diversified resource portfolio.
3. Benefit the local economy through investments in infrastructure and energy programs within MCE's service territory.

4. Help customers reduce energy consumption and electric bills through investment in and administration of enhanced customer energy efficiency, cost-effective distributed generation, and other demand-side programs.
5. Enhance system reliability through investment in supply- and demand-side resources.
6. Actively monitor and manage operating and market risks to promote MCE's continued financial strength and stability.

The IRP translates these broad policy objectives into more specific planning elements focused on the use of various resource types, taking into consideration MCE's projected customer needs and MCE's existing resource commitments. The IRP identifies:

1. Projected customer demand and energy needs, specifically those for renewable, GHG-free, and conventional energy, over the Planning Period;
2. Estimated deliveries from contracted resources that will fill portions of these energy needs;
3. Subsequent "open positions" that result from the difference between future energy needs and commitments from currently contracted resources; these open positions dictate the timing and magnitude of additional energy procurement that may be required to meet specified resource goals; and
4. To the extent that open positions exist, the IRP describes the procurement methods and guidelines that MCE will utilize to meet them.

MCE's IRP is updated annually, typically in fall – after summer's procurement activities have concluded and in anticipation of the next year's procurement planning. This 2018 IRP update includes MCE's Board-approved Contra Costa County expansion.

SUMMARY OF CHANGES:

MCE's 2015 IRP established significant increases in MCE's procurement targets: increasing renewable energy content for its Light Green service from 50% to 80% by 2025; limiting unbundled renewable energy certificates to no more than 3% of its retail load; and increasing GHG-free energy content from 60% to 95% by 2025.

The 2018 IRP is provided as an attachment to this report. It affirms and advances progress toward these goals by increasing MCE's GHG-free targets throughout the Planning Period, setting the 2018 GHG-free portfolio content to 78% and working toward a 100% GHG-free goal in 2025. The 2018 IRP includes:

- Updated Energy Contracting targets to incorporate consistent annual procurement targets throughout the Planning Period in order to mitigate the impacts of previous MCE growth and moderate long-term contract commitments.
- Consideration of MCE's direct procurement of energy storage in addition to previously contemplated customer-focused energy storage strategy.
- Incorporation of forecasted increases in customer demand due to future growth in electric vehicle adoption
- MCE's preference for renewable and GHG-free resources when contracting via fixed-price contracts to "hedge" open physical positions and reduce CAISO market exposure.
- Discussion of Asset Controlling Supplier ("ACS") resources, which MCE intends to categorize within its "GHG-free" portfolio; the extremely low emissions factors

associated with ACS supply shall be incorporated into MCE's overall emissions factor

The IRP summarizes the following progress toward MCE's energy and capacity obligations:

- MCE has contracted for its projected Renewable Portfolio Standard ("RPS") compliance needs through 2025; open renewable positions remain from 2018 through the Planning Period for MCE's voluntary renewable energy targets;
- MCE has addressed its conventional energy requirements per its planning guidelines via contractual commitments that are in place through 2020;
- MCE has addressed its required reserve capacity ("Resource Adequacy" or "RA") and flexible capacity obligations per its contracting guidelines via commitments extending through 2018;
- MCE continues to focus on energy purchases from new, California-based renewable energy resources throughout the Planning Period. Potential competition for these limited resources may necessitate MCE to consider renewable energy imports from the Pacific Northwest and other areas throughout the Western Electricity Coordinating Council ("WECC"), which generally encompasses the Western United States.

In addition, the 2018 IRP provides updates on MCE's portfolio of power suppliers and its cultivation of local renewable energy generation, most notably its Net Energy Metering ("NEM"), Feed-in Tariff ("FIT"), and Local Sol programs as well as the development of its own MCE Solar One facility in Richmond, CA:

- As of October 2017, MCE serves approximately 14,700 NEM customers; the smaller-scale renewable generating projects that have been installed by such customers represent more than 128,000 kW (128 MW) of local renewable generating capacity. Upon expansion of its service area in 2018, MCE expects to serve nearly 25,000 NEM customers with approximately 200,000 kW (200 MW) of installed, behind-the-meter capacity.
- Through a partnership with Grid Alternatives, MCE has contributed \$155,000 to low-income residential solar installations since 2012; benefitting customers saved an estimated \$1,018,000.
- In addition to NEM generating capacity, MCE is planning to develop or purchase energy from 25 MW of locally developed solar capacity by 2021. To this end, MCE has invested staff time and financial resources in various development activities within its service territory. For example, MCE Solar One is a 10.5 MW solar photovoltaic (PV) project that is currently under construction in the City of Richmond and expected to commence power production in December 2017.
- MCE continues to administer one of California's most generous FIT programs for locally situated, smaller-scale renewable generating resources that supply wholesale electricity to MCE. This program utilizes a standard offer (i.e. non-negotiable) contract that is available on a first-come, first-served basis to up to 15 MW of qualifying renewable energy projects within MCE's service territory. Specific terms and conditions for the remaining 5 MW of the FIT program capacity are available on MCE's website.

RECOMMENDATION: Approve MCE's 2018 Integrated Resource Plan Update.



2018 Integrated Resource Plan

November 2017

Presented to MCE Technical Committee on 11/02/2017

MCE 2018 Integrated Resource Plan

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I. Introduction

As California’s first Community Choice Aggregation (“CCA”) program, MCE provides retail electric generation services and complementary energy programs to customers within the municipal boundaries of its member communities (collectively, the “service area”), which include:

- Marin County;
- Napa County;
- Contra Costa County, only the cities of El Cerrito, Lafayette, Richmond, San Pablo, and Walnut Creek; and
- Solano County, only the city of Benicia.

In July 2017, MCE’s Board of Directors (“Board”) approved inclusion (i.e., membership) of the following Contra Costa County communities, which MCE expects to begin serving in April 2018:

- The cities of Concord, Martinez, Oakley, Pinole, Pittsburg and San Ramon;
- The towns of Danville and Moraga; and
- The unincorporated areas of Contra Costa County.

Figure 1: MCE Service Area, including expansion anticipated in 2018



MCE provides service to more than eighty percent of electricity customers within its service area and is the default electric generation provider for any new or relocated customers therein.

As a mission-driven organization, MCE works to reduce greenhouse gas (“GHG”) emissions and to expand access to competitively priced renewable energy and energy efficiency (“EE”) programs for all customers. With these objectives in mind, MCE plans for and secures commitments from a diverse portfolio of generating resources to reliably serve the electric energy requirements of its customers over the near-, mid-, and long-term planning horizons. This Integrated Resource Plan (“IRP”) documents MCE’s resource planning policies and objectives over the upcoming ten-year planning period from 2018 through 2027 (the “Planning Period”).

Every year, MCE staff updates the IRP and submits it for approval to MCE’s Board or Technical Committee, which includes a subset of MCE Board members. Such approval is made in consideration of applicable regulatory requirements, MCE’s resource planning policies, energy market conditions, anticipated changes in electricity sales, planned inclusion of new member communities, ongoing procurement activities, and any other considerations that may affect the manner in which MCE carries out its resource planning activities.

Purpose

The IRP has four primary purposes:

- (1) quantify resource needs over the Planning Period;
- (2) prioritize resource preferences and articulate relevant energy procurement¹ policies;
- (3) provide guidance to the energy procurement processes undertaken by MCE staff; and
- (4) communicate MCE’s resource planning objectives and framework to the public and key stakeholder groups.

In practical terms, the IRP specifies the energy procurement strategy adopted by MCE’s Board and serves as a guideline to MCE staff regarding day-to-day energy planning and procurement activities.

Executive Summary

Highlights of this IRP update include the following:

- MCE will manage a portfolio of power resources to supply a minimum renewable energy content of 57 percent for its Light Green customers. MCE plans to increase its renewable energy content, subject to product availability and rate-related considerations, to 80 percent for Light Green customers by 2025. MCE has a long-term goal of supplying 100 percent renewable energy to all of its customers.
- MCE continues to provide its customers with voluntary 100 percent renewable energy service options: Deep Green, which is wholly sourced from various renewable energy projects located in California; and Local Sol, which began supplying participating customers with 100 percent locally sourced (i.e., the supplying generating facilities are located entirely within MCE’s service area) solar photovoltaic (“PV”) energy in July 2017.

¹ Within this IRP, energy procurement refers to the purchase of energy products, including electricity, capacity, energy efficiency, distributed generation, demand response, and energy storage.

- MCE’s energy supply portfolio now includes over ninety contracts with more than thirty-five energy product suppliers. Through the Planning Period, MCE anticipates continued diversification of its supply portfolio.
- MCE’s existing and planned supply commitments throughout the Planning Period will enable MCE to fulfill applicable regulatory mandates and voluntary procurement targets related to renewable, greenhouse gas-free (“GHG-free” or “carbon-free”), and conventional (non-renewable) energy. In particular, MCE has taken important steps to ensure delivery of a reliable, environmentally responsible power supply portfolio, including:
 - Contracting for all projected, state-mandated Renewable Portfolio Standard (“RPS”) compliance requirements through 2025;
 - Addressing open renewable energy positions throughout the Planning Period related to MCE’s voluntary renewable energy targets (which significantly exceed state-mandated procurement requirements);
 - Addressing conventional energy requirements per MCE’s adopted planning guidelines via shorter term contractual commitments that are in place through 2020;
 - Addressing required reserve capacity (“Resource Adequacy” or “RA”) and flexible capacity procurement obligations, consistent with applicable compliance mandates, via short-, mid-, and long-term contracts per its contracting guidelines;
 - Increasing energy purchases from new, California-based renewable energy resources throughout the Planning Period.
- MCE continues to provide direct support for the development of local renewable energy projects through the ongoing administration of its Net Energy Metering (“NEM”) and Feed-In tariff (“FIT”) programs. Notable achievements in this area include the following:
 - In 2017, MCE served approximately 14,700 NEM customers; the smaller-scale renewable generating projects that have been installed by such customers represent more than 128,000 kW (128 MW) of local renewable generating capacity; upon expansion of its service area in 2018, MCE expects to serve nearly 25,000 NEM customers with approximately 200,000 kW (200 MW) of installed, behind-the-meter capacity;
 - Via partnership with Grid Alternatives, MCE has contributed \$155,000 to low-income residential solar installations since 2012; benefitting customers have saved an estimated \$1,018,000;
 - In addition to rooftop generating capacity, MCE is planning to develop or purchase energy from 25 MW of locally constructed (within MCE’s service area), utility-scale renewable generating capacity by 2021. To this end, MCE has invested staff time and financial resources in various development activities within its service area. For

- example, Solar One is a 10.5 MW solar PV project that is currently under construction in the City of Richmond and expected to commence power production by December 2017;
- MCE continues to administer one of California’s most generous FIT programs for locally situated, smaller-scale renewable generating resources that supply wholesale electricity to MCE. This program utilizes a standard offer (i.e. non-negotiable) contract that is available on a first-come, first-served basis for up to 15 MW of qualifying renewable energy projects within MCE’s service area. Specific terms and conditions for the FIT program, of which approximately 5 MW remain², are available on MCE’s website.³

MCE is working toward a long-term goal of offsetting 2 percent of its annual energy and capacity requirements with EE and distributed energy resource (“DER”) programs. MCE is applying to the California Public Utilities Commission (“CPUC”) to significantly increase the EE budget for MCE-administered programs while also exploring a number of innovative DER strategies aimed at reducing customer costs and associated GHG emissions. Specific to capacity requirements, MCE’s goal is to provide 5 percent of its annual RA capacity via demand response (“DR”) programs by the end of the Planning Period.

- During the Planning Period, MCE will procure requisite energy products through various mechanisms, including public solicitations, standard offer contracts, and bilateral engagements as procurement opportunities present themselves outside of the aforementioned processes.

² As of October 2017 and subject to review and approval of any pending applications, 4.97 MW of available capacity remains in MCE’s FIT program.

³ <https://www.mcecleanenergy.org/feed-in-tariff/>

II. General Resource Planning Policies

MCE policy, established by MCE's founding documents and directed on an ongoing basis by MCE's Board, guides development of this IRP and related procurement activities. MCE's key resource planning policies are as follows:

- Reduce GHG emissions and other pollutants associated with the electric power sector through increased use of renewable, GHG-free, and low-GHG energy resources.
- Maintain competitive electric rates and increase control over energy costs through management of a diversified resource portfolio.
- Benefit the local economy through investments in infrastructure, energy, and workforce development programs within MCE's service area.
- Help customers reduce energy consumption and electric bills through investment in and administration of enhanced customer EE, cost-effective distributed generation, and other demand-side programs.
- Enhance system reliability through investment in supply- and demand-side resources.
- Actively monitor and manage operating and market risks to promote MCE's continued financial strength and stability.
- Support supplier diversity as permitted by law.

The IRP translates these broad policy objectives into a more specific energy procurement strategy, taking into consideration MCE's projected customer needs and existing resource commitments over the Planning Period.

Regulatory Considerations

Energy Storage

The California Energy Storage Bill, Assembly Bill ("AB") 2514, was signed into law in September of 2010, and, as a result, the CPUC established energy storage targets for investor-owned utilities ("IOUs"), CCAs, and other load-serving entities ("LSEs") in September 2013. The applicable CPUC decision established an energy storage procurement target for CCAs and electric service providers equal to 1 percent of their forecasted 2020 peak load. Based upon current load forecasts, the decision will require MCE to install 10 MW of energy storage no later than 2024. Beginning on January 1, 2016, and every two years thereafter, MCE must file an advice letter demonstrating compliance with this requirement, progress toward meeting this target, and a description of the methodologies for insuring projects are cost-effective.

In order to fulfill its energy storage procurement target, MCE intends to explore many different potential applications. Historically, MCE has facilitated customer-sited energy storage projects that realize cost savings for their hosts and offers a battery storage rate with incentives for customers. Throughout the Planning Period, MCE will continue to encourage such customer-sited installations while also considering larger, utility-scale energy storage projects, both stand-alone and those that are paired with renewable generation.

Renewable Portfolio Standards (RPS) and Senate Bill (SB) 350

Through 2016, the CPUC has been overseeing implementation of Senate Bill (“SB”) 350, which Governor Brown signed in October 2015. Among other GHG-reduction provisions, SB 350 calls for California’s RPS targets to increase to 50 percent by 2030. SB 350 includes certain procedural changes that will also impact MCE. With respect to CCAs, SB 350 requires that:

- CCAs must have at least 65 percent of their RPS compliance procurement under contracts of 10 years or longer beginning in 2021;
- CCA EE programs will be eligible to count toward statewide EE targets; and
- while maintaining independent governing authority, CCAs will submit IRPs to the CPUC for certification.

MCE will comply with the applicable planning and procurement requirements reflected in SB 350. Given its existing and planned commitments to long-term renewable energy procurement and EE program administration, MCE does not anticipate the need for significant modifications to its planning or procurement practices to achieve SB 350 compliance.

Resource Adequacy (RA)

The CPUC Decision (D.) 17-06-027 adopted local and flexible capacity obligations for 2018 for electric LSEs and made several changes to the RA program. Two changes impact MCE’s procurement and reporting.

First, the CPUC adopted a proposal for an Effective Load Carrying Capacity (“ELCC”) for wind and solar energy resources, directed by Public Utilities Code Section 399.26(d). ELCC is a modeling approach that determines the capacity value of different resources relative to “perfect capacity.” Monthly ELCC of wind or solar resources in the California Independent System Operator (“CAISO”) balancing area are established by the CPUC’s Energy Division based on studies of monthly Loss of Load Expectation (“LOLE”) or Loss of Load Hours (“LOLH”) and a monthly Portfolio ELCC study. As a result of the ELCC methodology, the RA value of solar PV resources has been reduced by approximately 50 percent relative to previous ratings, forcing MCE to increase its RA purchases and incur additional costs. The impact on wind capacity ratings is less dramatic.

Second, the CPUC modified the annual load update that LSEs submit every August. Previously, this filing has been optional, but it is now mandatory for all LSEs. Due to the growing load served by non-IOU LSEs, the CPUC determined that the August load update is necessary to accurately reflect load migration and improve the accuracy of load forecasts used for RA purposes.

Power Source Disclosure

AB 1110, signed into law in September of 2016, directs the California Energy Commission (“CEC”) to adopt a methodology for the calculation of GHG emissions intensity for each electricity product offered by a retail supplier. The CEC has initiated a series of pre-rulemaking activities, such as providing a draft implementation proposal and the opportunity to comment on such proposal, to engage stakeholders. MCE has been an active participant in this proceeding and will continue to engage in dialogue with CEC staff to ensure that adopted regulations: 1) reflect industry best practices for GHG emissions accounting

and reporting; 2) provide greater clarity to customers regarding the GHG intensity associated with MCE electricity products; and 3) promote alignment, where possible and appropriate, between AB 1110 and other state renewable energy programs.

MCE Procurement Targets

GHG-Free by 2025

Reducing electric utility-sector GHG emissions is one of MCE's charter objectives. With this in mind, MCE will commence the Planning Period with a 78 percent GHG-free supply portfolio in 2018. The GHG-free proportion of MCE's resource mix will be comprised of both RPS-eligible renewable energy and additional GHG-free electricity.⁴ In subsequent years of the Planning Period, MCE will steadily increase its use of GHG-free energy supply with the goal of achieving a 100 percent GHG-free supply portfolio by 2025, subject to operational practicalities and product availability.

Note that not all renewable energy is GHG-free, as certain generating technologies, particularly those using geothermal and biofuel sources, are known to produce carbon dioxide and other GHGs during electric power generation.⁵ That noted, the majority of RPS-eligible renewable generating technologies are understood to be carbon-neutral, meaning that the net environmental impacts associated with the processes required to produce electric power are no worse than the environmental impacts associated with activities that would otherwise occur.⁶ Moreover, MCE ensures that any contracts confer to MCE all environmental attributes associated with purchased renewable electricity.

MCE understands that implementation of AB 1110 will further clarify emissions intensity reporting for all generating technologies. MCE will apply pertinent emissions calculation methodologies, once finalized, when performing emissions accounting related to its electric supply portfolio.

80 Percent Renewable Energy by 2025

In pursuit of its goal to increase the Light Green product content to 80 percent renewable by 2025, MCE intends to gradually replace the conventional energy resources in its supply portfolio with renewable resources. Actual annual renewable content percentages may differ from projections, which are outlined in Table 1, below, if resource availability or market conditions preclude cost-effective

⁴ For purposes of portfolio planning, MCE includes hydro-electric power and the predominantly hydro-electric energy produced by Asset Controlling Suppliers ("ACS") in its "GHG-free" category. These ACS suppliers' extremely low portfolio emissions factors are factored into MCE's emissions rate and can be found on the California Air Resources Board ("CARB") website at: <https://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-power/acs-power.htm>

⁵ Technology-specific emissions factors can be found in Table A.III.2 of the 2014 IPCC report available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_annex-iii.pdf

⁶ For example, although there are GHG emissions associated with power generated by combustion of methane at capped landfills, such energy is considered to be renewable, and its GHG impacts are less than or – at worst – equal to those of the methane flaring that would occur otherwise.

procurement, but the primary goal is to achieve an 80 percent Light Green renewable supply no later than 2025.⁷

Limited Use of Unbundled Renewable Energy Certificates

MCE pursues a diversified renewable energy supply portfolio, which reflects broad use of various RPS-eligible fuel sources and products, resource locations, project configurations and other considerations. However, MCE has committed to limit the use of unbundled renewable energy certificates (otherwise known as “Portfolio Content Category 3,” “PCC 3,” or “Bucket 3”) to no more than 3 percent of its total resource mix. This limitation generally aligns with specifications reflected in California’s RPS program, which impose restricted use of PCC 3 products approximating 3 percent of annual retail sales during the third Compliance Period, which includes 2017 through 2020. To maintain progress toward its 80 percent renewable energy target, MCE has substantially focused on the procurement of bundled⁸ renewable energy supply throughout the Planning Period, as reflected in Table 1, below.

Table 1: MCE 10-Year Portfolio Mix Targets

10 Year Portfolio Mix (%)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
PCC 1 Renewable	40%	43%	45%	48%	50%	53%	55%	58%	58%	58%
PCC 2 Renewable	14%	14%	15%	16%	17%	17%	18%	19%	19%	19%
PCC 3 Renewable	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Large Hydro	21%	21%	21%	21%	20%	20%	20%	20%	20%	20%
Conventional Energy	22%	19%	16%	13%	10%	6%	3%	0%	0%	0%
Total Renewable	57%	60%	63%	67%	70%	73%	77%	80%	80%	80%
Total Carbon Free	78%	81%	84%	87%	90%	94%	97%	100%	100%	100%

Supplier Diversity

MCE is committed to supporting the economic health and sustainability of communities in its service area, and seeks opportunities to contract with businesses that are historically underrepresented in utilities’ procurement of energy resources, goods, and services. MCE’s guidelines for diversity in procurement support MCE’s efforts to procure energy resources, goods, and services from historically underrepresented and/or economically disadvantaged businesses and communities as allowed by law.

⁷ While MCE increases its Light Green portfolio to 80 percent renewable, Deep Green and Local Sol customers will continue to receive 100 percent renewable energy.

⁸ Portfolio Content Category 1 (“PCC 1” or “Bucket 1”) and Portfolio Content Category 2 (“PCC 2” or “Bucket 2”), per California RPS compliance regulations and explained in further detail in the “RPS Requirements” subsection of “IV. Resources.”

III. Electric Load Forecast

MCE's long-term load forecast is primarily influenced by structural or "macro" variables, which impact the number of customers that MCE expects to serve. These macro variables include current customer count, classifications, energy usage, and expected customer participation rates. Primarily, macro variables drive the load forecast and tend to overshadow the effects of typical "micro" variables related to weather, economic cycles, population growth, and changes in customer consumption patterns. The long-term load forecast for resource planning incorporates macro variables and the seasonal electricity consumption patterns of MCE's customer base, while most other micro variables are considered in MCE's shorter-term load forecasts used for scheduling and portfolio optimization.

Enrolled Customers

As of October 2017, MCE serves approximately 255,000 customer accounts in Marin County; Napa County; and the Contra Costa cities of El Cerrito, Lafayette, Richmond, San Pablo, and Walnut Creek; and the Solano County city of Benicia. In July 2017, MCE's Board approved inclusion of nine additional Contra Costa communities. MCE plans to begin serving customers in unincorporated Contra Costa County and the cities and towns of Concord, Danville, Martinez, Moraga, Oakley, Pinole, Pittsburg and San Ramon in April 2018. Upon next year's expansion, MCE expects to serve approximately 483,000 customers.

The scope of this IRP is limited to MCE's Board-approved service area, including the nine Contra Costa member communities approved in July 2017 with service commencing in April 2018. In accordance with Policy No. 007 New Customer Communities, MCE may include additional communities that request service during the Planning Period. Any specific resource planning impacts related to future inclusion of additional member communities would be addressed by MCE's Board prior to the completion of such processes and incorporated into future IRPs.

Customer participation rates are expressed as the proportion of customers that are currently served by MCE relative to the number of customers that were originally offered service.⁹ The difference between such numbers reflects the subset of customers that have voluntarily determined to opt-out of the MCE program, retaining bundled service by Pacific Gas & Electric ("PG&E"), the incumbent IOU in Northern California. The vast majority of customer opt-outs occur within a 120-day period beginning 60 days prior to each customer's scheduled MCE service commencement and continuing for 60 days thereafter – this period of time is generally referred to as the "enrollment period."

During the enrollment period, prospective and enrolled customers receive a minimum of four mailed notices, which explain MCE's service options and the opt-out process amongst other terms and conditions of service. Some of these notices target unique messages for special customer classes. For example, low-income customers on the energy discount programs such as California Alternate Rates for Energy ("CARE") or Family Emergency Rate Assistance ("FERA") or Medical Baseline will be informed that their discounts remain with MCE service, they don't need to reapply. These notices are complemented by a variety of marketing and community outreach efforts to raise awareness of the upcoming change to electric service. Much of this strategy is captured in the Community Outreach Plan written by MCE staff

⁹This does not include Direct Access customers operating within the new communities being enrolled.

with input from local leaders, community staff, and elected officials. The community outreach strategy often includes tabling events, offering presentations to local groups, contacting high electricity users, placing advertisements in local newspapers and on billboards, and creating a Community Leader Advisory Group to help guide MCE’s outreach strategy to maximize awareness and education about Community Choice. Particular emphasis is put on reaching special populations, such as low-income and fixed-income populations, as well as those who speak English as a second language. Following the initial enrollment period, MCE’s customer base stabilizes, and the impacts of customers voluntarily returning to MCE service (also known as “opting-in”) generally offset the effects of customer attrition.

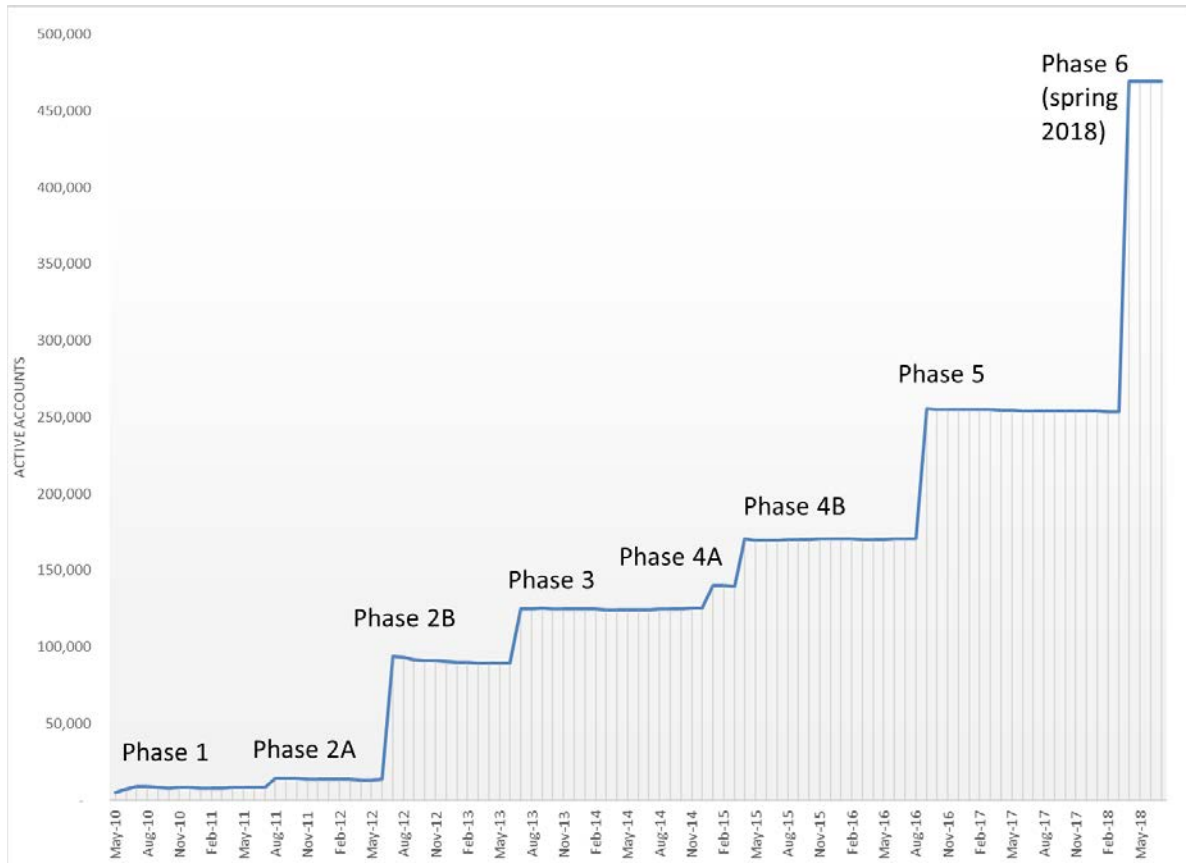
The customer participation rate associated with MCE’s initial membership – based on jurisdictional participation as of May 2010 – is approximately 76 percent. Customer participation rates have increased in subsequent MCE enrollment phases: 81 percent of customers who were offered service following inclusion of the City of Richmond have continued with MCE; 86 percent in MCE’s subsequent expansion footprint of Benicia, San Pablo, El Cerrito, and unincorporated Napa County; and 89 percent involved in the September 2016 inclusion of American Canyon, Calistoga, Lafayette, Napa, St. Helena, Walnut Creek, and Yountville. This trend reflects the impact of MCE’s outreach efforts, increased awareness of the MCE brand and service advantages, legislation limiting certain IOU marketing tactics against CCAs, and general familiarity with the CCA service model, which continues to expand throughout California. The various phases of MCE’s growth are summarized in Table 2.

Table 2: MCE Expansion Phases

MCE Phase	Description	Number of Accounts	Implementation Date
Phase 1	MCE Member (municipal) accounts & a subset of residential, commercial and/or industrial accounts, comprising approximately 20 percent of total customer load within MCE’s original Member Agencies.	8,000	May 7, 2010
Phase 2A	Additional commercial and residential accounts, comprising approximately 20 percent of total customer load within MCE’s original Member Agencies (incremental addition to Phase 1).	5,700	August 2011
Phase 2B	Remaining accounts within Marin County.	74,000	July 2012
Phase 3	Residential, commercial, agricultural, and street lighting accounts within the City of Richmond.	33,000	July 2013
Phase 4A	Residential, commercial, agricultural, and street lighting accounts within the unincorporated areas of Napa County.	18,000	February 2015
Phase 4B	Residential, commercial, agricultural, and street lighting accounts within the City of San Pablo, the City of Benicia and the City of El Cerrito.	34,000	May 2015
Phase 5	Residential, commercial, agricultural, and street lighting accounts within the Cities of American Canyon, Calistoga, Lafayette, Napa, Saint Helena, Walnut Creek and the Town of Yountville.	84,000	September 2016

MCE Phase	Description	Number of Accounts	Implementation Date
Phase 6 (pending)	Residential, commercial, agricultural, and street lighting accounts within the Cities of Concord, Danville, Martinez, Moraga, Oakley, Pinole, Pittsburg, San Ramon, and unincorporated Contra Costa County.	231,000	April 2018

Figure 2: Active MCE Customers



Baseline Customer and Consumption Forecast

MCE’s electricity demand forecast starts with a forecast of customers by end-use classification (residential, commercial, etc.). Class-typical monthly energy consumption estimates, derived from historical data, are applied to yield a monthly energy forecast by customer class. Hourly class-specific load profiles are then used to break down the monthly energy forecast into more granular time-of-use and peak demand values. Certain adjustments are incorporated in the base forecast to account for factors not reflected in the historical data. MCE also makes explicit adjustments to this forecast to account for the load impacts of its DER programs and emerging market factors such as growing electricity demand related to electric vehicle (“EV”) charging.

Distributed Energy Resources (DERs)

MCE anticipates that DERs will play an increasingly important role in reducing GHG emissions and optimizing energy procurement and use in its service area. Collectively, EE, DR, rooftop solar, energy storage, EVs, and water-energy conservation can provide multiple revenue streams and benefits to MCE and its customers. Specifically, MCE expects to utilize DERs to maximize the use of renewable energy and reduce GHG emissions while achieving community co-benefits such as reduced local GHG emissions, increased workforce opportunities, and customer bill savings.

MCE considers DER deployment to be an emerging market opportunity, albeit one that presents many challenges to successful implementation. MCE is actively addressing these challenges by developing tools and pilot programs to usher in wider-scale deployment not only within its service area but also statewide through adoption by other CCAs forming within California.

MCE's DER strategies include development of local energy projects; exploration of market designs; creation of analytical tools to quickly analyze and evaluate the suitability of specific DER solutions; and emphasis on DER pilots that reduce MCE's exposure to wholesale market volatility, and shift energy use away from peak evening hours when renewable energy production is low and market prices tend to be higher.

Current DER Pilots

Building Efficiency Optimization

The CEC awarded MCE a Local Government Challenge Grant of \$1.75 million to pursue an innovative Building Efficiency Optimization (BEO) pilot. The primary objective will be to facilitate scalability of DERs via a strong, data-driven siting and targeting approach, which will be applied to and validated by three demonstration projects.

The goals for this grant are i) to examine the role that CCAs, as local, independent government agencies, can play in navigation of barriers that currently prevent broad and rapid deployment of targeted DERs; and ii) to deliver an innovative and replicable CCA program solution that enables targeted DER portfolios to be coordinated, integrated, optimized, and dispatched rapidly across CCA service areas, thereby accelerating state and local climate action and progress toward GHG reduction goals.

Advanced Energy Communities

MCE is partnering with various stakeholders – including building developers, local governments, technology developers, energy service providers, and researchers – in Richmond, CA to develop an Energy Assurance Plan and design a DER program for the community. The goal is to increase energy resiliency, lower energy costs, and develop new revenue streams, such as aggregation of DERs for participation in retail programs and wholesale markets.

This program has a special emphasis on developing opportunities for low-income residents. It is funded through an Advanced Energy Community grant from the CEC and is being delivered in partnership with the ZNE Alliance.

Demand Response (DR)

MCE continues to analyze customer segments including residential, small and medium commercial, and large commercial for DR opportunities while also facilitating third-party DR programs in its service area. In addition, MCE customers are eligible for many of the DR programs administered by PG&E, and MCE receives DR allocations from PG&E administered programs equal to approximately 3 percent of MCE's peak capacity requirement. Between MCE-implemented programs, those managed by third parties, and PG&E allocations, MCE intends for DR to account for 5 percent of its RA requirements by the end of the Planning Period.

MCE is currently developing limited-scope, pilot DR programs with a particular interest in exploring platforms and opportunities for aggregating and shifting load away from evening peak hours. In order to complement its PG&E DR allocations and MCE's own programs, MCE is also working to gain a better understanding of third-party DR programs operating within its service area to learn where services are being provided and where gaps exist. Depending on the outcome of these activities, MCE may expand its DR programs and possibly seek funding from the CPUC for more robust programs in this sector.

Electric Vehicles (EVs)

MCE realizes the important role that the electrification of transportation can play in reducing GHG emissions in our communities. MCE has recently been piloting and engaging in a number of EV-related initiatives to inform larger program offerings in the future. These initiatives have included DR-enabled charging devices, incentives for electric buses, funding for charging stations, and a strategic planning engagement in partnership with the US EPA to analyze local EV market trends and their impact to MCE's customer demand.

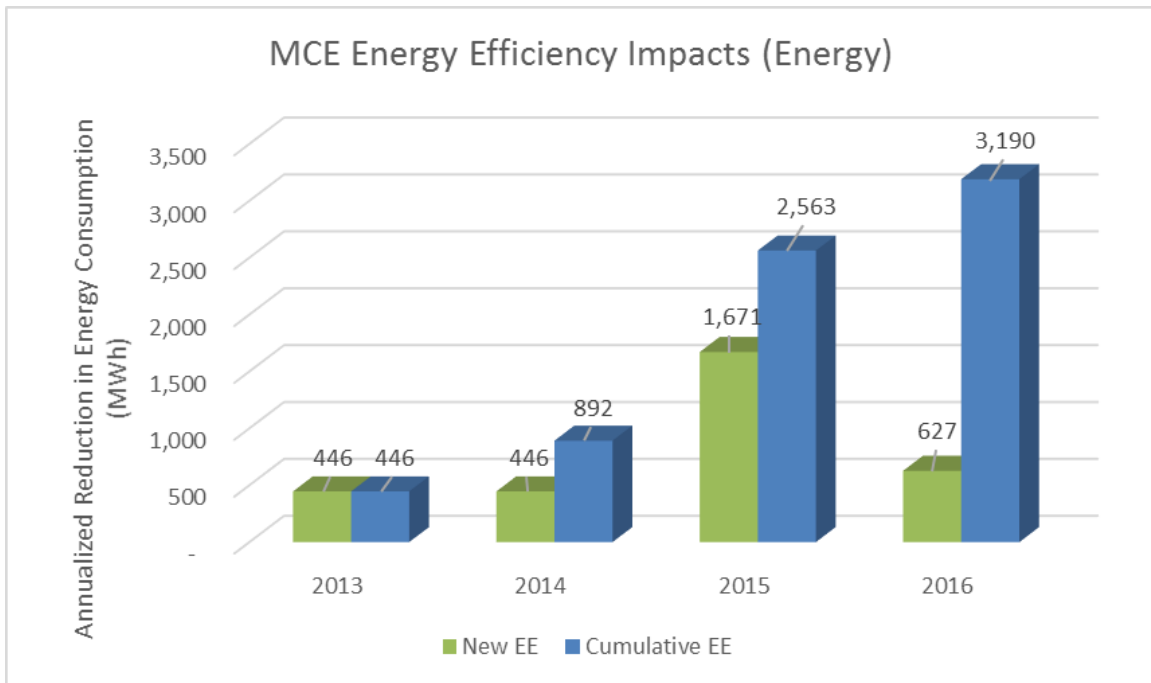
Specifically, MCE has identified workplace EV charging as an opportunity to shift customer demand to hours of the day when energy is frequently cheaper, cleaner, and when excess renewable generation might otherwise be curtailed. MCE sees this clean, renewable, and abundant fuel, which is typically priced lower than an equivalent amount of gasoline-based fuel, as a key value proposition and has partnered with PG&E and others to actively facilitate the alignment of publicly available funding sources with companies interested in installing and operating charging stations in MCE's service area.

Energy Efficiency (EE)

As referenced in the MCE Implementation plan, studies indicate that a reasonable long-term goal for EE programs in MCE's service area is to reduce overall annual energy consumption by approximately 2 percent. MCE's 2018 peak demand forecast is approximately 1,009 MW, and annual consumption is expected to be approximately 5,500,000 MWh, 2 percent of which is 110,000 MWh. Achieving this level of savings will require development of specific programs, anticipated funding, and time to deploy the efficiency measures.

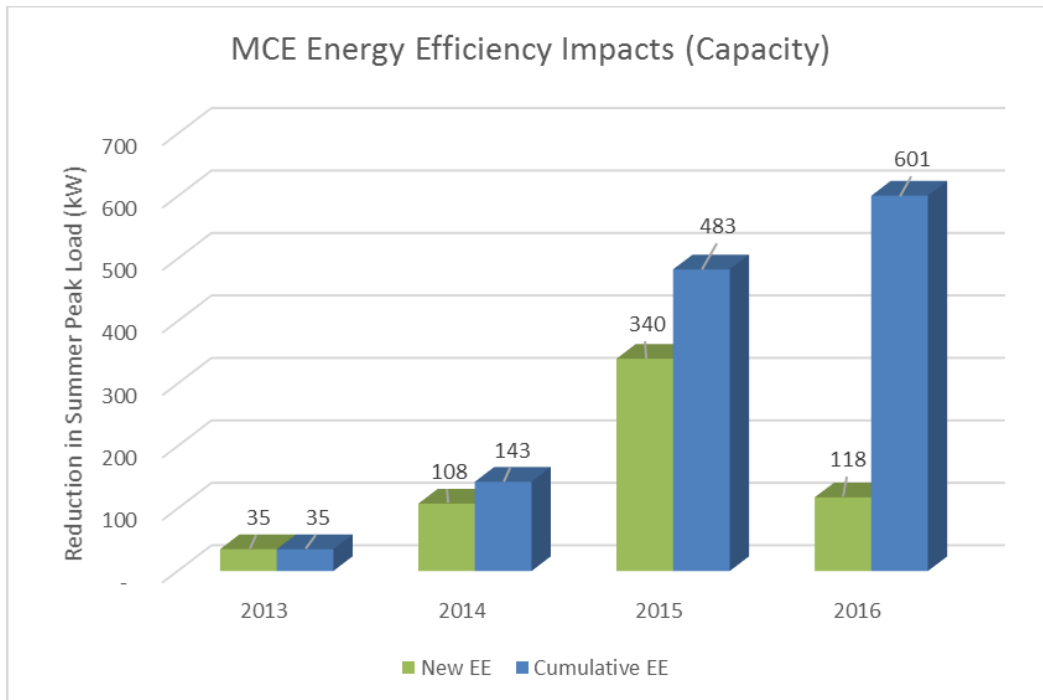
MCE has a statutory right to serve as an independent administrator of ratepayer-funded EE programs. Such funding is derived through collection of the public goods charge from all customers, including those served by both CCAs and IOUs; disposition of public goods charge funds is administered by the CPUC. MCE has received CPUC funding approval for EE programs to be administered through 2025 and currently administers programs in the multi-family, small commercial, and single-family sectors. In addition, MCE serves low-income, multi-family properties through the Low-Income Families and Tenants (“LIFT”) Program, which includes a fuel switching component that incentivizes property owners to replace gas space and water heaters with heat pump technology. The specific accomplishments of MCE-administered EE programs are reflected below in Figures 3 and 4.¹⁰

Figure 3: MCE Energy Efficiency Impacts (Energy)



¹⁰ Savings associated with the MCE’s single-family EE program are included here but are subject to confirmation following the *ex post* evaluation from the CPUC. EE impacts listed here include those achieved through 2016, the most recent year for which data are available. Reduced impact in 2016 is due to changes in incentives and program accounting methodology.

Figure 4: MCE Energy Efficiency Impacts (Capacity)



MCE has applied to the CPUC for a more extensive set of programs, including offering EE programs in each customer sector, and is looking at a tenfold increase in funding and associated targets. The application is pending at this time and the targets are reflected in MCE’s procurement planning. To complement these other efforts, MCE supports workforce development partners such as the Marin City Community Development Corporation (“MCCDC”), Rising Sun Energy Center, and RichmondBUILD to train community members in EE and solar installation skills for the green-collar economy.

Energy Storage

To date, MCE has secured 1.34 MW of energy storage, including an installation at the College of Marin,

Figure 5: Energy Storage Installation at College of Marin



toward its 10 MW target.

In conjunction with potential stand-alone energy storage projects and those co-located with renewable energy facilities, MCE intends to fulfill its energy storage procurement target by facilitating customer-sited energy storage projects in which customers are able to offset installation costs. Specifically, MCE plans to engage with commercial and industrial customers to facilitate transmission and distribution savings and, where applicable, government-funded incentives. Moreover, MCE may evaluate new rates and tariffs to enable commercial and industrial customers to reduce demand charges, standby load costs, and GHG emissions. In the residential sector, MCE plans to evaluate storage programs that have potential to support DR aggregation and load shifting from higher- to lower-demand hours.

Net Energy Metering (NEM) and Rooftop Solar Rebates

MCE is dedicated to encouraging customers to generate their own renewable energy via rooftop solar. Through its NEM program, MCE offers a compelling incentive to promote customer-sited distributed generation within its service area. In 2016, for example, MCE NEM customers, many of which are public entities such as MCE member communities and school districts therein, were offered over \$1 million in NEM credits; in 2017, customers were offered over \$1.3 million.

MCE's NEM program currently includes more than 14,700 customers, who have collectively installed renewable generating capacity in excess of 128,000 kW (128 MW), and expects to serve an additional 9,800 customers with 71,000 kW (71 MW) of NEM capacity via inclusion of new communities in 2018. During the Planning Period, MCE will periodically evaluate its NEM program to balance long-term distributed generation goals with the impacts of NEM incentives on MCE's electric rates.

Beyond NEM, MCE further incentivizes local rooftop solar development via low-income solar rebates through a partnership with California's Single Family Affordable Solar Housing ("SASH") program administrator, GRID Alternatives. MCE contributes \$800 per solar installation to low-income customers who qualify for GRID Alternative's service. By leveraging multiple sources of funding, GRID Alternatives installs these systems in disadvantaged communities at little-to-no cost for the customer. From 2012-2017, MCE allocated \$155,000 toward this rebate program and has supported the installation of 63 residential solar PV systems, representing 220.3 kW of new, local renewable capacity. Program participants have cumulatively saved an estimated \$1,018,000 on their monthly utility bills.

IV. Resources

Existing Resource Commitments

MCE currently has more than ninety unique power purchase commitments to ensure requisite conventional, renewable, and GHG-free energy supply. MCE’s contract portfolio includes a variety of suppliers, term lengths, product types, quantities, generation technologies, and resource locations. MCE’s current portfolio of energy resources is summarized in Table 3, below, with additional detail provided in Appendix B.

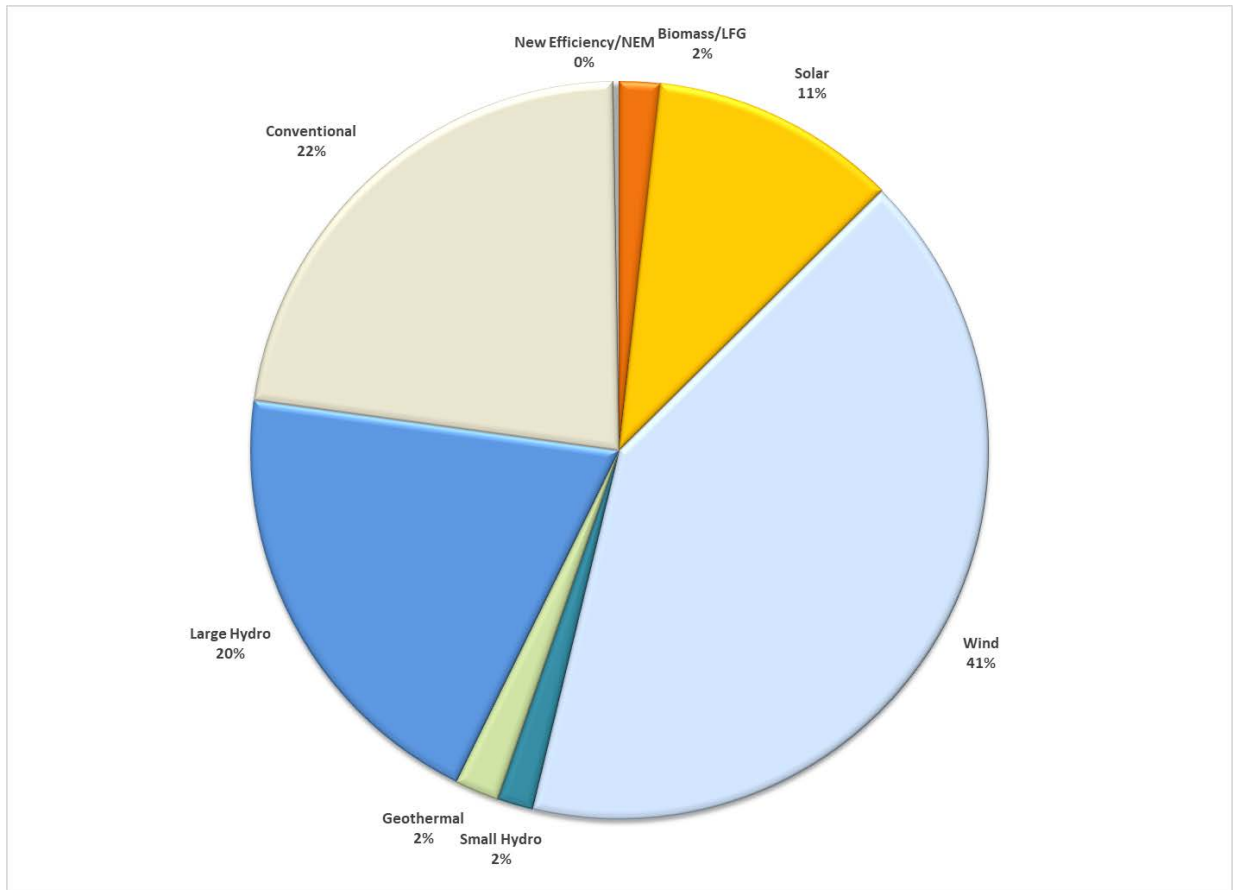
Table 3: MCE Portfolio of Energy Resources

Project	Counterparty	Technology	Capacity (MW)	Execution Date	Term	Annual Deliveries (GWh)	Location
BUNDLED RENEWABLE							
G2 Hay Road	G2Energy	Landfill Gas	1.6	12/3/2010	2013 - 2024	12	Solano Co, CA
G2 Ostrom Road	G2Energy	Landfill Gas	1.6	12/3/2010	2013 - 2024	12	Yuba Co, CA
Cottonwood Solar - City of Corcoran	Dominion	Solar PV	11	7/8/2011	2015 - 2040	30	Kings Co, CA
Cottonwood Solar - Goose Lake	Dominion	Solar PV	12	7/8/2011	2015 - 2040	32	Kern Co, CA
Cottonwood Solar - Marin Carport	Dominion	Solar PV	1	7/8/2011	2015 - 2040	2	Novato, CA
San Rafael Airport (FIT)	San Rafael Airport	Solar PV	0.972	5/8/2012	2012 - 2032	2	San Rafael, CA
Energy 2001 - Lincoln Landfill	Genpower	Landfill Gas	4.8	7/6/2012	2013 - 2024	27	Lincoln, CA
Geysers	Calpine	Geothermal	10	7/11/2013	2017 - 2026	88	Lake Co, Sonoma Co, CA
Rising Tree Wind Farm	EDP	Wind	99	9/4/2014	2015 - 2018	340	Kern Co, CA
RE Mustang	Recurrent	Solar PV	30	10/3/2014	2018 - 2033	86	Fresno Co, CA
Redwood Landfill	Waste Management	Landfill Gas	4	11/6/2014	2017 - 2037	30	Novato, CA
Cost Plus Plaza Larkspur (FIT)	Cost Plus Plaza Larkspur	Solar PV	0.261	4/16/2015	2016 - 2036	0.5	Larkspur, CA
Pardee and Camanche Powerhouses	EBMUD	RPS-Eligible Hydro	31	6/22/2015	2016 - 2025	70	Mokelumne River, CA
Freethy Industrial Park Unit #1 (FIT)	Freethy Industrial Park Unit #1	Solar PV	0.998	9/4/2015	2016 - 2036	2	Richmond, CA
Freethy Industrial Park Unit #2 (FIT)	Freethy Industrial Park Unit #2	Solar PV	0.998	9/4/2015	2016 - 2036	2	Richmond, CA
Shiloh 1	Avangrid	Wind	25	3/1/2016	2018	75	Solano Co, CA
Portfolio	Powerex	Wind, Biomass	Variable	8/1/2016	2017 - 2019	75 - 125	BC, WA
Cooley Quarry (MCE Local Sol)	Cooley Quarry	Solar PV	0.99	8/18/2016	2017 - 2037	2	Novato, CA
Great Valley Solar 1	Sempra	Solar PV	100	9/15/2016	2018 - 2033	290	Fresno Co, CA
Little Bear 1 Solar	First Solar	Solar PV	40	9/26/2016	2020 - 2041	104	Fresno Co, CA
Antelope Expansion 2	sPower	Solar PV	105	11/15/2016	2018 - 2038	300	Mojave Desert, CA
Desert Harvest	EDF	Solar PV	80	11/18/2016	2020 - 2041	260	Riverside Co, CA
Los Banos Wind	Terra Gen	Wind	125	12/5/2016	2020 - 2033	372	Merced Co, CA
TGP Energy Management	Terra Gen	Wind	100	12/5/2016	2018 - 2020	300	Tehachapi, CA
Voyager Wind III	Terra Gen	Wind	42	12/5/2016	2018 - 2030	128	Mojave, CA
Solar One	MCE	Solar PV	10.5	5/30/2017	2018 - 2038	18	Richmond, CA
Xcel Wind	Xcel (Public Service Colorado)	Wind	Variable	10/16/2017	2018	250	Colorado
MCE HQ EV/PV Portfolio	Energy Finance Associates Powerex	Solar Wind, Biomass	Variable Variable	2/2/2017 9/15/2017	2018-2038 2018	0.115 100	San Rafael, CA BC, WA
CARBON FREE							
Central Valley Project	WAPA	Hydro	Variable	10/1/2011	2015 - 2024	25	California
BPA ACS Portfolio	WAPA and Direct Energy	ACS	Variable	8/21/2017	2018-2019	410	Pacific Northwest
Pacific Northwest TransAlta	TransAlta	Hydro	Variable	7/12/2017	2018	250	Pacific Northwest
Yuba County Water Agency	SENA	Hydro	Variable	9/20/2017	2019	250	California
CONVENTIONAL							
Exelon Generation Company	Exelon Generation Company	System	50	6/10/2014	2018 - 2019	438	California
Direct Energy	Energy America	System	Variable	2/4/2016	2018 - 2020	310 - 400	California
Morgan Stanley	Morgan Stanley	System	Variable	5/20/2016	2016 - 2020	200 - 500	California

Current Resource Mix

MCE’s anticipated 2018 resource mix, displayed in Figure 6, will contain at least 57 percent renewable energy - one of the highest renewable energy contents in California.

Figure 6: MCE 2018 Estimated Resource Mix¹¹

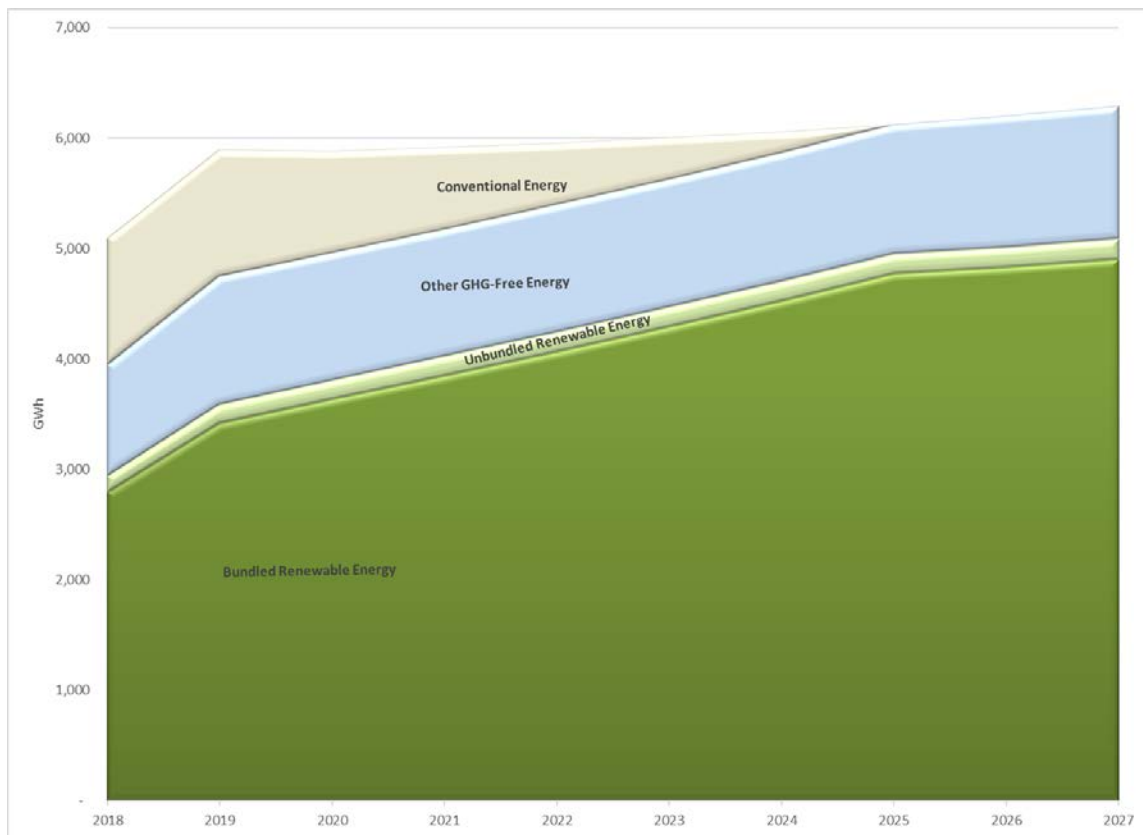


¹¹ Percentages may not sum to 100 percent due to rounding. Figures include all supply for the Light Green and Deep Green retail product offerings.

Resource Needs

Beyond its current contractual commitments, MCE will procure additional energy products, as necessary, to ensure that the future energy needs of its customers are met in a clean, reliable, and cost-effective manner. This section sets forth MCE’s planned resource volumes and quantifies the net resource need or “open position” that remains after accounting for production from MCE’s existing resource portfolio. MCE has established proportionate procurement targets for overall GHG-free energy content, including subcategories for various renewable energy products, and has also established targets for necessary capacity reserves. To the extent that MCE’s energy needs are not fulfilled through the use of GHG-free generating resources, it should be assumed that such supply will be sourced from conventional energy sources, such as natural gas generating technologies or system power, which describes “generic” energy purchases from the wholesale market that are not directly associated with specific generators.

Figure 7: MCE Renewable and Non-renewable Energy Volumes, 2018-2027



Renewable Resources

MCE has committed to providing all of its Light Green customers with energy that is at least 57 percent renewable; incremental renewable energy quantities will also be procured on behalf of Deep Green program participants to ensure that such customers are provided with 100 percent renewable energy.

MCE meets its renewable energy requirements with a combination of RPS-eligible energy products.¹² As Figure 7 illustrates, the proportion of MCE’s resource mix that is sourced from bundled renewable energy products is expected to significantly increase as MCE transitions toward an 80 percent renewable energy content.

RPS Requirements

MCE’s renewable power content significantly exceeds the state’s minimum RPS requirements and will continue to do so throughout the Planning Period. As set forth in Senate Bill (“SB”) 350, the renewable energy purchase requirement that is applicable to all retail electricity sellers has increased to 50 percent by 2030. Transitions from the previously applicable procurement mandate (33 percent by 2020) will be implemented gradually with “straight line” increases during each year of the compliance regime. To satisfy applicable procurement mandates, retail sellers, including MCE, will be allowed to purchase a variety of renewable energy products, including power produced by generating resources located within California and elsewhere in Western Electricity Coordinating Council (“WECC”). MCE staff remains engaged in RPS-related proceedings to ensure a clear understanding and effective implementation of all applicable procurement requirements.

RPS compliance can be met with procurement from:

- i) renewable resources located within or delivering electricity directly to California (PCC 1), subject to minimum procurement requirements;
- ii) firm and shaped renewable energy products produced outside of California (PCC 2), subject to certain quantity limitations; and
- iii) unbundled renewable energy certificates from RPS-eligible resources (PCC 3), also subject to quantity limitations.

MCE anticipates a sufficient supply of RPS-eligible renewable resources to meet a 57 percent procurement target during the 2018 calendar year, well in excess of the applicable 29 percent RPS procurement requirement. Thereafter, MCE anticipates utilizing renewable energy supply from existing and future transactions to ensure that its use of renewable energy aligns with the planned trajectory reflected in this IRP. Based on targeted renewable energy percentages, MCE intends to significantly outpace California’s annual RPS procurement mandates throughout the Planning Period.

RPS Open Positions

During the third RPS Compliance Period (2017 – 2020), 75 percent of required RPS procurement must be sourced from PCC 1 resources. With this requirement in mind, MCE has substantially focused on long-

¹² Some of MCE’s renewable energy volumes are produced by facilities that are both RPS-eligible and Green-e Energy-eligible, according to eligibility criteria described in the Green-e Energy National Standard: <http://www.green-e.org/docs/energy/Green-eEnergyNationalStandard.pdf>.

term power purchase agreements (“PPAs”) with new, California-based generating facilities that will produce PCC 1-eligible renewable energy.¹³

MCE’s goal throughout the Planning Period is to maintain a “steady-state” procurement cycle of consistent annual volumes of longer-term renewable energy contracts. To supplement its core procurement of PCC 1 resources under long-term contracts, MCE engages in short-term contracts for PCC 1, PCC 2 and, to a lesser degree, PCC 3 renewable energy supplies to balance and optimize its portfolio. As shown in Table 4, MCE has secured contracts for renewable energy volumes well in excess of applicable RPS procurement requirements.

Table 4: MCE RPS Compliance Energy Balance, 2018-2027

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Retail Sales (GWh)	4,766	5,512	5,544	5,579	5,618	5,665	5,719	5,782	5,858	5,950
State RPS %	29%	31%	33%	35%	36%	38%	40%	42%	42%	42%
RPS Energy Required (GWh)	1,382	1,709	1,830	1,936	2,045	2,158	2,276	2,399	2,431	2,469
RPS Energy Contracted (GWh)	2,484	2,426	2,119	2,493	2,486	2,481	2,446	2,440	2,358	2,264
Net Short/(Long)	(1,101)	(718)	(290)	(557)	(441)	(323)	(170)	(40)	72	205
Category 1 Required (GWh)	1,037	1,282	1,372	1,452	1,534	1,619	1,707	1,800	1,823	1,852
Category 1 Contracted (GWh)	1,934	2,066	2,119	2,493	2,486	2,481	2,446	2,440	2,358	2,264
Net Short/(Long)	(897)	(785)	(747)	(1,041)	(953)	(862)	(739)	(640)	(535)	(412)

Voluntary Renewable Open Positions

Voluntary renewable energy volumes reflect purchases that exceed applicable RPS mandates. With respect to MCE, these voluntary purchases are necessary to meet the minimum 57 percent renewable energy supply for Light Green customers and the 100 percent renewable energy supply for Deep Green customers. MCE’s Power Content Label (“PCL”) is a key customer communication that provides information regarding MCE’s proportionate use of various fuel sources during each year of operation. The 2016 PCL, which is MCE’s most recent, quantifies MCE’s aggregate renewable energy use: 55 percent renewable for Light Green customers; and 100 percent renewable for Deep Green customers. In this example, all renewable energy volumes above the 25 percent compliance mandate were fulfilled through voluntary renewable energy purchases.

¹³ Historically, MCE has contracted with PCC 1 resources located within California; however, some resources located outside of California are eligible for PCC 1, typically through direct interconnection or firm transmission rights to the CAISO. Whereas MCE has an established preference for in-state resources, it may consider contracting with out-of-state, PCC1-qualified resources – to the extent that they offer increased value or other desirable portfolio attributes – during the Planning Period.

Figure 8: MCE 2016 Power Content Label

POWER CONTENT LABEL			
ENERGY RESOURCES	2016	2016	2016
	LIGHT GREEN	DEEP GREEN	CA
	Power Mix	Power Mix	Power Mix
Eligible Renewable	55%	100%	25%
-- Biomass & waste	5%	25%	2%
-- Geothermal	0%	0%	4%
-- Small hydroelectric	7%	0%	2%
-- Solar	9%	25%	8%
-- Wind	34%	50%	9%
Coal	0%	0%	4%
Large Hydroelectric	13%	0%	10%
Natural Gas	12%	0%	37%
Nuclear	0%	0%	9%
Other	0%	0%	0%
Unspecified sources of power*	19%	0%	15%
TOTAL	100%	100%	100%

Deep Green Service

MCE offers a voluntary 100 percent renewable energy option, known as Deep Green service, to all customers. The Deep Green supply portfolio relies exclusively on bundled renewable energy resources produced by California-based generators. Customer participation in Deep Green service directly impacts the quantity of incremental renewable energy volumes that MCE must procure to ensure that its broader supply portfolio includes sufficient renewable energy volume to support Light Green and Deep Green participation. Additionally, half of the premium charged to Deep Green customers is allocated to the Local Renewable Energy Reserve Fund. This fund is used to cover the pre-development and other costs of local projects, such as for the MCE Solar One 10.5 MW solar PV project in Richmond, California. As a result, increased participation in Deep Green not only reduces a customer’s electricity-related GHG emissions, but also supports local project development and, by extension, creates economic benefits and associated local green-collar jobs within MCE’s service area.

As a percentage of MCE’s total annual electricity sales, Deep Green participation currently represents approximately 5 percent of MCE retail electricity sales, up from 2.6 percent in 2016. MCE significantly increased Deep Green sales in 2017 as private and public sector commercial customers opted up to Deep Green service to achieve their sustainability goals and meet 2020 emissions reduction targets. Notably, more than half of MCE member municipalities have enrolled their government accounts in Deep Green service, with 12 of these member municipalities enrolling all of their accounts in 2017. Due to such high adoption in 2017, MCE will exceed its previous 2025 goal of 135 GWh of Deep Green electricity sales in 2018 and will endeavor to expand Deep Green sales across a growing range of

customer types, particularly during the 2018-2020 period, as customers evaluate this option to meet their GHG reduction and renewable energy goals.

Table 5: MCE Deep Green Participation, as of June 2017¹⁴

	Total MCE	Residential Deep Green	Commercial Deep Green	Total Deep Green
Number of Customers	255,546	4,525	2345	6,870
		1.77%	0.92%	2.69%
Total Retail Sales (MWh)	2,749,000	20,252	85,000	105,252
		0.74%	3.09%	3.83%

Local Sol Service

In 2014, MCE established its voluntary Local Sol service option. An alternative to MCE’s Light Green or Deep Green service options, Local Sol’s community-based service enables customers to sign up for 100 percent local solar generation from projects located within MCE’s service area. Local Sol began serving customers in July 2017, following commercial operation of the supporting local generator at Novato’s Cooley Quarry. Based on customer interest and subject Board approval, MCE may consider expansion of the Local Sol program once the current program capacity is reached.

Table 6: MCE Local Sol Participation, 2017¹⁵

Project Name	Capacity (Customer Accounts)	Currently Enrolled (Customer Accounts)
Cooley Quarry	~300	172

The remaining open positions related to MCE’s future voluntary renewable energy targets for Light Green and Deep Green service options are shown in Table 7.

Table 7: MCE Renewable Energy Balance, 2018-2027

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Light Green Renewable Content Goal %	57%	60%	63%	67%	70%	73%	77%	80%	80%	80%
Light Green Renewable Energy Target (GWh)	2,763	3,382	3,571	3,779	3,992	4,213	4,441	4,680	4,735	4,807
Deep Green Incremental Renewable Energy Target (GWh)	175	206	236	242	248	254	261	268	276	279
Contracted Renewable Energy (GWh)	2,484	2,426	2,119	2,493	2,486	2,481	2,446	2,440	2,358	2,264
Net Short/(Long)	455	1,161	1,688	1,528	1,754	1,986	2,256	2,508	2,652	2,822

¹⁴ Total Deep Green participants as of June 2017, the most recent month for which data are available. Sales for the first half of 2017 have been extrapolated through the balance of the year. Percentages indicate portion of total MCE customers and retail sales, respectively.

¹⁵ Local Sol service capacity is based on usage of enrolled customers. As of August 2017, 172 customer accounts – of an estimated capacity of 300 – have enrolled.

GHG-Free Resources

MCE has outlined a specific GHG-free procurement goal of 78 percent in 2018, with regular increases each year thereafter until MCE achieves its long-term objective of a 100 percent GHG-free resource mix. MCE acknowledges that achieving a 100 percent GHG-free resource mix will be dependent upon successful resolution of operational practicalities, applicable GHG reporting practices (such as those contemplated in AB 1110), and product availability. To achieve these GHG-free supply goals, MCE will require additional GHG-free energy throughout the Planning Period, as reflected in Table 8.

Table 8: MCE GHG-Free Energy Balance, 2018-2027 (GWh)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Total Energy Requirements	5,052	5,842	5,875	5,911	5,951	5,999	6,054	6,118	6,195	6,288
GHG-Free Target (%)	78%	81%	84%	88%	91%	94%	97%	100%	100%	100%
GHG-Free Targeted Volumes	3,947	4,747	4,957	5,172	5,393	5,624	5,864	6,118	6,195	6,288
GHG-Free Under Contract	3,464	3,401	2,744	3,118	3,111	2,506	2,471	2,465	2,383	2,289
Renewable Energy Open Position	455	1,161	1,688	1,528	1,754	1,986	2,256	2,508	2,652	2,822
GHG-Free Open Position	27	184	525	526	528	1,132	1,137	1,145	1,159	1,177

System Energy

MCE utilizes fixed-priced energy contracts to hedge residual market price exposure, which can arise due to open positions in its supply portfolio, intermittent deliveries from variable energy resources (“VERs”), or via energy supply contracts that include market index-based prices. Consistent with its mission to reduce GHG emissions, MCE prioritizes renewable and GHG-free energy resources when evaluating hedge contracts; to the extent that resource economics or market availability dictate, MCE also utilizes fixed-price contracts for unspecified source system energy or specified source natural gas fueled generation to stabilize its retail rates.¹⁶ MCE purchases system energy or conventional generation via short- and intermediate-term contracts or via the CAISO markets.

Currently, MCE has short- and medium-term contracts in place to supply approximately 65 percent of its load at fixed prices in 2018, a lower ratio than typical due to the load growth associated with the pending service area expansion. Remaining energy balancing will be achieved via additional fixed-price contracts, CAISO market purchases and sales during the operating horizon. MCE’s open market volumes for the Planning Period are reflected in Table 9.

Table 9: MCE System Energy Balance, 2018-2027 (GWh)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Total Load Requirement	5,052	5,842	5,875	5,911	5,951	5,999	6,054	6,118	6,195	6,288
Existing and Planned Fixed Priced Contracts	(3,507)	(3,425)	(3,156)	(2,876)	(3,044)	(3,218)	(3,428)	(3,616)	(3,734)	(3,789)
Open Market Volumes	1,545	2,417	2,719	3,034	2,907	2,780	2,626	2,502	2,461	2,499

Capacity Resources

MCE meets California’s RA standards by procuring qualifying capacity sufficient to meet MCE’s projected peak demand plus a 15 percent reserve margin. In addition to this general requirement, MCE must ensure that mandated proportions of such capacity resources are procured from local reliability areas defined by the CAISO. MCE has a need for capacity purchases to meet RA obligations beginning in 2018.

¹⁶ MCE policy prohibits unit-specific purchases from coal or nuclear generation facilities.

RA purchases are typically conducted via shorter-terms transactions without a great deal of lead time, which mirrors the obligations under California’s RA program. MCE is actively engaged in procurement processes related to open positions for the balance of 2018 and may also address future years through multi-year RA contracts. In addition, MCE has long-term capacity rights under several of its PPAs, which will provide a portion of MCE’s local RA needs during the Planning Period.

Table 10: MCE Resource Adequacy Capacity Balance, 2018-2027 (MW)

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Load										
Peak Demand	1,095	1,100	1,105	1,111	1,116	1,121	1,126	1,131	1,137	1,142
New DG and Efficiency	(28)	(36)	(44)	(51)	(59)	(67)	(74)	(82)	(87)	(92)
Net Peak Demand	1,067	1,065	1,062	1,059	1,057	1,054	1,052	1,049	1,050	1,050
RA Requirements (Net of Offsets)										
Greater Bay Area	76	144	144	144	144	144	144	144	144	144
Other PG&E Area	118	220	219	218	217	216	215	214	214	214
System	751	454	453	452	451	450	449	448	448	448
Flexible Attribute	95	183	183	183	183	183	183	183	183	183
RA Contracted										
Greater Bay Area	84	7	7	7	7	7	7	7	7	7
Other PG&E Area	120	33	74	90	140	140	140	140	140	140
System	635	73	73	168	168	168	168	168	168	168
Flexible Attribute	122	-	-	-	-	-	-	-	-	-
Net Short/(Long)										
Greater Bay Area	(8)	137	137	137	137	137	137	137	137	137
Other PG&E Area	(2)	187	145	128	77	76	75	74	74	74
System	116	381	380	284	283	282	281	280	280	280
Flexible Attribute	(27)	183	183	183	183	183	183	183	183	183

Flexible Capacity

The CAISO, in collaboration with the CPUC and other local regulatory authorities, must ensure that the energy supply has sufficient flexibility, including load-following capabilities, to address unexpected system variability. Thus, the CAISO introduced flexible capacity compliance mandates for LSEs in 2015. Each LSE must demonstrate procurement of 90 percent of its flexible capacity requirement on its annual RA filing and 100 percent of the specified requirement on its subsequent monthly RA filings. Flexible capacity capabilities of resources such as distributed generation, DR, and energy storage should ultimately count toward an LSE’s flexible capacity procurement obligation. MCE has successfully satisfied and expects to continue successfully satisfying all flexible capacity mandates.

Table 11: MCE Flexible Capacity Targets, 2018

Projected Monthly Flexible Capacity Targets (MW)											
Jan - 18	Feb - 18	Mar - 18	Apr - 18	May - 18	Jun - 18	Jul - 18	Aug - 18	Sep - 18	Oct - 18	Nov - 18	Dec - 18
141	154	132	124	110	95	175	175	252	265	289	351

Energy Storage

To date, MCE has progressed toward its energy storage procurement mandate via customer-sited energy storage installations. While it continues to do so, MCE intends to explore additional opportunities for ownership of and contracting with larger storage projects. These may include projects located in MCE’s service area or those strategically located elsewhere in California and projects that are co-located with renewable energy generation or those that are developed independently.

V. Procurement

MCE will fill its future open positions via a combination of contracted energy resources, demand-side programs, and potentially MCE-owned generation projects. This section describes the types of resources MCE may procure and discusses various considerations that may influence MCE's procurement efforts.

MCE has successfully administered a transition away from its initial full requirements supply contract, under which all conventional energy products, reserve capacity, and renewable energy were provided through a single agreement with a single counterparty. Such a structure was instrumental in minimizing administrative and operational complexities at the time of MCE's launch in May 2010. Since that time, MCE has gained experience in the areas of resource planning and procurement, adding staff to support these critical functions. MCE has also developed robust procurement processes to address the majority of its energy, capacity, and renewable energy requirements through relationships with numerous suppliers.

MCE Generation Development

MCE is targeting development of 25 MW of new renewable resources within its service area by 2021¹⁷. Toward this goal, MCE may consider direct project investment or ownership of generation assets and has historically utilized long-term PPAs to secure renewable energy supplies at stable costs for its customers. MCE considers asset ownership to offer similar benefits to contracting via long-term PPAs and, therefore, does not have an explicit bias toward either PPAs or asset ownership. MCE examines opportunities for asset ownership – as it does for its contracted resources – on a case-by-case basis, considering such factors as risk allocation, asset location, technology, and, most critically, impact on MCE's customers' rates.

Current federal tax policy generally favors private versus public ownership of renewable assets due to the tax credits that are uniquely available to the private sector. For this reason, MCE's experience has been that PPAs with privately owned renewable generation facilities are typically more cost-effective than development or ownership by MCE. However, MCE has secured optional buyout provisions in some of its renewable PPAs, which provide a potential path to MCE asset ownership after the tax benefits have been exhausted by the private developer.

Assessing a generation project's operational risk becomes more important for assets owned by MCE because MCE could be at risk for production shortfalls and for cost over-runs, which are risks typically absorbed by the developer under a PPA structure. Direct generation investment may become an increasingly viable option during the Planning Period as MCE expects to gain additional operational experience and more robust access to credit markets. As part of this approach, MCE may also consider joint ventures and turnkey development approaches to ensure appropriate allocation of project risks.

¹⁷ The 25 MW local renewable target is in addition to the 200 MW of distributed generation MCE expects to serve in 2018 via its NEM program

MCE Solar One – Local Solar Development

In September of 2014, MCE entered into an option agreement to lease 60 acres from Chevron Products Company (“CPC”) at the Richmond oil refinery for the development of 2 to 12 MW of solar PV generation. MCE’s status as a California Joint Powers Authority and the public benefit to be derived from this project were key factors in CPC’s decision to lease the property to MCE. MCE has since completed pre-development activities and engaged a developer with whom it entered into a PPA in early 2017. The resulting 10.5 MW Solar One project, which MCE views as a model for future solar development on brownfield sites in its service area, is expected to be the largest publicly owned solar installation in the San Francisco Bay Area. MCE expects Solar One to begin commercial operations in December 2017, delivering renewable energy to MCE customers from a local renewable resource that would otherwise not have been developed.

Renewable Energy Purchases

MCE uses a portfolio risk management approach in its power purchasing program, seeking low cost supply as well as diversity among technologies, production profiles, project sizes and locations, counterparties, length of contract, and timing of market purchases. These factors are taken into consideration when MCE engages the market.

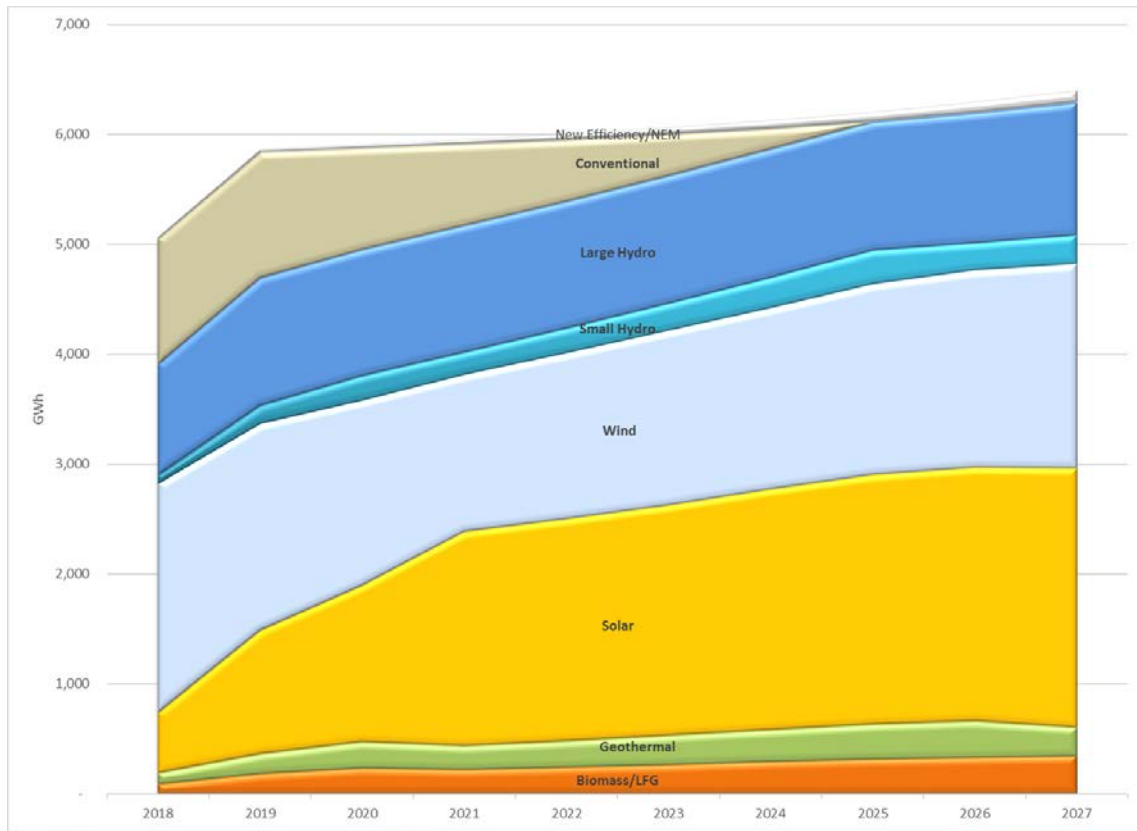
MCE continually manages its forward load obligations and supply commitments with the objective of balancing cost stability and cost minimization, while leaving some flexibility to take advantage of market opportunities or technological improvements that may arise. MCE monitors its open position separately for each renewable resource category, GHG-free resources, conventional resources, and on a total portfolio basis. MCE maintains portfolio coverage targets of up to 100 percent in the near-term (0 to 5 years) and leaves a greater portion open in the mid to long term, consistent with generally accepted industry practice.

MCE has no explicit preference for specific renewable energy technologies. MCE’s supply preference is for a mix of renewable energy technologies that will deliver energy in a profile that is generally consistent with its load shape. Recent market data suggest that mid-day peak resources are likely to comprise a larger proportion of California’s renewable supply portfolio due to the rapid decline in prices for solar PV generation projects and the abundance of such projects in development. Additions to MCE’s portfolio during the Planning Period will likely be more heavily weighted toward energy resources – be they dispatchable, shaped during non-solar or ramping periods, or otherwise – that complement the prevalence of competitively priced solar. MCE may also engage in purchases from as-available renewable generation (e.g. wind) to the extent that it is competitively priced or otherwise provides portfolio balance.

In regards to generation project location, MCE places the greatest value on locally sited renewable energy projects, particularly those located within its service area or within approximately 100 miles. Of next highest preference are projects sited in the North Path 15 region (generally, Northern California), followed by projects elsewhere in California, and then, finally, out-of-state resources.

The projected resource mix during the Planning Period is illustrated in Figure 9.

Figure 9: MCE Resource Mix, 2018-2027¹⁸



Feed-In Tariff (FIT)

MCE’s FIT program offers 15 MW of capacity on a first-come, first-served basis to renewable resources that are smaller than 1 MW. Available only in MCE’s service area, the FIT offering allows private developers to finance local renewable energy projects, while catalyzing local job creation associated with the construction, operation, and maintenance of these local projects. By providing attractive, above-market rates, this program incentivizes renewable development in MCE communities where it otherwise would not be built.

With 3.228 MW currently under contract and another 6.8 MW of capacity reserved for project applications that MCE has approved, 4.972 MW of FIT capacity remains available. Once the 15 MW cap has been reached, MCE anticipates conducting a review and exploring expansion or refinement of the FIT program. Table 12 shows all existing MCE FIT projects and the associated capacity, annual output, and commercial operation date.

Table 12: MCE Feed-In Tariff Projects

Project Name	Project Status	Capacity (kW)	Annual Output (MWh)	Commercial Operation Date
San Rafael Airport	Operational	972	1,800	October 2012

¹⁸ Actual resource utilization will depend upon market conditions and resource availability.

Freethy Industrial Park Unit #1	Operational	998	1,800	October 2016
Freethy Industrial Park Unit #2	Operational	998	1,800	October 2016
Cost Plus Plaza	Operational	260	500	September 2016
TOTAL		3,228	5,900	

Local Sol

MCE’s Local Sol generator achieved commercial operation in July 2017 and currently has the capacity to provide local renewable energy for approximately 300 MCE customers, of which 172 have already enrolled. Should customers demonstrate sufficient demand, MCE may consider expansion of Local Sol to include another local renewable energy resource within its service area and, with it, program capacity for hundreds of additional customers.

Table 13: MCE Local Sol

Project Name	Project Status	Capacity (kW)	Annual Output (MWh)	Commercial Operation Date
Cooley Quarry	Operational	990	2,000	July 2017

GHG-Free Power Purchases

MCE anticipates that its GHG-free energy supplies will be substantially met through short-, medium-, and long-term purchases of GHG-free energy sources, particularly renewable energy and regionally produced hydroelectricity. As previously noted, MCE will not engage in unit-specific purchases from nuclear generators to meet its GHG-free power supply objectives.

System Resources and Specified Conventional Power Purchases

MCE may engage in purchases of unspecified system energy or unit specific purchases from natural gas-fueled generation. Energy products may include peak, off-peak, baseload, and shaped energy. MCE may purchase system and specified conventional energy or capacity through fixed price forward contracts or through tolling agreements. Purchases of system energy will typically be for short- and medium-term lengths (< 5 years). Unit-specific and tolling agreements may address MCE’s short-, medium- and long-term needs. Natural gas purchases associated with tolling agreements will typically be for short to medium terms.

Total Supply Obligations

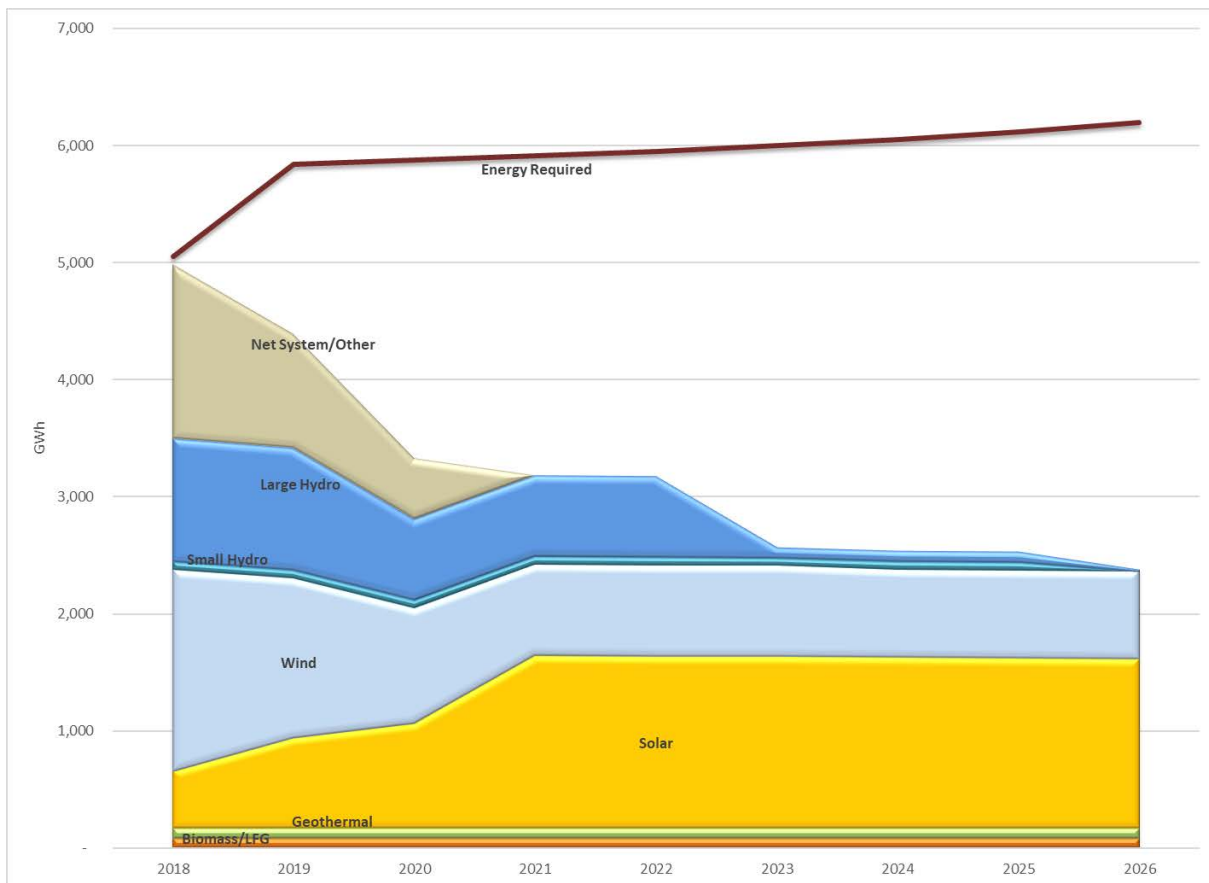
With respect to MCE’s total supply and load obligations, MCE manages exposure to market price risk by executing forward electric supply commitments for its projected energy sales obligations. MCE considers a variety of factors including cost control and competitiveness. Entering into fixed price forward contracts enables MCE to meet budget and rate-setting objectives by increasing cost certainty. However, it is appropriate to maintain modest flexibility for incorporation of new supply- or demand-side resources and limited exposure to CAISO market prices to ensure optimal resource portfolio diversification. In light of these considerations, the following contracting guidelines for fixed-price energy contracts will be used during the Planning Period.

Table 14: MCE Power Supply Contracting Guidelines

Time Horizon	Fixed-Price Energy Contracting Guidelines
Current Year	80% to 105%
Year 2	70% to 100%
Year 3	60% to 95%
Year 4 and Beyond	Up to 70%

As MCE contracts for system energy and capacity, these contracting guidelines serve as a hedging strategy to mitigate price and supply risk. Execution of master power purchase and sale agreements with multiple, credit-worthy counterparties has enabled and will continue to enable energy purchases through transaction-specific confirmations whenever appropriate, consistent with the policies set forth in this plan.

Figure 10: MCE Contracted Energy Portfolio (2018-2027)



Reserve Capacity Purchases

MCE may engage in purchases or sales of RA capacity from generation resources that qualify to meet RA requirements in accordance with CPUC and CAISO regulations. Terms may range from one month to ten years. Capacity is also often bundled with energy and renewable attributes under MCE’s renewable energy PPAs.

VI. Procurement Methods and Authorities

In order to effectively plan and manage its portfolio, MCE differentiates contracts by their term length as follows:

- Short-term: up to twelve months;
- Medium-term: longer than twelve months, up to five years;
- Intermediate-term: longer than five years, up to ten years;
- Long-term: longer than ten years.

Based upon the expected contract tenor, MCE may use a variety of methods – including competitive solicitations, standard contract offerings, and bilaterally negotiated agreements – throughout the Planning Period.

Procurement Methods

For long-, intermediate-, and medium-term purchase commitments, MCE typically uses competitive solicitations, like its annual Open Season solicitation, or standard offer contracts, like its FIT. Through a competitive solicitation, MCE issues a request for offers and concurrently evaluates multiple proposals in the context of market conditions before entering negotiations with those respondents that provide the most compelling offers. Occasionally, MCE will issue ad hoc competitive solicitations or engage in independent bilateral negotiations to meet specific resource needs for which inclusion in an annual solicitation is not appropriate.

With regard to short-term power purchases, MCE may negotiate bilateral agreements directly, especially for unique or urgent transactions that do not lend themselves to inclusion in a competitive solicitation. Alternatively, particularly in markets with sufficient transparency to ensure competitive outcomes, MCE may negotiate short-term transactions via its scheduling coordinator or independent energy brokers or marketers.

Procurement Authorities

MCE's energy procurement throughout the Planning Period will be consistent with the delegation of authorities of the Board, including Resolution 2017-02, Resolution 2017-07, and/or any subsequent delegation of authorities or relevant Resolution of the Board.

Appendix A: Load and Resource Table

MCE Resource Balance										
November 2017										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
I. Energy Requirements (GWh)										
Baseline Retail Load	4,772	5,514	5,542	5,569	5,597	5,625	5,653	5,682	5,710	5,738
New Energy Efficiency	(2)	(5)	(10)	(16)	(22)	(28)	(34)	(41)	(49)	(57)
New Distributed Generation	(12)	(16)	(20)	(24)	(28)	(32)	(36)	(41)	(46)	(50)
New Electric Vehicle Load	8	19	32	49	71	100	136	183	242	319
Retail Load (Net of EE/DG/EV)	4,766	5,512	5,544	5,579	5,618	5,665	5,719	5,782	5,858	5,950
Distribution Line Losses and Unaccounted For Energy	285	330	331	332	333	334	335	336	337	338
Total Energy Requirements	5,052	5,842	5,875	5,911	5,951	5,999	6,054	6,118	6,195	6,288
II. Volume Targets										
Light Green Renewable Energy Volume Targets (GWh)										
Portfolio Content Category 1	1,956	2,405	2,550	2,708	2,871	3,038	3,212	3,393	3,433	3,485
Portfolio Content Category 2	661	808	852	901	951	1,002	1,056	1,111	1,125	1,142
Portfolio Content Category 3 (REC Only)	146	169	169	170	171	172	174	175	178	180
Subtotal, Light Green Renewable Energy Volume Targets	2,763	3,382	3,571	3,779	3,992	4,213	4,441	4,680	4,735	4,807
Deep Green Incremental Renewable Energy Volume Targets (GWh)										
Portfolio Content Category 1	175	206	236	242	248	254	261	268	276	279
Portfolio Content Category 2	-	-	-	-	-	-	-	-	-	-
Portfolio Content Category 3 (REC Only)	-	-	-	-	-	-	-	-	-	-
Subtotal, Deep Green Incremental Renewable Energy Volume Targets	175	206	236	242	248	254	261	268	276	279
Large Hydro/Carbon Free Energy Volume Targets (GWh)										
	1,046	1,198	1,186	1,181	1,176	1,173	1,171	1,170	1,184	1,202
III. Contracted Resources										
Renewable Resources Under Contract (GWh)										
Portfolio Content Category 1	1,934	2,066	2,119	2,493	2,486	2,481	2,446	2,440	2,358	2,264
Portfolio Content Category 2	550	360	-	-	-	-	-	-	-	-
Portfolio Content Category 3 (REC Only)	-	-	-	-	-	-	-	-	-	-
Subtotal, Renewable Resources Under Contract	2,484	2,426	2,119	2,493	2,486	2,481	2,446	2,440	2,358	2,264
Large Hydro/Carbon Free Resources Under Contract (GWh)										
	981	975	625	625	625	25	25	25	25	25
Other (Null) Energy Under Contract (GWh)										
	1,484	964	519	-	-	-	-	-	-	-
Total Contracted Energy (GWh)	4,948	4,365	3,263	3,118	3,111	2,506	2,471	2,465	2,383	2,289
Less Variable Price Contracted Energy (GWh)	1,639	1,484	774	699	699	99	70	70	-	-
Total Fixed Price Contracted Energy (GWh)	3,309	2,881	2,489	2,419	2,412	2,407	2,401	2,395	2,383	2,289
IV. Open Positions										
Renewables Open Position (GWh)										
Portfolio Content Category 1	198	544	667	458	632	811	1,026	1,221	1,350	1,500
Portfolio Content Category 2	111	448	852	901	951	1,002	1,056	1,111	1,125	1,142
Portfolio Content Category 3	146	169	169	170	171	172	174	175	178	180
Total Renewables Open Position (GWh)	455	1,161	1,688	1,528	1,754	1,986	2,256	2,508	2,652	2,822
Large Hydro/Carbon Free Open Position (GWh)										
	66	223	561	556	551	1,148	1,146	1,145	1,159	1,177
Total Open Market Energy Volumes (GWh)	1,743	2,961	3,386	3,492	3,539	3,592	3,652	3,723	3,811	3,999
Total Market Price Contract Coverage (%)	65%	49%	42%	41%	41%	40%	40%	39%	38%	36%

Appendix B: Description of Resources

Bundled Renewable Energy Resources

G2 Energy LLC (Landfill Gas): bundled renewable energy and capacity

MCE has two agreements with G2 Energy LLC, each relating to a unique renewable generating project. The first, G2 Hay Road, extends for twenty years from the July 2013 commercial operation date and supported construction of a new, 1.6 MW landfill gas project located in Solano County, CA. The second, G2 Ostrom Road, facilitated a 1.6-MW expansion of an existing landfill gas facility in Yuba County, CA and extends for an eighteen-year term from the commercial operation date in September 2013. Both facilities provide MCE with an estimated 23,000 MWh of baseload renewable energy and associated capacity attributes annually.

Cottonwood Solar LLC (Solar PV): bundled renewable energy and capacity

Cottonwood Solar began delivering renewable energy to MCE in May 2015 and will do so for a twenty-five-year term. This agreement incorporates generation from three solar facilities, the first two of which provide MCE annually with approximately 64,000 MW of renewable energy and associated capacity:

- i. City of Corcoran Solar, located in Kings County, is a 11 MW solar project that commenced commercial operation in May 2015;
- ii. Goose Lake Solar, located in Kern County, is a 12 MW generation facility that has also been delivering to MCE since May 2015; and
- iii. the Marin Carport solar project, located in Novato, CA is a 1 MW carport-mounted solar project that achieved commercial operation in July 2016. Negotiated as part of the larger Cottonwood Solar contract to provide additional community benefit, this project is especially unique in that it delivers energy locally and provides shaded parking for employees of a non-profit research facility.

San Rafael Airport Feed-In Tariff Project (Solar PV): bundled renewable energy

The San Rafael Airport FIT agreement extends for a twenty-year term, which commenced on the facility's commercial operation date of October 23, 2012. The 972 kW solar PV project, which was the largest solar facility ever constructed in Marin County at the time, is located in San Rafael, California and is projected to generate 1,800 MWh per year during the contract term.

Genpower LLC (Landfill Gas): bundled renewable energy and capacity

Deliveries under the Genpower agreement began in February 2013 and extend for a twenty-year term. Located in Lincoln, CA, these resources include an existing 2.4 MW landfill gas project, which was expanded to 4.8 MW of renewable generating capacity. MCE is currently receiving renewable energy and capacity attributes from both engines at a combined average capacity of 3.55 MW. Annual Energy deliveries are estimated to be 27,000 MWh.

RE Kansas, LLC (Solar PV): bundled renewable energy and capacity

The Kansas agreement, originally a two-year PPA, achieved commercial operation in November 2014 and was subsequently extended for a third year. Kansas Solar is a 20 MW facility in Kings County, CA that

delivers an estimated 51,000 MWh of renewable energy and associated capacity to MCE each year. The original PPA with Recurrent Energy was transferred to Dominion Solar Holdings, LLC upon commercial operation.

Calpine Energy Services (Geothermal): bundled renewable energy, conventional energy, and capacity

Under a master agreement and associated confirmation with Calpine, MCE receives geothermal energy produced by the Geysers Project in Lake and Sonoma Counties, CA. Deliveries are expected to begin in January 2017 and total 88,000 MWh of renewable energy annually and associated capacity throughout the ten-year term. In addition, MCE has contracted with Calpine for conventional energy deliveries from 2015 through 2017.

EDP Renewables LLC (Wind): bundled renewable energy

The EDP agreement is a four-year PPA with Rising Tree Wind Farm, a 99 MW generating project that is located in Kern County, CA and achieved commercial operation in June 2015. MCE will receive approximately 340,000 MWh of renewable energy and associated capacity per year through contract expiration in 2018.

RE Mustang LLC (Solar PV): bundled renewable energy and capacity

RE Mustang is a new, 30 MW solar facility in Fresno County, CA, construction of which was enabled by its fifteen-year PPA with MCE. MCE expects to receive 86,000 MWh of renewable energy annually and associated capacity from Mustang once the delivery term starts in January 2018.

Waste Management – Redwood Landfill (Landfill Gas): bundled renewable energy and capacity

Located in Novato, CA, the Redwood Landfill power generation facility achieved commercial operation in September 2017. MCE expects to receive approximately 30,000 MWh of renewable energy and associated capacity annually from this the state-of-the-art 4 MW project.

Cost Plus Plaza Larkspur Feed-In Tariff Project (Solar PV): bundled renewable energy

This 261 kW roof-mounted FIT project is located in Larkspur, CA and declared commercial operation in September 2016. Energy deliveries are expected to average 500 MWh per year during the twenty-year contract term.

East Bay Municipal Utility District – Pardee and Camanche Reservoirs (RPS-Eligible Hydroelectric): bundled renewable energy

MCE entered into a ten-year PPA with East Bay Municipal Utility District (“EBMUD”) for renewable energy deliveries from two existing RPS-eligible hydroelectric facilities near the Amador-Calaveras county line on the Mokelumne River. Both hydro power plants, which are owned and managed by EBMUD, are expected to provide 20,000 to 180,000 MWh of RPS-eligible generation per year, depending on annual precipitation; for planning purposes, MCE forecasts 70,000 MWh of annual production.

Freethy Industrial Park Feed-In Tariff Projects #1 and #2 (Solar PV): bundled renewable energy

Both of these co-located FIT projects came online in October 2016. Located in Richmond, CA, the two 998 kW agreements will extend for a twenty-year term. Aggregate energy deliveries from the projects

are expected to offset MCE load and are projected to average 3,600 MWh per year during the contract term.

Avangrid Renewables, LLC (Wind): bundled renewable energy

MCE has secured a short-term supply of bundled renewable energy from Avangrid's Shiloh 1 wind facility located in Solano County, CA. From June 2018 through December 2018, 25 MW of this project will deliver to MCE approximately 75,000 MWh.

Portland General Electric (Wind): bundled renewable energy

Per a one-year confirmation, Portland General Electric delivered to MCE during 2016 120,000 MWh of bundled renewable energy from its portfolio of existing wind resources in Oregon and Washington.

3 Phases Renewables, LLC (Wind, Geothermal): bundled renewable energy

MCE has contracted with 3 Phases to fill renewable resource short-term needs via four confirmation transactions. In all, 3 Phases will deliver to MCE 140,000 MWh and 340,000 MWh of bundled renewable energy in 2016 and 2017, respectively, from wind resources in Colorado and Oregon as well as a geothermal facility in Oregon.

SunPower (Solar PV): renewable energy

SunPower's Henrietta Solar Project is located in Kings County, CA and, per a short-term Renewable Energy Purchase and Sale Agreement, delivered 100,000 MWh to MCE during 2016.

Powerex (Wind, Biomass): bundled renewable

Via a trio of confirmation agreements with Powerex, MCE has contracted for bundled renewable energy supply from a resource portfolio comprised largely of wind facilities in British Columbia as well as a smaller biomass generation facility in Washington. In total, Powerex will deliver approximately 115,000 MWh, 75,000 MWh, and 125,000 MWh to MCE during 2017, 2018, and 2019, respectively.

Silicon Valley Power (Wind, RPS-Eligible Hydro, Landfill Gas, Geothermal, Solar): bundled renewable energy

MCE secured a large supply of renewable energy from Silicon Valley Power ("SVP") via a one-year confirmation. Per the agreement, SVP will deliver 200,000 MWh during 2017 from its diverse portfolio of wind, small hydro, landfill gas, geothermal, and solar resources located in California.

Cooley Quarry Project – MCE Local Sol (Solar PV): renewable energy

The Cooley Quarry project achieved commercial operation in July 2017 and is delivering local solar energy for MCE customers who have opted into the Local Sol program. The 990 kW project is located in Novato, CA and is expected to deliver 2,000 MWh annually over the term of its twenty-year PPA.

Great Valley Solar 1, LLC (Solar PV): bundled renewable energy and capacity

The Great Valley Solar 1 PPA entitles MCE to approximately 290,000 MWh of renewable energy and capacity annually from the 100 MW solar project in Fresno County, CA. Great Valley Solar 1 is expected to be online in Q2 of 2018 and deliver to MCE for fifteen years.

Little Bear Solar (Solar PV): bundled renewable energy and capacity

Little Bear Solar is a 160 MW aggregation of four solar projects in Fresno County, CA that are expected to be online in September 2020 and annually deliver 430,000 MWh of renewable energy and capacity to MCE over the term of a twenty-year PPA. Negotiated with potential expansion of MCE's service area in mind, the capacity of Little Bear Solar has increased from 40 MW to 160 MW as MCE's customer base has surpassed contractual thresholds that trigger increases in project capacity.

Antelope Expansion 2, LLC (Solar PV): bundled renewable energy and capacity

The Antelope Expansion 2 project will comprise 105 MW of solar capacity in the western Mojave Desert in Southern California. Once online in September of 2018, the Antelope Expansion 2 facility is annually expected to deliver 300,000 MWh of renewable energy and associated capacity over the term of its twenty-year PPA.

Desert Harvest, LLC (Solar PV): bundled renewable energy and capacity

Pursuant to its twenty-year PPA with MCE, Desert Harvest is developing an 80 MW solar facility in Riverside County, CA that is expected to be online in December 2020. Once operational, the project will deliver an estimated 490,000 MWh of renewable energy and associated capacity annually to MCE. In addition, MCE holds an option to expand the PPA and the facility to 150 MW if it determines that market conditions or potential expansion of MCE service area warrant doing so.

Los Banos Wind, LLC (Wind): bundled renewable energy and capacity

Los Banos Wind project is a 125 MW wind facility currently under development in Merced County, CA. MCE expects Los Banos to achieve commercial operation in December 2020 and deliver annually 372,000 MWh of renewable energy and capacity over the twelve-year term of the PPA. In order to incorporate into its portfolio similar in-state wind deliveries prior to 2020, MCE has contracted with TGP Energy Management, LLC, an affiliate of Los Banos Wind, to deliver approximately 300,000 MWh per year of renewable energy from existing wind resources near Tehachapi, CA beginning in January 2018 and until Los Banos Wind comes online.

Voyager Wind III, LLC (Wind): bundled renewable energy and capacity

The Voyager Wind III project, located near Mojave, CA, will be 42 MW once operational in December 2018. MCE has contracted with Voyager to deliver an estimated 138,000 MWh of renewable energy and associated capacity each year of its twelve-year term.

Unbundled Renewable Energy Resources

Effective in January 2016, MCE committed to procure no more than 3 percent of its retail load from unbundled renewable energy resources.

GHG-free Resources

U.S. Western Area Power Administration ("WAPA", Large Hydroelectric): GHG-free energy

Under the WAPA agreement, MCE receives a specified allocation of hydroelectric energy produced by the federally owned Central Valley Project. These GHG-free energy deliveries, which are projected to

average 25,000 MWh under typical hydrological conditions, began in January 2015 and will continue for the PPA's ten-year term.

Bonneville Power Administration (BPA) ACS Portfolio (Large Hydroelectric ACS): Low-GHG energy

BPA, a federal power marketing agency, has an ACS portfolio registered by CARB for its low GHG emissions factor. BPA's power supply comes from a number of energy resources. The vast majority of the electricity BPA markets is hydropower generated by the 31 federal dams on the Columbia and Snake rivers. BPA's portfolio does include some emissions, however, and this is due to BPA's need to firm and shape its supply for its 140 utility and direct-service industrial customers in four states across the Northwest. MCE contracts for BPA's ACS portfolio through WAPA and Direct Energy, both of which provide transmission capacity for the power, and currently has agreements in place to purchase approximately 410,000 MWh of low-GHG ACS energy annually from BPA in 2018 and 2019.

Pacific Northwest TransAlta (Large Hydroelectric): GHG-free energy

Headquartered in Calgary, Alberta, Canada, TransAlta has more than 110 years of experience in large hydro generation. Its Horseshoe facility in Alberta, commissioned in 1911, is still running today. Its 27 hydropower facilities have the capacity to deliver 936 MW of clean energy, of which MCE expects to purchase 250,000 MWh in 2018. TransAlta is a Green-e certified supplier.

Yuba County Water Agency ("YCWA," Large Hydroelectric): GHG-free energy

YCWA manages a modern series of dams and hydropower facilities, generating up to 395 megawatts of GHG-free energy, which is enough to supply more than 300,000 homes throughout California. It owns and operates three separate powerhouses on the Yuba River: the New Colgate Powerhouse, Narrows 2 Powerhouse, and the New Bullards Bar minimum instream flow powerhouse. The Narrows 2 Flow Bypass has received recognition from the National Hydropower Association for benefits to fish-spawning grounds downstream on the Yuba River. MCE has contracted with YCWA for GHG-free deliveries in 2019 that total 250,000 MWh.

Conventional Energy Resources

Direct Energy/Energy America, LLC: system energy

The Direct Energy agreement is a three-year energy supply confirmation that will compliment MCE's renewable and intermittent resources from 2018 to 2020 with consistent and competitively priced energy that will offset 310,000 MWh to 484,000 MWh annually that have been previously delivered by other suppliers.

Exelon Generation Company: system energy

Under the agreement with Exelon, MCE will receive 50 MW of system energy during the 2018 and 2019. These deliveries will compliment MCE's intermittent resources and offset approximately 438,000 MWh of the system energy each year that has been previously provided by other suppliers.

Morgan Stanley: system energy

Per two multi-year confirmations, Morgan Stanley will deliver system energy to MCE from 2016 through 2020. These deliveries vary by year but will offset between 200,000 MWh to 500,000 MWh of the system energy that has been provided annually by other suppliers.

MCE Renewable Resource Development

MCE Solar One (Solar PV): bundled renewable energy

After completing all pre-development activities in early 2017, MCE turned over development of MCE Solar One to a general contractor and financier. Once the project is online in December 2017, MCE expects it to generate approximately 18,000 MWh per year. MCE Solar One is expected to support over 340 jobs and generate power for at least 3,400 homes. The project is expected to create an estimated 69,000 work hours, of which 60 percent or more will be provided through union labor, and a minimum of 50 percent of the created jobs will go to local Richmond residents. By partnering with a local workforce development partner, RichmondBUILD, MCE is able to support training, job, and career opportunities for low-income and disadvantaged community members by providing skills and experience needed to work in the green-collar economy.



Proposed Expansion of Feed-in Tariff (FIT) Program

Agenda

- Review current program
- Outline of proposed new programs
 - Scope
 - Cost impact
 - Impact to community
 - Comparison to existing program
- Options to consider
- Summary
- Staff recommendation

MCE FIT Program Overview

Purpose:

To promote development of locally-situated, smaller-scale renewable generating projects

FIT 101

- A Feed-in Tariff (FIT) is a standard offer for local renewable generation
- Utility must buy at fixed prices set by the Feed-in Tariff
- Creates demand and drives opportunity to develop local renewables
- Development occurs with lower development cost

MCE FIT Overview



Freethy Industrial Park
Richmond, CA

- MCE Board approved FIT in December 2010
- First FIT contract executed in May 2012
- MCE offers a flat, standard offer 20 year contract for renewable resources that are:
 - located in MCE's service territory
 - <1MW in size
- FIT participatory cap currently set at 15 MW

Program Benefits



San Rafael Airport
San Rafael, CA

- Provides an opportunity for developers of small, local projects to supply MCE customers
 - Promotes resource localization & regional economic benefits
- Standard Application and PPA Contract
 - Simplifies and expedites procurement process
 - Minimizes administrative burdens for MCE
 - Reduces development costs for owner/developer

Current FIT Status



Cost Plus
Larkspur, CA

- 4 projects (3.2 MW) online
- 7 projects (6.8 MW) approved in the FIT queue
 - 5 in Napa
 - 1 in Marin
 - 1 in Contra Costa
- Currently in Condition 6 (\$95/MWh)
- 4.7 MW remaining in the program

MCE FIT: Price Conditions

- Pricing schedule was developed in consideration of renewable energy delivered under the MCE/SENA agreement.
- Regressive pricing “steps” were set in consideration of FIT subscribership, reflecting technological and supply-side improvements that were assumed to occur over time.

Condition	Remaining Capacity (MW)	Peak Energy Prices (20-year term, \$/MWh)	Baseload Energy Prices (20-year term, \$/MWh)	Intermittent Energy Prices (20-year term, \$/MWh)
Condition 1	0	\$137.66	\$116.49	\$ 100.57
Condition 2	0	\$120.00	\$105.00	\$ 95.00
Condition 3	0	\$115.00	\$100.00	\$ 90.00
Condition 4	0	\$110.00	\$95.00	\$ 90.00
Condition 5	0	\$105.00	\$95.00	\$ 90.00
Condition 6	1.97	\$95.00	\$95.00	\$ 90.00
Condition 7	3	\$90.00	\$90.00	\$ 90.00

Expanding FIT Program with MCE Expansion

- MCE service territory approved to expand on April 1, 2018
- Annual energy sales could grow by 100%
- New project development opportunities will be available within expanded territory
- **New communities have expressed interest in local projects & jobs**
- Challenge is to maintain local development incentives while minimizing the effect on rates

New Local Programs

1. Expand existing FIT program capacity (with improvements)
2. Create “FIT PLUS” program for mid-size generators (1-5MW)
3. Institute Periodic RFO for Local Projects >5 MW

Driving Principles

Agenda Item #07: Feed-in-Tariff and Expanded Feed-in-Tariff

- Provide a reasonable price incentive to promote ongoing development within MCE's existing and expanded territory
- Create local jobs & stimulate the local economy through requirements for:
 - Local hire
 - Prevailing wage
 - PLA/Union jobs
 - Local sourcing

Driving Principles

- Minimize impact to rates
 - Keep overall program impact to <1% of revenue
 - Comparability to other wholesale renewable procurement alternatives
 - Current mkt. pricing for large-scale solar projects range from \$28-\$40/MWh

Projected Financial Impact

Project development would occur over a multi-year period, so financial impacts would phase in over time

	Average Price	Low			Med			High		
		MW	\$MM/yr	% of Rev	MW	\$MM/yr	% of Rev	MW	\$MM/yr	% of Rev
FIT	\$ 75.00	15	\$1.20	0.30%	20	\$1.60	0.40%	30	\$2.40	0.61%
FIT Plus	\$ 70.00	20	\$1.40	0.35%	30	\$2.10	0.53%	40	\$2.80	0.71%
Total MW		35			50			70		
Weighted Avg Price		\$72.14			\$72.00			\$72.14		
Annual Cost Impact (\$MM/Yr)		\$2.6			\$3.7			\$5.2		
Percent of Annual Revenue		0.7%			0.9%			1.3%		
Annual deliveries (GWh)		70			100			140		
Percent of expanded load		1.2%			1.7%			2.3%		
# of Homes		11,667			16,667			23,333		

*Assumes all solar and no TOD

Expanded FIT (0-1 MW)

What's New?	Expanded FIT	Current FIT
Program Size	Add 20 MW	15 MW (< 5 MW available)
Local Hire Requirement	50% of workforce hired within same county as project	No requirement
Prevailing Wage Requirement	Required to pay prevailing wage for 100% of workforce	No requirement
Rooftop/car port "Adder"	\$5/MWh price adder for 5 years for rooftop projects 250kW or less	No requirement
Pricing (4 MW per "Condition")	Condition 1 - \$85/MWh Condition 2 - \$80/MWh Condition 3 - \$75/MWh Condition 4 - \$70/MWh Condition 5 - \$65/MWh	\$137.66 reduced to \$90/MWh over 7 Conditions at 2 MW each
Pricing of Delivery Profiles	Same price for all profiles	Different price for peak, intermittent and baseload
Storage	Storage is allowed (RPS certified energy only)	Not contemplated

FIT PLUS

(>1-5 MW)

What's New?	FIT PLUS
Program Size	30 MW
Local Hire Requirement	50% of workforce hired within same county as project
Union Labor Requirement	Projects are subject to the terms of MCE's PLA
Pricing (10 MW per "Condition")	Condition 1 - \$80/MWh Condition 2 - \$70/MWh Condition 3 - \$60/MWh (subject to potential TOD pricing)
Pricing of Delivery Profiles	Same price for all profiles
Storage	Storage is allowed (CEC certified energy only)
CAISO Market Participation	Scheduled into the CAISO Market

Improvements to FIT Documents

We are proposing that the Application, Tariff and PPA be updated to include the following:

- New application review, cure period and queue assignment standards
- New capacity allocation for Pricing Conditions
- New standards for the reallocation of terminated megawatts
- New standards for limiting the number of projects at a single parcel
- Improvements to Commercial Operation Date extension
- Improvements to Development Checklist in FIT Application

Implications of Expanded Program

When fully implemented:

- Expanded FIT and FIT Plus will add 50 MW of local generation
 - Equal to 1.7% of load
 - Equal to 17,000 Homes
- When added to existing portfolio of local projects (30 MW)
 - 3.3% of load will be served by in-territory RE generation
 - Equal to 80 MW

Implications of Expanded Program

- Impact to local communities
 - Prevailing wage jobs
 - Local hiring & supplier requirements
 - Workforce development training programs
- Improved relationship with Unions through PLA requirement
- Diversify location and ownership of generators
- Administrative impact to MCE (program management, invoice processing, REC management, marketing/outreach, etc.)

Options to Consider

- Expand beyond service territory to include counties MCE serves
- Expand or reduce proposed program budget
- PLA requirement for >1MW or >5MW or ?
- Additional program requirements

Summary

- Expands and improves existing FIT program
- Creates new program for projects 1-5 MW (FIT Plus)
- Impact of expanded FIT and FIT Plus when fully implemented:
 - Equal to 1.7% of expanded load / 17,000 homes
 - Estimated annual cost - \$3.7MM* / 0.9% of revenue

*Additional cost when compared to buying large scale Central Valley solar at \$35/MWh

Questions?

Thank You

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