



City of San Leandro

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Staff Report

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TO: City Council

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BY: City Council

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TITLE: Staff Report for City Council Authorization of Community Choice Aggregation for the City of San Leandro

SUMMARY AND RECOMMENDATIONS

Staff recommends that the City Council consider staff's analysis of the East Bay Community Energy Authority Joint Powers Agreement. Should the City Council decide to participate in this Community Choice Aggregation Joint Powers Authority for East Bay municipalities, staff recommends that they complete the following actions:

1. Adopt the resolution approving the East Bay Community Choice Energy Authority Joint Powers Agreement in order to participate in a Community Choice Aggregation Joint Powers Authority for East Bay municipalities; and
2. Conduct a first reading of the ordinance authorizing the implementation of a Community Choice Aggregation Program

BACKGROUND

This report and recommendation is the culmination of a process that began in 2014 with action by the Alameda County Board of Supervisors (BOS) to investigate the feasibility of establishing a Community Choice Aggregation (CCA) program in Alameda County. This initial work led to the establishment of a Steering Committee consisting of City and stakeholder representatives. Councilmember Lopez is San Leandro's representative and Councilmember Cox is San Leandro's alternate representative. The Steering Committee held eleven meetings. It reviewed multiple aspects of establishing a CCA program, including economic feasibility, environmental and local jobs benefits, creation of a joint powers authority agreement, and selecting the name of the authority: East Bay Community Energy (EBCE). On October 4, 2016 the Board of Supervisors became the first agency to adopt the attached resolution. This resolution is now in the process of being presented to each city, several of which have already approved it.

To date, the San Leandro City Council was provided with four presentations related to EBCE

at the following City Council meetings: June 1, 2015, May 16, 2016, June 20, 2016 and October 17, 2016. The City Attorney participated extensively in the development of the EBCE Joint Powers Agreement. To provide context and background on economic and regulatory issues, the City was assisted by a third-party consultant with relevant expertise. Throughout the Steering Committee process, San Leandro actively advocated for an EBCE governance structure fair to both large and small cities.

Community Choice Aggregation, also known as Community Choice Energy (CCE), enables local governments to pool the electricity demand within their jurisdictions in order to procure or generate electrical power supplies on behalf of the residents and businesses in their communities. These power supplies are delivered via Pacific Gas and Electric's (PG&E) electric distribution system, and replace the power supplies previously provided by PG&E. A CCA operates in partnership with the existing power utility (i.e., PG&E). The CCA procures and/or generates electricity on behalf of its customers while the existing utility continues to deliver power to homes and businesses, handles customer billing, and maintains the grid. The essential goal of a CCA is to provide more local control of the community's source of energy, which enables a greener energy supply at competitive electricity rates and creation of local jobs. In turn, this greener energy supply enables cities to be more effective in meeting sustainability and greenhouse gas reduction goals.

Since the launch in 2010 of California's first CCA program - Marin Clean Energy - urban areas throughout the state have been analyzing the potential for launching similar programs, and several additional CCA programs have since been launched.

In June 2014, the Alameda County Board of Supervisors' Transportation and Planning Committee directed the County Community Development Agency (CDA) to investigate the implementation of a CCA program for Alameda County and its cities. Phase I of the investigation included development of a Technical/Feasibility Study (summarized in Attachment A), which demonstrated that a CCA program is both feasible and cost-effective, under a range of scenarios. An Alameda County CCA program may result in cost savings for ratepayers, i.e., the City government and the residents and businesses it serves; is expected to increase the amount of renewable energy in the power supply; and promote job creation in the clean energy sector. Phase I work is now concluded. Phases II and III will entail formation of the Joint Powers Authority (JPA) Board and CCA implementation.

A Steering Committee was formed in 2015 to bring together representatives from cities, the County, regional experts, and stakeholders from the environmental, labor, and social justice communities to assist in drafting the language of a JPA (attached) to govern the operations of the CCA and provide recommendations on program design and operation. Following considerable discussion and recommendations from the Steering Committee, the Alameda County Board of Supervisors voted on October 4, 2016, to create the CCA program under the name East Bay Community Energy Authority, adopt a Joint Powers Agreement negotiated by the Steering Committee and attorneys for the County and proposed member cities, and establish funding for the remaining phases of program development necessary to allow the program to begin providing electricity to customers in the fall of 2017.

The purpose of this report is to recommend that the City Council approve the City of San Leandro's participation in the East Bay Community Energy JPA and to conduct the first reading of the CCA ordinance that authorizes implementation of the CCA program in San Leandro. The JPA will become effective upon approval of at least three jurisdictions, including the County. County staff has requested each of the cities that are considering joining the JPA to schedule the item for consideration by their respective City Councils by the end of November 2016.

Description of East Bay Community Energy Authority (EBCE)

EBCE would serve electric customers in the unincorporated areas of Alameda County, as well as electric customers in each city (except the City of Alameda, which owns and operates its own municipal electric utility) where the governing body elects to participate. Customers in each participating city will be automatically enrolled in EBCE, unless they opt to continue to receive their energy supply from PG&E. All electric customers will receive written information about the EBCE program and be provided at least three opportunities to opt out of EBCE and continue to receive their energy supply from PG&E. The opt-out rate for recently-established CCA programs has varied from two to five percent of customers.

EBCE would be governed by a Board of Directors, comprised of one elected representative of each city and county participating in the program. Final decisions regarding the specific level of renewable energy to be procured, prioritization of local renewable energy and job development, and other governance issues will be determined by the Board of Directors, as specified in the EBCE Joint Powers Agreement.

EBCE is designed much like similar CCA programs, including Marin Clean Energy and Sonoma Clean Power. However, several provisions were added that are unique to East Bay Community Energy, including requirements to ease the transition for affected energy workers, not to interfere with unionization of employees, and to designate the head of a proposed Community Advisory Committee as a non-voting member of EBCE's Board of Directors. The EBCE Joint Powers Agreement (Agreement) was prepared by the Office of the Alameda County Counsel and was extensively reviewed by the City Attorney's Office in each city and by the membership of the Steering Committee. As noted above, the Agreement is based on similar agreements for CCA programs in the Bay Area, and creates a legal and financial separation of the assets and liabilities of EBCE from those of its member agencies. The JPA was formally created by the Alameda County Board of Supervisors (BOS) on October 4, 2016. The BOS is expected to conduct its second reading and take final steps to formalize the JPA following consideration by the cities in either December 2016 or January 2017.

The Agreement includes rules, regulations, and principles for the formation and operation of the EBCE program, including the roles and responsibilities of each member agency. The following is a summary of the key provisions in the JPA:

- *Separate Legal Entity.* The Agreement establishes the East Bay Community Energy Authority as a separate legal entity; the member cities assume no obligations (except in narrow circumstances provided for in the Agreement) for the debts and liabilities of the Authority.

- *Board of Directors.* The EBCE Board of Directors would consist of a representative from each member agency and an alternate director from each member agency, both of whom must be members of the City Council or Board of Supervisors.
- *Community Advisory Committee (CAC).* The Agreement establishes a Community Advisory Committee consisting of nine members to advise the Authority Board of Directors on matters relating to the operation of the Authority. The chairperson of the CAC would be a non-voting member of the EBCE Board of Directors, and the vice-chairperson of the CAC would be a non-voting alternate on the EBCE Board of Directors.
- *Voting.* The EBCE Board of Directors can act by a majority of directors voting in favor of an item. Following an affirmative vote, if three directors so request, an EBCE action must also be approved by a “voting shares vote,” where each director’s vote represents that share of EBCE’s overall electrical load represented by the member entity. In two circumstances - amending the Agreement or changing the voting requirements - super majority votes are required.
- *Business Plan.* The Agreement obligates EBCE to create a Business Plan describing the Authority’s operations and strategies. The Business Plan would include a description of how the EBCE will contribute to fostering local economic benefits, such as job creation and community energy programs. Additionally, the Business Plan would identify opportunities for local power development and how EBCE can achieve its equity and local job creation goals. Finally, the Business Plan would include specific language detailing employment and labor standards
- *Withdrawal.* The Agreement provides a process for member agencies to withdraw, and provides that, in the event of a member agency’s withdrawal, that member agency will reimburse EBCE for any stranded (unavoidable) costs incurred by EBCE due to the member agency’s withdrawal.
- *Powers.* The Agreement provides for a number of powers for the Authority, including the contractual authority to purchase electricity, enter into agreements to implement EBCE programs, and to submit documentation and compliance forms to ensure regulatory compliance. In addition, EBCE has the power to issue revenue bonds and other forms of indebtedness, to acquire property by eminent domain, and to negotiate project labor agreements, community benefit agreements, and collective bargaining agreements.

Funding for Steering Committee, Consultant Support, Related Studies and Startup

Funding for the Steering Committee, consultant support and related studies to date have been funded exclusively by the County of Alameda. None of this funding, nor remaining startup costs, would be assessed against cities participating in EBCE. Phase I costs were approximately \$1.33 million. The second and third phases to establish and launch EBCE are estimated to be an additional \$2.41 million, which includes the costs associated with JPA formation and program development.

The Agreement explicitly provides that the County will be reimbursed for its actual incurred expenses in creating both the Authority and the CCA program. All start-up costs associated with this project are fully reimbursable from revenue generated by ratepayers during the first three years. At the October 4, 2016, Board of Supervisors meeting, the County approved the steps necessary to secure the needed funding to complete Phase II and Phase III.

EBCE is expected to seat its Board of Directors in early 2017 and initiate early stages of

operation at that time. The Board will need to secure working capital to cover its expenses leading up to the delivery of electricity, which is projected for fall of 2017. Based on the experience of other CCA entities, this capital is typically provided by a bank line of credit that requires a credit guarantee until such time that the CCA's customers have been enrolled and the program is fully resourced. The Technical Study's pro forma analysis identified up to \$51 million in working capital needs, the majority of which would cover initial power purchases and be repaid within five years of customer enrollment and ratepayer revenues. The financial model showed that this level of financing could be paid back within that timeframe, while still building a substantial reserve for the Authority in its early years. Appendix B provides further detail on required activities and consulting services needed for startup.

Fiscal Impacts

In addition to San Leandro residents and businesses, the City would become a customer of EBCE. This would allow each of San Leandro's municipal electric accounts to be served by EBCE, and make the City eligible to participate in any future efficiency or incentive programs that may be developed by EBCE. Based on current renewable and nonrenewable energy supply prices, as well as the assessment in the MRW technical feasibility study, it is possible that the City could lower total energy costs for its electric accounts. Staff will conduct this financial analysis once more is known about EBCE's initial retail rates.

The City will also continue to be eligible to participate in incentive programs offered through PG&E that lower the cost of energy upgrade projects in municipal facilities as well as homes and businesses.

Some City staff time will be required to monitor and assess EBCE activities as such activities may affect San Leandro. Such cost would be reflected in future budget recommendations.

Lastly, it is common for newly formed CCAs to issue an RFP for the startup capital, and that responding banks usually ask for a loan guarantee of around 10%. According to the Technical Feasibility Study, it is expected that the proposed CCA would need \$51 million in startup capital, which would put the loan guarantee amount at approximately \$5.1 million. If the CCE Board requests that the guarantee be split up among the member agencies (as has been done with the other CCAs), it is conceivable that the City of San Leandro would have to take on a portion of that loan guarantee in the order of several hundred thousand dollars. This guarantee wouldn't require cash, but would rather be a liability on the books for the period of the loan, likely two to three years in duration.

Reasons for Recommendation

Participation in EBCE will result in more local control over San Leandro's power supply, reduced greenhouse emissions, as well as the possibility of lower costs for ratepayers, and increased jobs in the clean energy sector for the region. The anticipated greenhouse gas reductions would help San Leandro to more effectively meet its established sustainability goals.

Attachments to Staff Report

- Appendix A - Alameda County Staff's Summary of MRW Technical Feasibility Study

- Appendix B - Next Steps for Formation of EBCE
- Appendix C - MRW's Technical Feasibility Study
- Appendix D - CCE Financing Requirements and Options

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Appendix A

Summary of the MRW Technical Feasibility Study

In addition to developing the EBCE Joint Powers Agreement, County staff also worked with the Steering Committee and a team of consultants to develop a Technical/Feasibility Study, which is a required study for any CCA. The study assessed the range of likely costs of implementing a CCA program under a variety of scenarios. In addition to the cost data, the study also provides an analysis of various legal, regulatory, market, and social risks and threats to the program.

This Appendix A describes the inputs into and conclusions of the study. The summary below includes text and characterizations used by Alameda County staff as part of their presentation to the Board of Supervisors.

Using electrical load data for the most recent two-year period, along with best professional predictions of future market conditions and energy prices, the study projects estimated energy costs to both the CCA Authority and the customer base for a 13-year period, 2017 – 2030. The study assumes full participation by all cities, but provides additional analysis relative to impacts associated with lower levels of participation. The study:

- Quantifies the electric loads that an Alameda County CCA could serve, including residential and commercial customers in the unincorporated county and all cities except the City of Alameda, which has its own utility;
- Estimates the costs to start-up and operate the CCA;
- Considers scenarios with differing assumptions concerning the amount of carbon-free power being supplied to the CCA so as to assess the costs and greenhouse gas (GHG) emissions reductions possible with the CCA;
- Includes varying levels of renewable power and an analysis of in-county renewable generation potential;
- Compares the electric rates that could be offered by the CCA to PG&E's rates;
- Quantitatively explores the rate competitiveness to key input variables, such as the cost of natural gas;
- Explores what programs a CCA might offer with respect to administering customer-side energy efficiency programs;
- Calculates the macroeconomic impact and potential employment benefits of CCA formation in the County.

The analysis covers four (4) possible operational scenarios:

- a. Scenario 1 – Simple Compliance with State of California 33% Renewable Portfolio Standard (RPS) by 2020 and 50% by 2030;
- b. Scenario 2 – Accelerated Renewable Investment - 50% Renewable portfolio from the first year onward, plus additional amounts of emissions-free, large hydro power (not considered renewable under California guidelines) to reduce GHG emissions below projected PG&E GHG estimates;

- c. Scenario 3 – Aggressive Renewable Growth - The Renewable portfolio set at 50% in the first year and increased to 80% by the fifth year; large hydro could also make up a portion of the non-renewable component;
- d. Scenario 4 – Very Aggressive Local Renewable Investment – Similar to Scenario 2, but with an increased emphasis on in-county renewable development: Assumes that one-half of the CCA’s total renewable energy goals would be met by in-county resources by the year 2030.

The Technical Study concludes:

- Feasibility for a CCA in Alameda County is favorable; current and expected market and regulatory conditions suggest that an Alameda County CCA should be able to offer residents and businesses electric rates that are a cent or more per kilowatt-hour (6 – 7 percent) lower cost than that available from PG&E under most scenarios. The sensitivity analyses suggest that these results are relatively robust; only when very high amounts of renewable energy are assumed in the CCA portfolio (such as Scenario 3), combined with other negative factors, do PG&E’s rates become consistently more favorable than the CCA’s rates.
- An Alameda County CCA could help facilitate greater amounts of renewable electricity generation to be developed in Alameda County. The study assumed a relatively conservative amount of local renewable generation, about 175 Megawatts (MW) over 10 years, but other studies suggest that the potential is higher.
- The CCA could reduce greenhouse gas emissions relative to PG&E, but only under certain circumstances. Because PG&E’s supply portfolio has significant carbon-free generation (large hydroelectric and nuclear generators), the CCA must contract for significant amounts of carbon-free power (such as large hydroelectric) beyond the required qualifying renewables in order to actually reduce the county’s electric carbon footprint. If carbon reductions are a priority for the CCA, a concerted effort to contract with hydroelectric or other carbon-free generators will be needed.
- A CCA can offer positive economic development and employment benefits both in the area and beyond. Each Scenario analyzed was found to create hundreds or thousands of jobs at the local and / or regional levels, with the proportion of local jobs dependent on the degree of direct local renewable energy investment, and the total regional jobs dependent mostly on indirect multiplier effects resulting from reduced electric rates and the corresponding additional purchasing power of individual consumers and businesses. In each case, the larger benefit to area jobs shown by the Technical Study comes not from direct investment in local energy, but from reduced electric rates; residents, and more importantly businesses, can spend and reinvest their bill savings, and thus generate greater economic impacts in the local economy.

- The scenario that offers the greatest electric rate reduction, and thus the greatest ability to generate indirect total jobs based on economic multiplier effects, is Scenario 1. It invests the least in renewables overall, and keeps those revenues in the hands of the ratepayers. Scenario 2 has similar costs, but includes additional renewable energy investment statewide. Scenarios 3 and 4, by contrast, invest even more heavily in renewables, but Scenario 3 invests statewide, while Scenario 4 invests locally; the result is that Scenario 3 generates the fewest jobs locally (although it maximizes renewable energy and GHG reduction), but Scenario 4 generates the most local jobs by a significant margin. Scenarios 3 and 4, however, significantly reduce the projected number of jobs outside of the region because customer savings are not emphasized in these scenarios.

As the siting analysis for future renewable energy projects has not been completed, it is not yet possible to estimate the total jobs within Berkeley that would be generated under each scenario. However, countywide jobs can be discerned based on the structure of each scenario. The table below summarizes each scenario and its implications for GHG emissions, jobs, and ratepayer savings.

	Scenario 1 RPS Compliance	Scenario 2 Accelerated investment in renewables	Scenario 3 More aggressive investment in renewables	Scenario 4 Accelerated investment in <i>local</i> renewables
Renewable Content	33% in 2020 & 50% in 2030	50% from 1st year	50% from 1st year & 80% by 5th year	Same as Scenario 2
GHG compared to PG&E	Higher in every year	Slightly Higher for 1st few years	Lower in every year	Same as Scenario 2
Anticipated Rate Savings	7%	6.5%	3%	5.7%
Average Annual Direct Jobs	165	166	174	579
Average Annual Total Jobs	1,322	1,286	731	1,671

The Technical Study also considered the size of the electricity load that would be required to achieve economies of scale sufficient to make the program cost effective. The study concludes that a CCA in Alameda County could successfully start-up at about 6.5 – 7 percent of the total load, and be comfortably viable with JPA signatories representing about 10-15 percent of all customer load, or about 1,000,000 MWh per year. The unincorporated County, as the initial member of the JPA, represents approximately 6 percent of the total countywide load.

The consultant also identified a number of risks to consider, from unfavorable regulatory changes to financial and market risk. The CCA model has successfully operated in various jurisdictions for more than six years, and several new programs have recently launched. Many of the early-phase risks, generally associated with uncertainties of how CCAs would operate in California, (e.g., concerns about financial risk to member jurisdictions) have proven to be mitigable through the work and experience of the existing CCAs. Given the years of operational experience of municipal utilities, CCAs and other load-serving entities, there is no shortage of expertise to help mitigate procurement and market risks. Finally, the consultant conducted multiple sensitivity analyses of the key assumptions that went into the conclusions about the CCA's price competitiveness. For example, the consultant modeled what would happen to CCA electricity rates if renewable energy prices and utility exit fees suddenly rose and if PG&E prices declined. In 17 of the 18 cases examined, the CCA program was able to maintain lower rates than PG&E. (Even in the one case where it was negative—low PG&E rates plus high renewable content, the CCA rate was less than \$0.001/kWh more than PG&E.) The model indicated it would take a very unlikely combination of variables (the "stress scenario") for CCA rates to consistently rise higher than PG&E.

Appendix B

Next Steps for Formation of East Bay Community Energy Authority (EBCE)

To seat a JPA Board and to be able to bring that Board substantive CCA matters on which to act as quickly as possible, Alameda County Staff will undertake a number of activities and retain additional consulting expertise in the areas of energy analytics and procurement, marketing, and data management during the latter half of 2016 and beyond. The following information represents a comprehensive but not exhaustive list of activities and consulting services that will need to occur:

Category 1: Technical, Energy Procurement and Data Management Services – These services include but are not limited to:

- 1) Answer energy market and utility-related questions and serve as an expert resource to city staff and elected City officials as they digest the analysis in the Technical Study and contemplate joining the JPA.
- 2) Finalize desired power supply mix and draft RFP for wholesale energy procurement and California Independent System Operators (CAISO) scheduling services
- 3) Recommend customer phasing schedule based on JPA organizational capacity and program economics
- 4) Refine operating budget based on final list of JPA members, number of potential accounts, and load requirements
- 5) Prepare EBCE's Implementation Plan for certification by the CA Public Utilities Commission
- 6) Assist as needed with program financing and size of credit facility based on customer enrollment schedule and projected operating revenues
- 7) Support power supply negotiations and development of power contracts
- 8) Prepare tariff schedule and rate recommendations for two power supply options (e.g. default product at 50% renewable and voluntary product at 100% renewable)
- 9) Design tariffs for ancillary programs such as net energy metering, community solar and/or local feed in tariff
- 10) Address PG&E, CA Public Utility Commission and CA Independent System Operator agreements and registrations including: CAISO paperwork and deposit, PG&E service agreement and security deposit, Bond posting, and required regulatory compliance reporting and customer noticing
- 11) Provide customer data management, billing and customer relationship management services
- 12) Develop and operate customer call center
- 13) Develop integrated resource plan and complete related regulatory reporting

Category 2: Community Outreach, Marketing and Customer Notification: Activities under this contract will include but are not limited to:

- 1) Brand refinements and development of sub-brands and logos for different product offerings
- 2) Develop County-wide, multi-lingual and multi-cultural advertising campaign to raise public awareness of EBCE and its offerings; this will include both paid and earned, print and digital media
- 3) Create multi-functional, multi-lingual website that includes a rate calculator and ability to opt-out of the program
- 4) Develop/update program collateral including FAQs, brochures and presentations
- 5) Develop short informational video for website, social media and use at community meetings
- 6) Handle press outreach - schedule editorial board meetings, draft press releases, op-eds and news articles
- 7) Establish a social media presence on Facebook, Twitter, Next Door, et al
- 8) Conduct stakeholder outreach and participate in community meetings and events
- 9) Work with member cities to support their local outreach efforts including local presentations, newsletter articles, event tabling, etc.
- 10) Meet with key energy/commercial accounts
- 11) Continue regular e-newsletters and info blasts to expanded list-serve
- 12) Participate in call center scripting
- 13) Design content and coordinate mailing of 4 customer enrollment notifications, timed to align with enrollment schedule

In addition to these key functions, County staff will continue to work with its existing consulting team from the Sequoia Foundation in the areas of program design, project management, and JPA formation and financing. Staff will also work with the JPA Board to identify a Chief Executive Officer and appropriate legal support (general counsel, et al) as the Agency moves into formation and initial staffing. It is anticipated that County CDA staff will remain involved through Phases II and III (i.e., through program launch) and, if needed, for a brief transition period until the new Agency is operational and staffed independently. In conjunction with a committee of city attorney representatives, staff and the Office of the County counsel would select an interim JPA legal counsel this fall, who will be available to represent the JPA upon formation.

Technical Study for Community Choice Aggregation Program in Alameda County

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Table of Contents

Executive Summary	i
Loads and Forecast	i
CCA Power Supplies	iii
Local Renewable Development.....	iii
Rate Results	iv
Scenario 1 (Simple Renewable Compliance)	iv
Scenario 2 (Accelerated RPS)	v
Scenario 3 (80% RPS by 2021)	v
Greenhouse Gas Emissions	vii
Sensitivity Analysis	ix
Macroeconomic and Job Impacts	x
Energy Efficiency	xii
Conclusions	xiii
Chapter 1: Introduction	1
What is a CCA?.....	1
Assessing CCA Feasibility.....	1
Chapter 2: Economic Study Methodology and Key Inputs	3
Alameda County Loads and CCA Load Forecasts.....	1
Energy Efficiency.....	4
CCA Supplies	6
Power Supply Cost Assumptions.....	9
Locally-Sited and Developed Renewables.....	11
Other CCA Supply Costs.....	11
PG&E Rate and Exit Fee Forecasts	12
PG&E Bundled Generation Rates	12
PG&E Exit Fee Forecast	13
Pro Forma Elements and CCA Costs of Service	13
Pro Forma Elements	14
Startup Costs	15
Energy Efficiency Program Costs.....	15
Administrative and General Cost Inputs	16
Cost of Service Analysis and Reserve Fund	16
Chapter 3: Cost and Benefit Analysis	17
Scenario 1 (Renewable Compliance)	17
Rate Differentials.....	17
Residential Bill Impacts	18
Greenhouse Gas Emissions	18
Scenario 2 (Accelerated RPS)	19
Rate Differentials.....	19
Residential Bill Impacts	20
GHG Emissions	21
Scenario 3 (80% RPS by 2021)	22
Rate Differentials.....	22

Residential Bill Impacts	23
GHG Emissions	24
Chapter 4: Sensitivity of Results to Key Inputs.....	25
Diablo Canyon Relicensing Sensitivity	25
Higher Renewable Power Prices Sensitivity.....	26
Higher Exit Fee (PCIA) Sensitivity	27
Higher Natural Gas Prices Sensitivity.....	27
Lower PG&E Portfolio Cost Sensitivity.....	28
Stress Case and Sensitivity Comparisons	28
Conclusions.....	31
Chapter 5: Macroeconomic Impacts	32
How a CCA interacts with the Surrounding Economy.....	32
How Job Impacts Are Measured.....	34
Scenario Results.....	34
Job and Gross Regional Product Total Impacts	35
County Job impact by Stage of Job generation, Scenario 1	37
County Job Impacts by Sector 2023	38
Focus on Construction Sector Jobs	39
Occupation Impacts for Alameda County, 2023	42
Chapter 6: Other Risks	43
Financial Risks to CCA Members.....	43
Procurement-Related Risks.....	43
Legislative and Regulatory Risks	44
PCIA Uncertainty	44
Impact of High CCA Penetration on the PCIA.....	45
Bonding Risk.....	45
Chapter 7: Other Issues Investigated	47
Funding, Costs, and Impacts of the Energy Efficiency Program Scenario	47
“Minimum” CCA Size?.....	49
Individuals and Communities Self-Selecting 100% Renewables	51
Competition with a PG&E Community Solar Program.....	52
Additional Local Renewables	52
Chapter 8: Conclusions	54

List Of Acronyms

AEE	Additional Achievable Energy Efficiency
CAISO	California Independent System Operator
CBA	Collective Bargaining Agreement
CCA	Community Choice Aggregation
CEC	California Energy Commission
CPUC	California Public Utilities Commission
EE	Energy Efficiency
EBCE	East Bay Community Energy
ESPs	Energy Service Providers
FY	Fiscal Year
GHG	Greenhouse Gas
GRP	Gross Regional Product
GWh	Gigawatt-hour (= 1,000 MWhs)
IOU	Investor-Owned Utility
I/T	Information Technology
JEDI	Jobs and Economic Impact (model)
JPA	Joint Powers Authority
kWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
NREL	National Renewable Energy Laboratory
PCIA	Power Charge Indifference Adjustment
PEIR	Programmatic Environmental Impact Report
PG&E	Pacific Gas & Electric
REC	Renewable Energy Credit
REMI	Regional Economic Modeling Inc
RPS	Renewable Portfolio Standard
roCA	Rest of California
SB 350	Senate Bill 350
TURN	The Utility Reform Network

Executive Summary

California Assembly Bill 117, passed in 2002, established Community Choice Aggregation in California, for the purpose of providing the opportunity for local governments or special jurisdictions to procure or provide electric power for their residents and businesses. In June 2014, the Alameda County Board of Supervisors voted unanimously to allocate funding to explore the creation of a Community Choice Aggregation (CCA) Program called East Bay Community Energy (EBCE) and directed County staff to undertake the steps necessary to evaluate the feasibility of a CCA. This feasibility study is in response to this Board Action.

In order to assess whether a CCA is “feasible” in Alameda County, the local objectives must be laid out and understood. Based on the specifications of the initial request for proposals and input from the County, this study:

- Quantifies the electric loads that an Alameda County CCA would have to serve
- Estimates the costs to start-up and operate the CCA
- Considers scenarios with differing assumptions concerning the amount of carbon-free power being supplied to the CCA so as to assess the costs and greenhouse gas (GHG) emissions reductions possible with the CCA
- Includes analysis of in-county renewable generation
- Compares the rates that could be offered by the CCA to PG&E’s rates
- Quantitatively explores the rate competitiveness to key input variables, such as the cost of natural gas
- Explores what activities a CCA might take with respect to administering customer-side energy efficiency programs
- Calculates the macroeconomic development and employment benefits of CCA formation.

Loads and Forecast

Figure ES-1 provides a snapshot of Alameda County electric load in 2014 by city and by rate class. As the figure shows, total electricity load in 2014 from Alameda County was approximately 8,000 GWh. The cities of Oakland, Fremont, and Hayward were together responsible for half the county load, with Berkeley, San Leandro, and Pleasanton also contributing substantially. Residential and commercial customers made up the majority of the county load, with smaller contributions from the industrial and public sectors.

To forecast CCA loads through 2030, MRW used a 0.3% annual average growth rate, which is consistent with the California Energy Commission’s most recent electricity demand forecast for PG&E’s planning area. This growth rate incorporates load reductions from the CCA’s energy efficiency programs of about 6 GWh per year from 2021 through 2030. Figure ES-2 shows this forecast by class, with the energy efficiency savings that are included in the forecast indicated by the top (yellow) segment.

Figure ES-1. PG&E’s 2014 Bundled Load in Alameda County by Jurisdiction and Rate Class

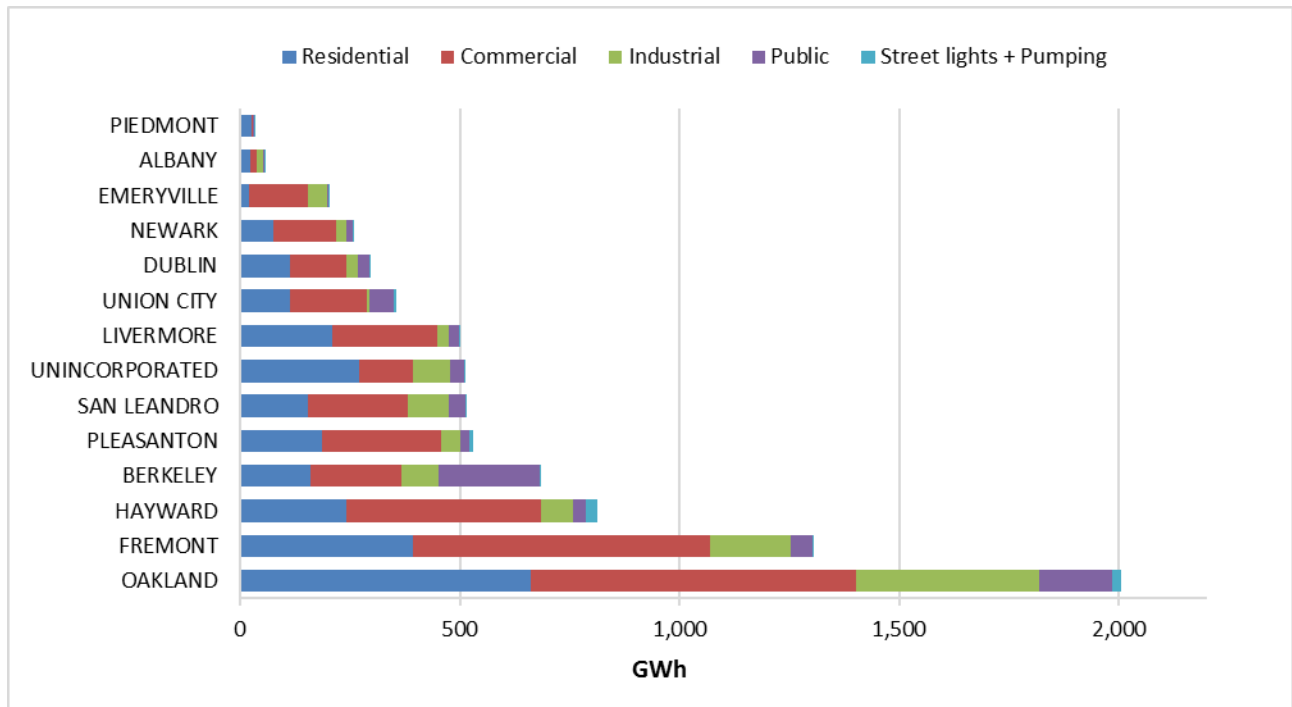
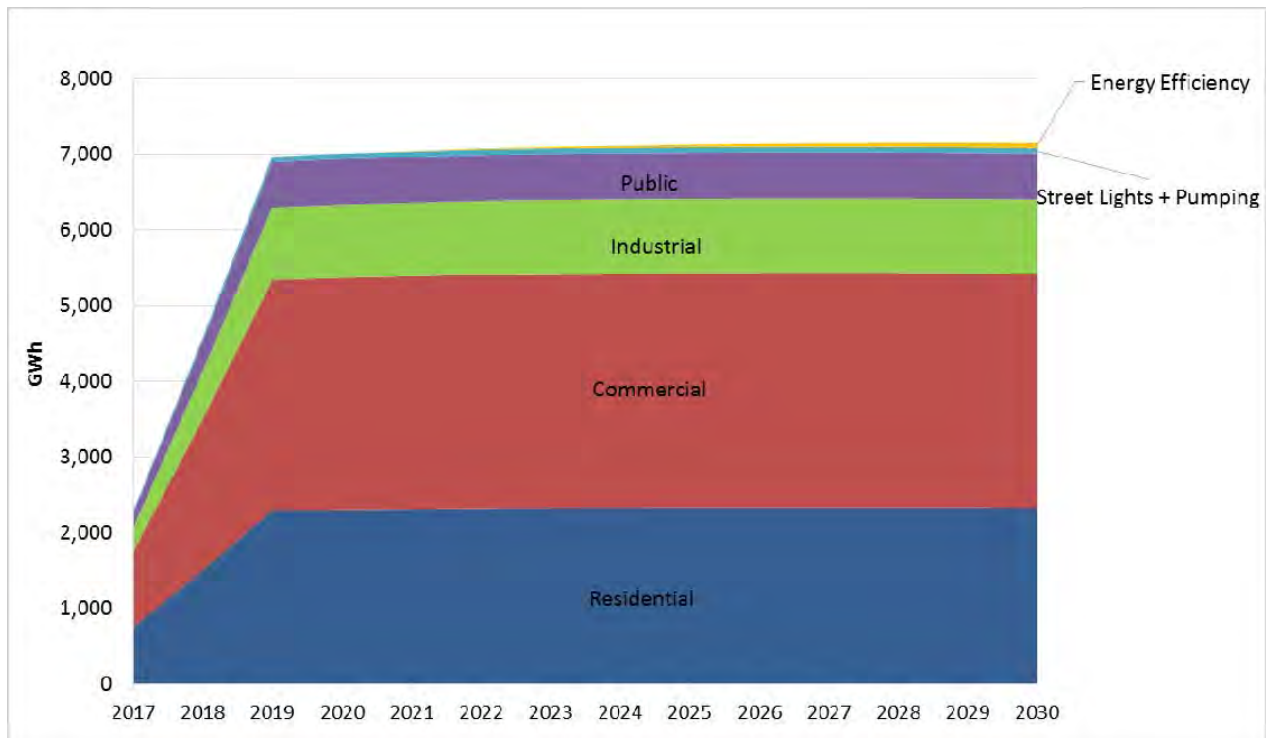


Figure ES-2: CCA Load Forecast by Class, 2017-2030



CCA Power Supplies

The CCA's primary function is to procure power supplies to meet the electrical loads of its customers. This requires balancing energy supply and demand on an hourly basis. It also requires procuring generating capacity (i.e., the ability to provide energy when needed) to ensure that customer loads can be met reliably. By law, the CCA must supply a certain portion of its sales to customers from eligible renewable resources. This Renewable Portfolio Standard (RPS), requires 33% renewable energy supply by 2020, increasing to 50% by 2030. The CCA may choose to procure a greater share of its supply from renewable sources than the minimum requirements, or may seek to otherwise reduce the environmental impact of its supply portfolio (e.g., purchase hydroelectric power rather than power from a fossil fuel generator).

The three supply scenarios that we considered are:

1. **Minimum RPS Compliance:** The CCA meets the state-mandated 33% RPS requirement in 2020 and the 50% RPS requirement in 2030
2. **More Aggressive:** The CCA's supply portfolio is set at 50% RPS from the first year onward, plus additional amounts of non-RPS compliant large hydro power to reduce GHG emissions
3. **Ultra-Low GHG:** The CCA's supply portfolio is set at 50% RPS in the first year and increases to 80% RPS by the fifth year.

In each case, we assumed that the RPS portfolio was predominately supplied with solar and wind resources, which are currently the lowest cost sources of renewable energy in California. We assumed that solar and wind each contribute 45% of the renewable energy supply. To provide resource diversity and partly address the need for supply at times when solar and wind production are low, we assumed the remaining 10% of renewable supply would be provided by higher-cost baseload resources, such as geothermal or biomass.

Local Renewable Development

The CCA may choose to contract with or develop renewable projects within Alameda County so as to promote economic development or reap other benefits. For the purpose of this study, we assume that the local renewable power development resulting from the CCA would be largely solar. In developing the hypothetical portfolios, we made conservative assumptions about how much local solar development would occur as a result of the CCA. A renewable potential study performed for the California Public Utilities Commission (CPUC) estimated roughly 300 MW of large solar supply in Alameda County. (Large solar in this study means ground-mounted utility-scale solar farms).¹ This estimate is based on an assessment that five percent of the estimated 6,000 MW of technical potential could be developed, largely as a result of land use conflicts or slope issues that would make solar development unfeasible in certain areas. We assume that over the forecast period through 2030, about 1/3 of the estimated 300 MW large solar supply

¹ At about 8-10 acres per megawatt, this corresponds to 2,400 to 3,000 acres (3.75-4.7 square miles).

potential in Alameda County is developed as a result of commitments by the CCA. Additional in-county, small solar projects are assumed to be added at 5-10 MW per year.

As a result of feedback from reviews of the preliminary results, an additional case in which we assume that 50% of the renewables are met with local generation. This case is discussed in Chapter 7 and will be explored in greater detail in an addendum.

Additional studies are available and underway² assessing in more detail the solar potential in the County, which preliminarily confirm the assumptions used here are conservative (i.e., low). Once formed and operational, the CCA should investigate in greater detail the practical solar potential in the County.

Rate Results

Scenario 1 (Simple Renewable Compliance)

Figure ES-3 summarizes the results of Scenario 1. The figure shows the total average cost of the Alameda CCA to serve its customers (vertical bars) and the comparable PG&E generation rate (line).³ Of the CCA cost elements, the greatest cost is for non-renewable generation followed by the cost for the renewable generation, which increases over the years according to the RPS standards. Another important CCA customer cost is the Power Charge Indifference Adjustment (PCIA), which is the CPUC-mandated charge that PG&E must impose on all CCA customers. This fee is expected to decrease in most years beginning in 2019 and have less of an impact on the CCA customer rates over time.

Under Scenario 1, the differential between PG&E generation rates and average cost for the Alameda CCA to serve its customer (*aka* the CCA rates) is positive in each year (*i.e.*, CCA rates are lower than PG&E rates). As a result, Alameda CCA customers' average generation rate (including contributions to the reserve fund) can be set at a level that is lower than PG&E's average customer generation rate in each year.

² For example, "Bay Area Smart Energy 2020," available at <http://bayarearegionalcollaborative.org/pdfs/BayAreaSmartEnergy2020fin.pdf>

³ All rates are in nominal dollars. Note that these are NOT the full rates shown on PG&E bills. They are only the generation portion of the rates. Other parts of the rate, such as transmission and distribution, are not included, as customers pay the same charges for these components regardless of who is providing their power.

Table ES-1 shows the average annual savings for Residential customers under Scenario 1. The average annual bill for the residential customer on the Alameda CCA program could average about 7% lower than the same bill on PG&E rates.

Table ES-1. Scenario 1 Savings for Residential CCA Customers

Residential	Monthly Consumption (kWh)	Bill with PG&E (\$)	Bill with Alameda CCA (\$)	Savings (\$)	Savings (%)
2017	650	147	142	5	3%
2020	650	160	145	15	9%
2030	650	201	188	13	6%

Scenario 2 (Accelerated RPS)

Under Scenario 2, Alameda CCA meets 50% of its load through renewable power starting from 2017, while 50% of its non-renewable load is met through hydro-electricity (i.e., overall 50% qualifying renewable. 25% hydro, 25% fossil or market). In this scenario, the differential between PG&E generation rates and Alameda CCA customer rates is slightly lower than that under Scenario 1, but continues to follow a similar pattern over the years with respect to PG&E rates. As was the case under Scenario 1, because of this positive differential, Alameda CCA customers' average generation rate (including contributions to the reserve fund) can be lower than PG&E's average customer generation rate in each year under this scenario as well.

The annual bill for a residential customer on the Alameda CCA program in Scenario 2 could about 6.5% lower than the same bill on PG&E rates (on average over the 2017-2030 study period). This is less than, but close to, bill savings under Scenario 1.

Scenario 3 (80% RPS by 2021)

Under this scenario, the Alameda CCA starts with 50% of its load being served by renewable sources in 2017, and increases this at a quick pace to 80% renewable energy content by 2021. In addition, 50% of its non-renewable supply is met through large hydro-electric sources.

The differential between PG&E generation rates and Alameda CCA customer rates in Scenario 3 is the lowest of the three scenarios, as this scenario has the most expensive supply portfolio (Figure ES-4). However, the expected Alameda CCA rates continue to be lower than the forecast PG&E generation rates for all years from 2017 to 2030. Although this positive differential still allows for the collection of reserve fund contributions through the CCA's rates in all the years under consideration, between 2026 to 2028 the differential is very small. Similarly, the annual

bill for a residential customer on the Alameda CCA program will be on average only about 3% lower than the same customers on PG&E rates.

Figure ES-3. Scenario 1 Rate Savings, 2017-2030

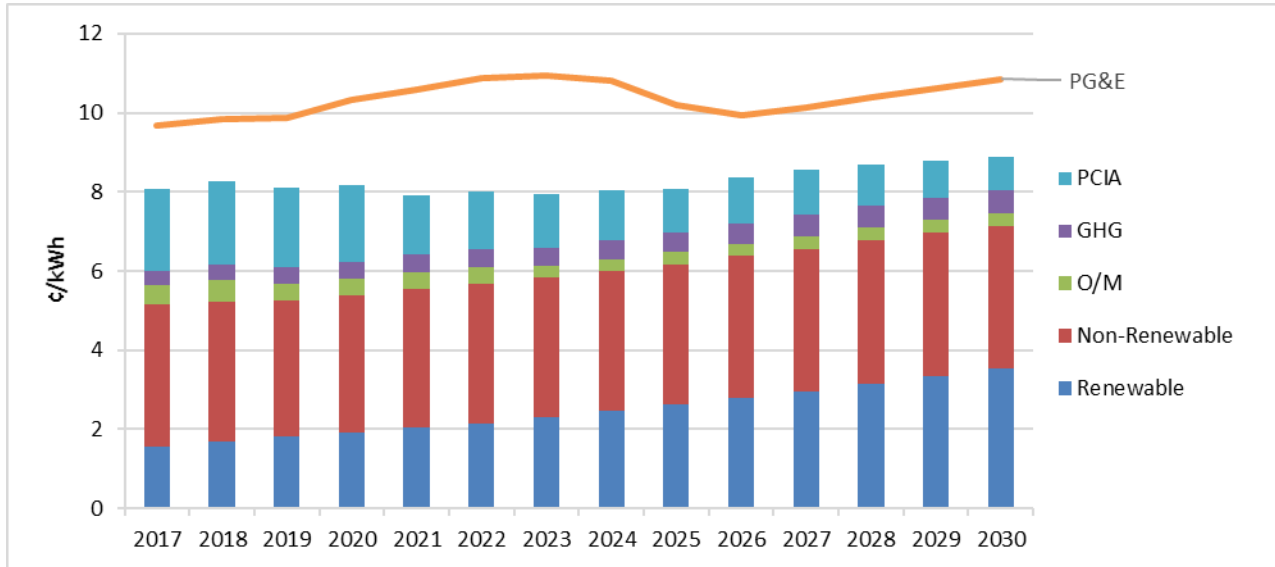
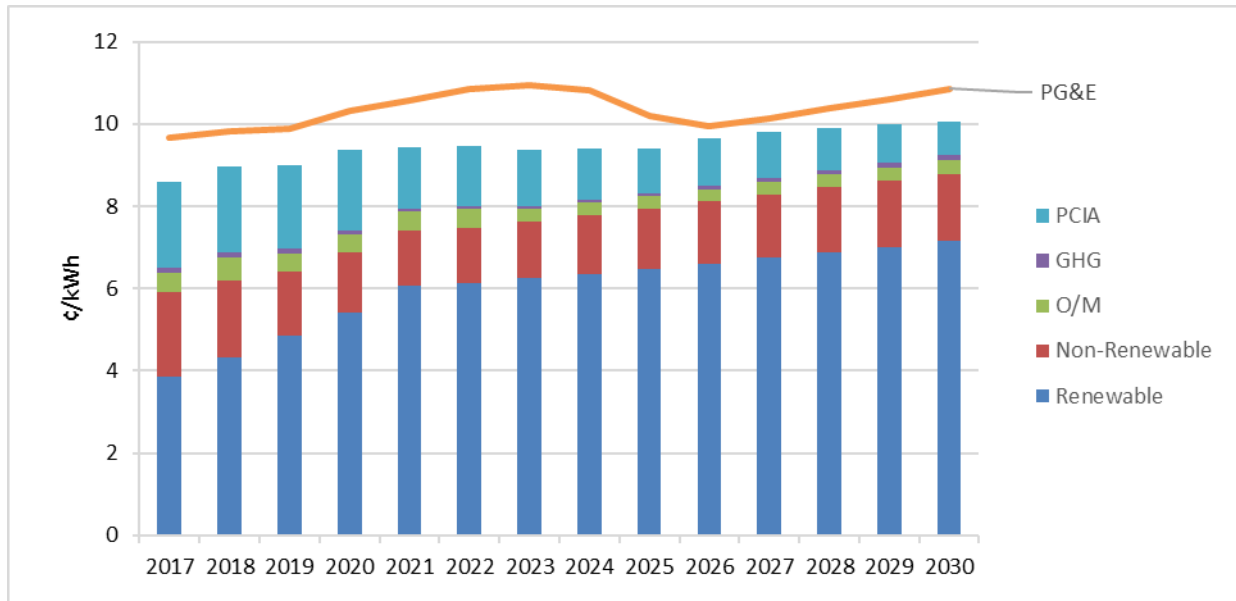


Figure ES-4. Scenario 3 Rate Savings, 2017-2030



Greenhouse Gas Emissions

As modeled, there are no greenhouse gas benefits for Scenario 1—in fact there are net incremental emissions. This is because both the CCA and PG&E are meeting the same RPS requirements, but over 40% of PG&E’s supply portfolio is made up of nuclear⁴ and large hydro generation, both of which are considered emissions-free.

The Alameda CCA’s GHG emissions under Scenario 2 are much lower than those under Scenario 1. This is due to the higher renewable content in the CCA’s generation mix under Scenario 2, but more importantly, the 50% hydro content in the non-renewable generation mix. Figure ES-5 compares the GHG emissions from 2017-2030 for the Alameda CCA under Scenario 2 with what PG&E’s emissions would be for the same load if no CCA is formed. PG&E’s GHG emissions are initially comparable to, the CCA’s emissions. The expected retirement of Diablo Canyon in 2025 increases PG&E’s emissions by approximately 30% in 2025. Following this, PG&E’s emissions are expected to decrease from 2026 to 2030 as PG&E procures renewables to meet its mandated RPS goals. However, they still remain higher than the CCA’s expected GHG emissions.

The results of Scenarios 1 and 2 illustrate that if the CCA wants to reduce its net carbon emissions, it must include hydroelectric (or other low- or carbon-free resources) in its portfolio.

Note that the analysis assumes “normal” hydroelectric output for PG&E. During the drought years, PG&E’s hydro output has been at about 50% of normal, and the utility has made up these lost megawatt-hours through additional gas generation. This means that our PG&E emissions are lower than the PG&E emissions shown here are lower than the “current” emission. If, as is expected by many experts, the recent drought conditions are closer to the “new normal,” then PG&E’s GHG emissions in the first 8 years would be approximately 30% higher, resulting in GHG savings for Scenario 2 rather than parity.

Similar to Scenarios 1 and 2, under Scenario 3 the Alameda CCA’s GHG emissions first increase from 2017 to 2019 as the CCA is phased in into the entire county. However, in Scenario 3 this increase is partially offset by the increasing renewable content in the CCA’s supply mix (Figure ES-6). Thus the CCA’s emissions in this scenario grow at a slower rate from 2017 to 2019 than in the first 2 scenarios, then decrease until 80% renewable supply is achieved in 2021, and remain flat thereafter. The CCA’s GHG emissions under this scenario are lower than PG&E’s expected emissions for the same load if no CCA is formed, for all years except for 2017 for which the emissions are comparable.

⁴ 40% of PG&E portfolio is nuclear and hydro 2017-2024; in 2024 the Diablo Canyon retires and is replaced by gas-fired generation.

Figure ES-5. Scenario 2 GHG Emissions by Year (PG&E Normal Hydro Conditions)

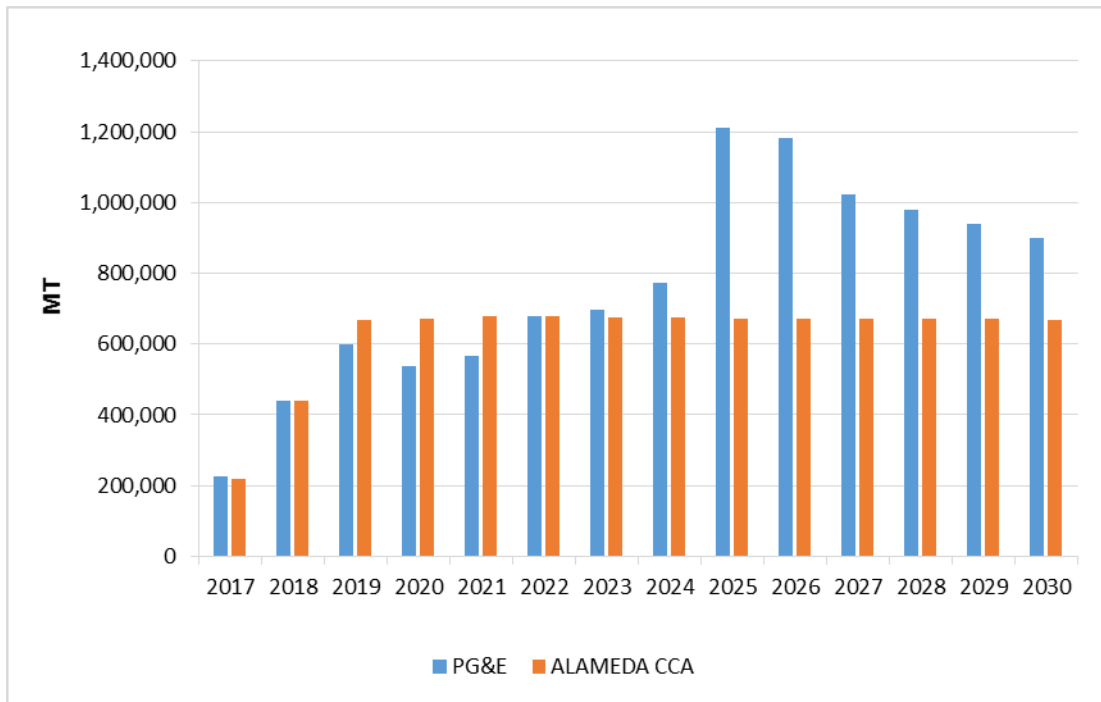
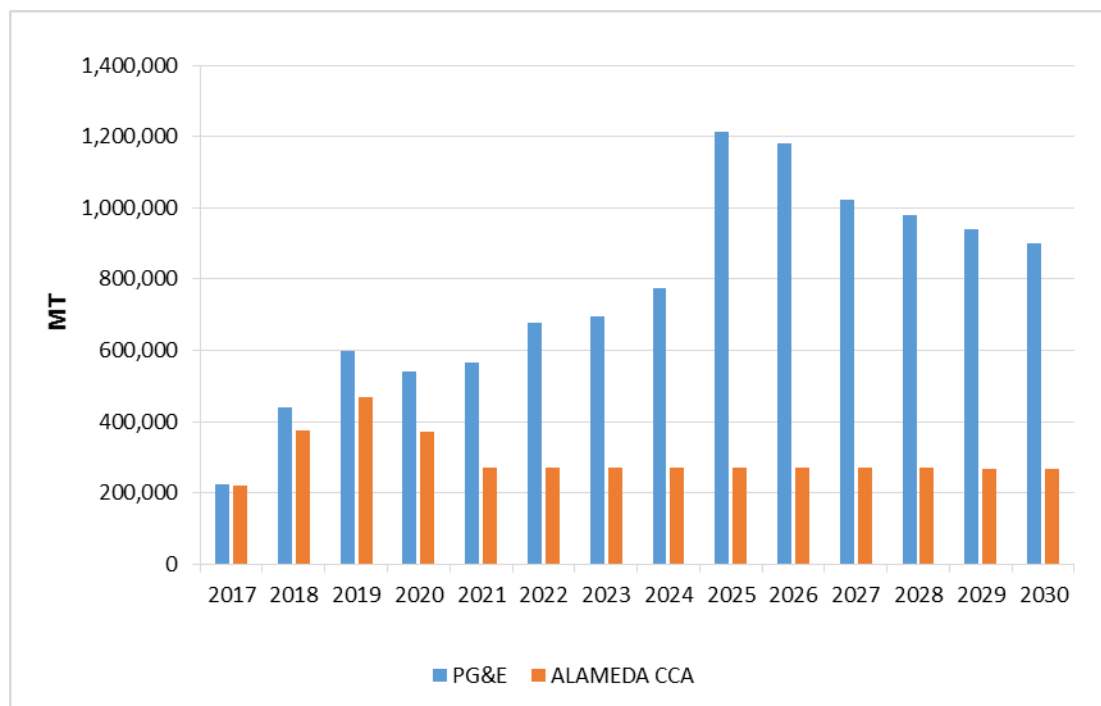


Figure ES-6. Scenario 3 GHG Emissions by Year PG&E Normal Hydro Conditions



Sensitivity Analysis

In addition to the base case forecast described above, MRW assessed alternative cases to evaluate the sensitivity of the results to possible conditions that could impact the Alameda CCA’s rate competitiveness. The key factors are summarized in Table ES-2.

Table ES-2.

Factor	Sensitivity Change
Relicensing Diablo Canyon	Increases PG&E’s generation rates by ~30% ⁵
Increased cost of renewable power	10% higher through 2021, 20% higher in 2021 and 2022, and 30% higher after 2022
High PCIA (“exit fee”)	Retains the high PCIA expected in 2018 (2.1¢/kWh) through 2030
High Natural Gas Prices	US Energy Information Administration’s High Gas Price Scenario, which is about 60% higher than the base case price
Low PG&E Rates	PG&E rates 10% lower than base forecast
Stress Scenario	Combined impact of high renewable costs, high PCIA, high gas price and low PG&E rates.

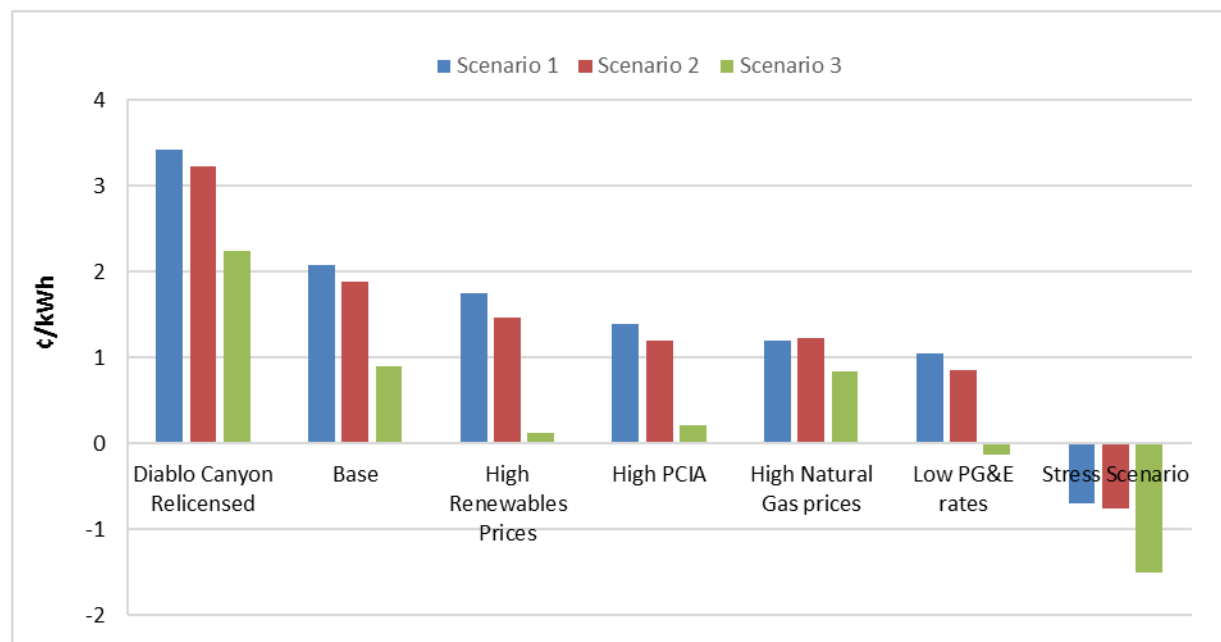
The sensitivity results are shown as the difference between the annual average PG&E generation rate and the Alameda CCA rate⁶ and are shown in Figure ES-7. Scenario 1 (RPS Compliance) is the least costly scenario for the CCA and therefore has the highest rate differentials under most of the sensitivity cases considered. Scenario 2 (Accelerated RPS), though still quite competitive with PG&E, fares slightly worse, with a rate differential typically about 8% lower than in Scenario 1. Scenario 3 (80% RPS by 2021) has the highest renewable content and is the costliest scenario, with rate differentials much lower than those in the other two scenarios. While Scenario 3 is anticipated to be competitive with PG&E in most cases (on average), the margins are much lower, particularly in the “High Renewable Prices” sensitivity case, and they become negative in the “Low PG&E rates” sensitivity case (*i.e.*, CCA customer rates are higher than PG&E rates).

⁵ The new cooling system, which would be required per state regulations implementing the Federal Clean Water Act, Section 316(b), would alone have an estimated cost of \$4.5 billion. It is because of these very high costs that the base case assumes the that power plant is retired.

⁶The Alameda CCA rate includes the PG&E exit fees (PCIA charges) that will be charged to CCA customers but does not include the rate adjustment for the reserve fund.

In the stress case,⁷ Alameda CCA customer rates exceed PG&E customer rates on average over the 2017-2030 period for all three scenarios, with the rate differential being highest in Scenario 3 at -1.5¢/kWh. This is double the Scenario 2 stress case rate differential of -0.75¢/kWh.

Figure ES-7. Difference Between PG&E Customer Rates and CCA Customer Rates Under Each Sensitivity Case and Supply Scenario, 2017-2030 Average (*i.e.*, positive vertical axis means PG&E rates higher than CCA rates).

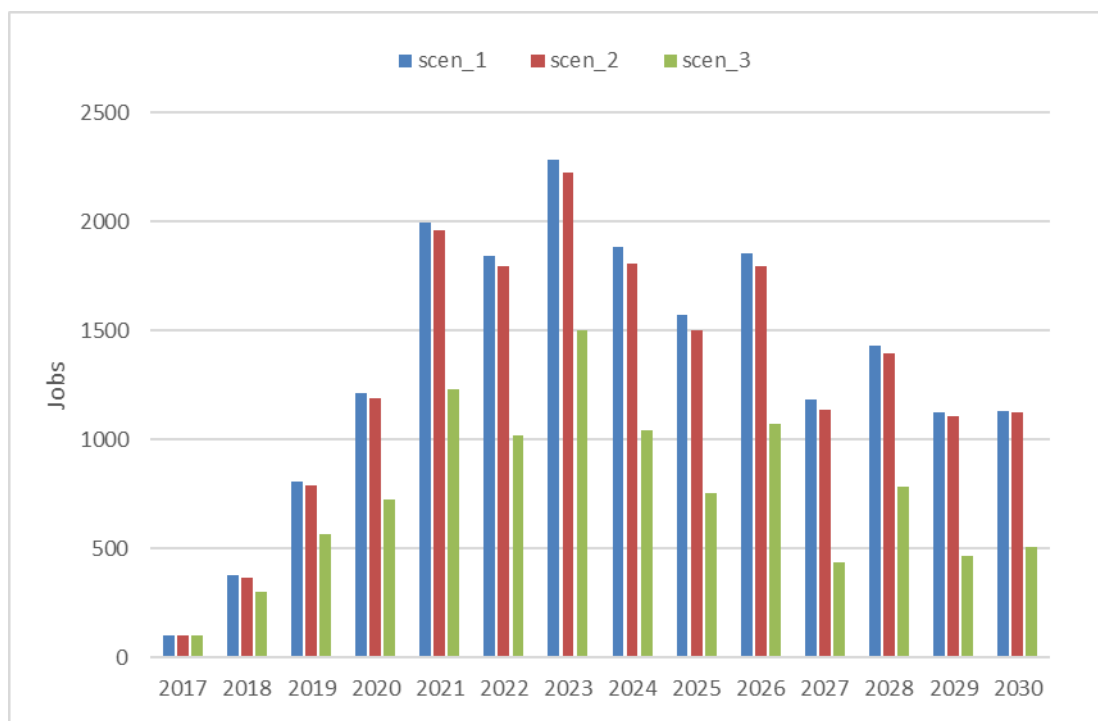


Macroeconomic and Job Impacts

The local economic development and jobs impacts for the three scenarios were analyzed using the dynamic input-output macroeconomic model developed by Regional Economic Models, Inc. (REMI). The model accounts for not only the impact of direct CCA activities (e.g., construction jobs at a new solar power plant or energy efficiency device installers), but also how the rate savings that County households and businesses might experience with a CCA ripple through the local economy, creating more jobs and regional economic growth.

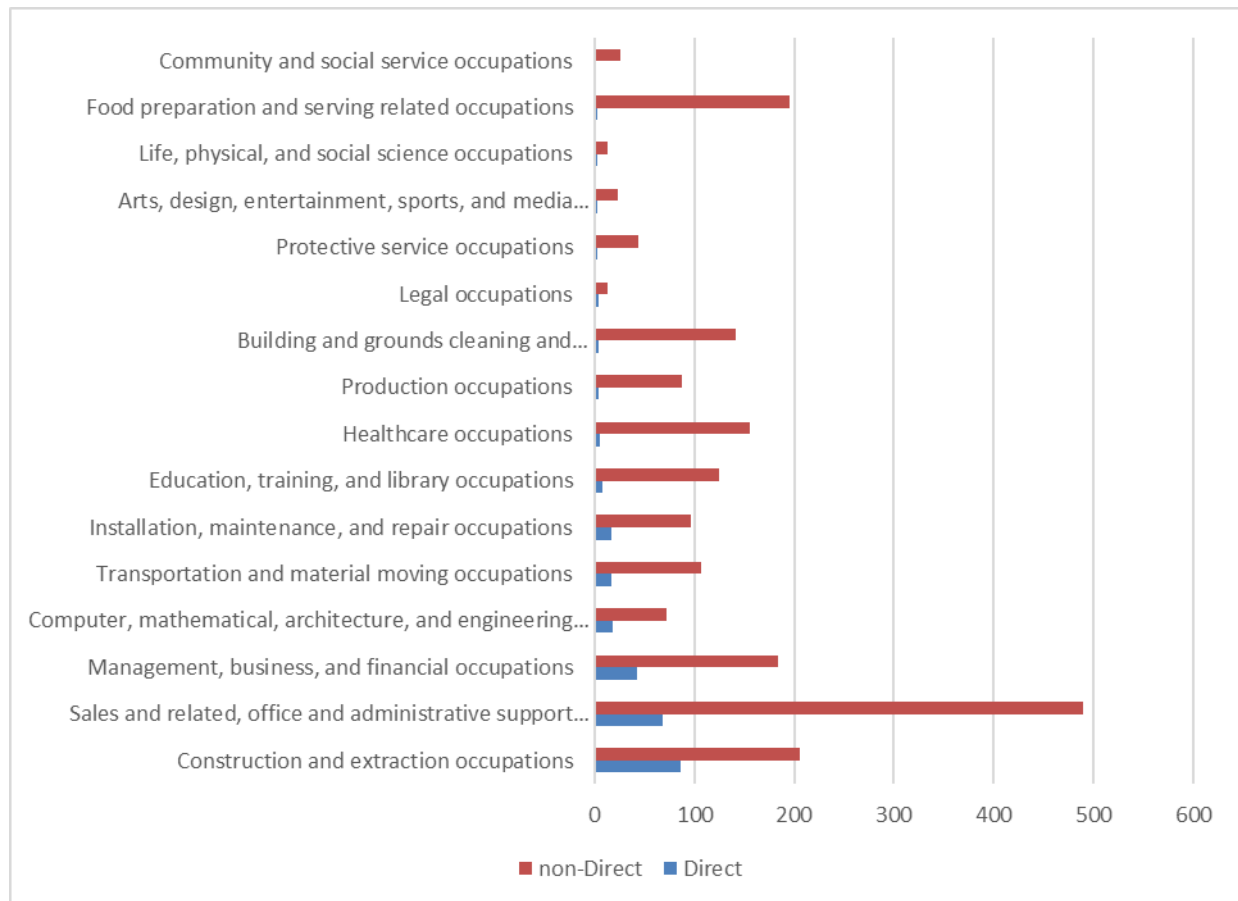
Table ES-3 and Figure ES-8 illustrate this through high-level results expressed as average annual job changes for the three CCA scenarios. While Scenarios 1 and 2 create nearly identical direct jobs (due to comparable investment in local renewable projects), Scenario 1 creates far more TOTAL jobs. This is due to the higher bill savings under Scenario 1. Scenario 3 creates a few more direct jobs, but far fewer total jobs, due to decreased bill savings as compared to the other two scenarios. As a result, its total job impact is 55 percent of the Scenario 1 total job impact.

⁷ Stress Scenario assumes the risk cases no favorable to the CCA: High Renewable Prices, High PCIA, High Natural Gas Prices, and Low PG&E rates.

Figure ES-8. Alameda County Total Job Impacts by Scenario**Table ES-3. Average Annual Jobs created in Alameda County by the CCA – Direct and Total Impacts**

CCA Scenario	2017 – to – 2030		County Impacts	
	Local Capture on RE investments (billion\$)	Bill Savings (billion\$)	Average Annual <u>DIRECT</u> Jobs	Average Annual <u>TOTAL</u> Jobs
1	\$0.42	\$1.57	165	1,322
2	\$0.42	\$1.51	166	1,286
3	\$0.45	\$0.52	174	731

The economic activity generated by the CCA results in incremental employment in a variety of sectors. Figure ES-9 shows the job impacts (direct and indirect) by category for Scenario 1 in the year 2023 (the year of maximum impact). It may be surprising that the non-direct stage of economic stimulation for the county creates a more pronounced set of occupational opportunities due to the magnitude of net rate savings benefitting all customer segments within the county.

Figure ES-9. Occupational Impacts Scenario 1, 2023

Energy Efficiency

The three cases each assumed approximately 6 GWh of annual incremental energy efficiency savings directly attributable to CCA efficiency program administration. This value is based on forecasts from the California Energy Commission, and take into account the savings being achieved/allocated to PG&E as well as the mandates from Senate Bill 350.

A CCA has a number of options with respect to administering energy efficiency programs. First, it can rely upon PG&E to continue to all energy efficiency activities in its area, with some input to insure that monies collected from CCA customers flow back to the area. This is the path that two of the four active California CCAs have chosen (Sonoma Clean Power and Lancaster Choice Energy). Second, the CCA can apply to the CPUC to use monies collected in PG&E rates for energy efficiency programs and administration. These CCA efficiency programs can be for CCA customers only or for all customers in the CCA region, no matter their power provider. If the CCA chose the latter path, greater funds are available (including for natural gas efficiency programs). MCE Clean Energy has chosen this latter path. Our modeling assumed the more conservative former one (i.e., offer efficiency programs to only CCA-served residents and businesses). Third, the CCA supplement or supplant these funds through revenues collected by the CCA.

Conclusions

Overall, a CCA in Alameda County appears favorable. Given current and expected market and regulatory conditions, an Alameda County CCA should be able to offer its residents and business electric rates that are a cent or more per kilowatt-hour (~8%) less than that available from PG&E.

Sensitivity analyses suggest that these results are relatively robust. Only when very high amounts of renewable energy are assumed in the CCA portfolio (Scenario 3), combined with other negative factors, do PG&E's rates become consistently more favorable than the CCAs.

An Alameda CCA would also be well positioned to help facilitate greater amounts renewable generation to be installed in the County. While the study assumed a relatively modest amount for its analysis—about 175 MW, other studies suggest that greater amounts are possible. Because the CCA would have a much greater interest in developing local solar than PG&E, it is much more likely that such development would actually occur with a CCA in the County than without it.

The CCA can also reduce the amount greenhouse gases emitted by the County, but only under certain circumstances. Because PG&E's supply portfolio has significant carbon-free generation (large hydroelectric and nuclear generators), the CCA must contract for significant amounts of carbon-free power above and beyond the required qualifying renewables in order to actually reduce the county's electric carbon footprint. For example, even assuming that the CCA implements a portfolio with 50% qualifying renewables and meets the 50% of the remaining power with carbon-free hydropower, it would only then just barely result in net carbon reductions. However, the extent to which GHG emissions reductions could occur is also a function of the amount of hydroelectric power that PG&E is able to use. If hydro output (continues) to be below historic normal levels, then the CCA should be able to achieve GHG savings, as long as it is also contracting for significant amounts of carbon-free (likely hydroelectric) power. Therefore, if carbon reductions are a high priority for the CCA, a concerted effort to contract with hydroelectric or other carbon-free generators would be needed.

A CCA can also offer positive economic development and employment benefits to the County. At the peak, the CCA would create approximately 2300 new jobs in the region. The large amount for be for construction trades, totaling 440 jobs. What may be surprising is that much for the jobs and economic benefit come from reduced rates. Residents, and more importantly businesses, can spend and reinvest their bill savings, and thus generate greater economic impacts.

Chapter 1: Introduction

The Alameda County Board of Supervisors voted unanimously in June, 2014 to allocate funding to explore the creation of a Community Choice Aggregation (CCA) Program and directed County staff to undertake the steps necessary to evaluate the feasibility of a CCA. This Technical Study is in response to that Board Action.

What is a CCA?

California Assembly Bill 117, passed in 2002, established Community Choice Aggregation in California, for the purpose of providing the opportunity for local governments or special jurisdictions to procure or provide electric power for their residents and businesses.

Under existing rules administered by the California Public Utilities Commission PG&E must use its transmission and distribution system to deliver the electricity supplied by a CCA in a non-discriminatory manner. That is, it must provide these delivery services at the same price and at the same level of reliability to customers taking their power from a CCA as it does for its own full-service customers. By state law, PG&E also must provide all metering and billing services, its customers receiving a single electric bill each month from PG&E, which would differentiate the charges for generation services provided by the CCA as well as charges for PG&E delivery services. Money collected by PG&E on behalf of the CCA is remitted in a timely fashion (e.g., within 3 business days).

As a power provider, the CCA must abide by the rules and regulations placed on it by the state and its regulating agencies, such as maintaining demonstrably reliable supplies and fully cooperating with the State's power grid operator. However, the State has no rate-setting authority over the CCA; the CCA may set rates as it sees fit so as to best serve its constituent customers.

Per California law, when a CCA is formed all of the electric customers within its boundaries will be placed, by default, onto CCA service. However, customers retain the right to return to PG&E service at will, subject to whatever administrative fees the CCA may choose to impose.

California currently has four active CCA Programs: MCE Clean Energy, serving Marin County and selected neighboring jurisdictions; Sonoma Clean Power, serving Sonoma County, CleanPowerSF, serving San Francisco City and County, and Lancaster Choice Energy, serving the City of Lancaster (Los Angeles County). Numerous other local governments are also investigating CCA formation, including Los Angeles County, San Mateo County, Monterey Bay region, Santa Barbara, San Luis Obispo and Ventura Counties; and Lake County to name but a few.

Assessing CCA Feasibility

In order to assess whether a CCA is “feasible” in Alameda County, the local objectives must be laid out and understood. Based on the specifications of the initial request for proposals and input from the County, this study:

- Quantifies the electric loads that an Alameda County CCA would have to serve.
- Estimates the costs to start-up and operate the CCA.

- Considers three scenarios with differing assumptions concerning the amount of carbon-free power being supplied to the CCA so as to assess the costs and greenhouse gas emissions reductions possible with the CCA.
- Includes analysis of in-county renewable generation.
- Compares the rates that could be offered by the CCA to PG&E's rates.
- Quantitatively explores the rate competitiveness of the three scenarios to key input variables, such as the cost of natural gas.
- Explores what activities a CCA might take with respect to administering customer-side, energy efficiency programs
- Calculates the macroeconomic development and employment benefits of CCA formation.

This study was conducted by MRW & Associates, LLC. MRW was assisted by Tierra Resource Consultants, who conducted all the research and analysis related to energy efficiency. MRW was also assisted by Economic Development Research Group, which conducted all of the macroeconomic and jobs analysis contained in the study.

This Study is based on the best information available at the time of its preparation, using publicly available sources for all assumptions to provide an objective assessment regarding the prospects of CCA operation in the County. It is important to keep in mind that the findings and recommendations reflected herein are substantially influenced by current market conditions within the electric utility industry, which are subject to sudden and significant changes.

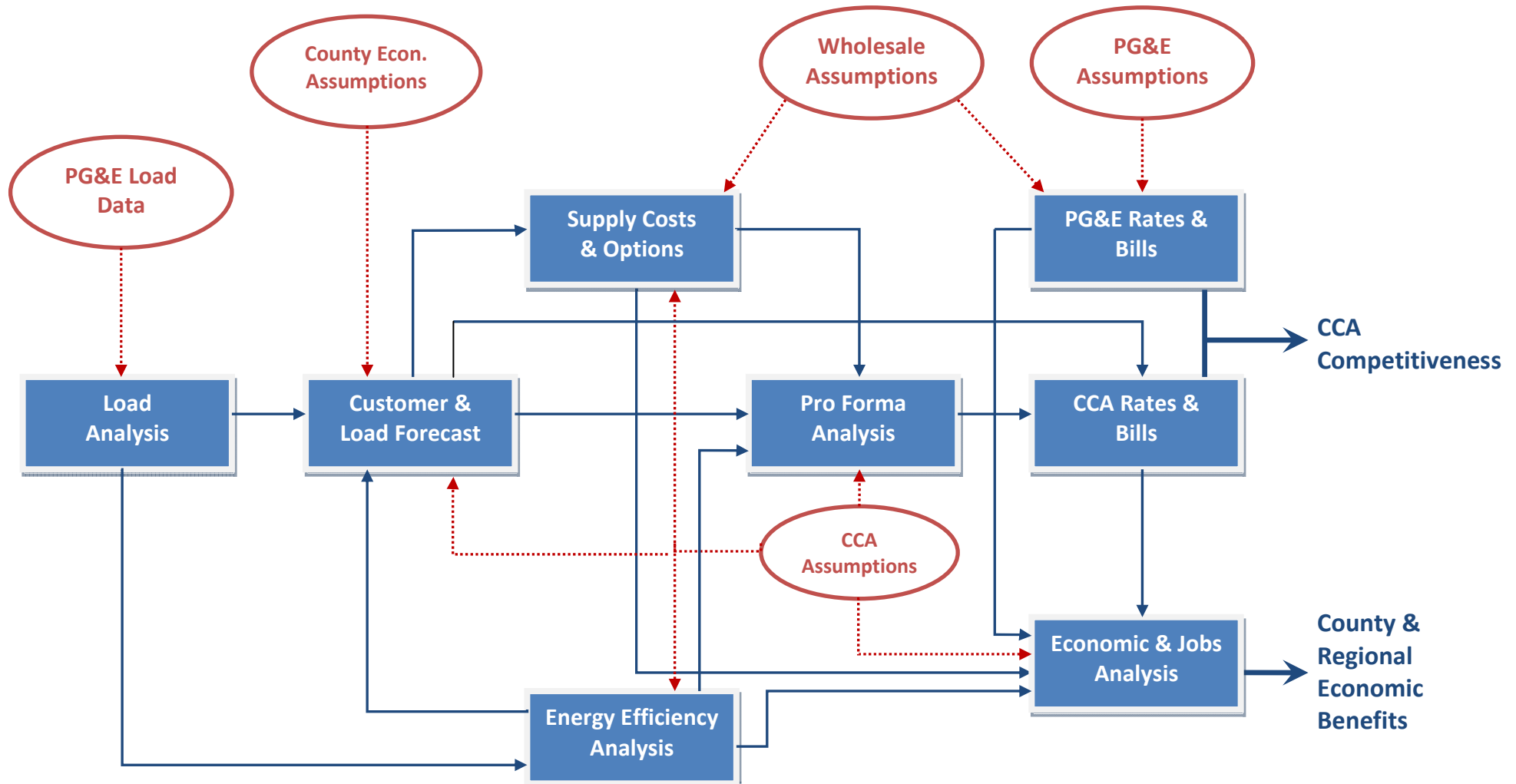
Chapter 2: Economic Study Methodology and Key Inputs

The section summarizes the key inputs and methodologies used to evaluate the cost-effectiveness and cost-competitiveness of the CCA under different scenarios. It considers the requirements that an Alameda County CCA would need to meet, the resources that the County has available or could obtain to meet these requirements, and the PG&E rates that the CCA would be competing against. It also describes the pro forma analysis methodology that is used to evaluate the financial feasibility of the CCA.

Understanding the interrelationships of all the tasks and using consistent and coherent assumptions throughout are critical to delivering a quality work product. Figure 1 shows the analysis elements (blue boxes) and major assumptions (red ovals) and how they relate to each other. As the figure illustrates, there are numerous integrations between the tasks. For example, the load forecast is a function of not only the load analysis, but also of projections of economic activity in the county and outcome of the energy efficiency analysis.

Two important points are highlighted in this figure. First, it is critical that wholesale power market and prices assumptions are consistent between the CCA and PG&E. While there are reasons that one might have lower or higher costs than the other for a particular product (e.g., CCAs can use tax-free debt to finance generation projects while PG&E cannot), both will participate in the wider Western US gas and power markets and therefore will be subject to the same underlying market forces. To apply power cost assumptions to the CCA than to PG&E, such as simply escalating PG&E rates while deriving the CCA rates using a bottom-up approach, will result in erroneous results. Second, virtually all elements of the analysis feed into the economic and jobs assessment. As is described in detail in Chapter 5, the Study here uses a state-of-the-art macroeconomic model that can account for numerous activities in the economy, which allows for a much more comprehensive—and accurate—assessment than a simple input-output model.

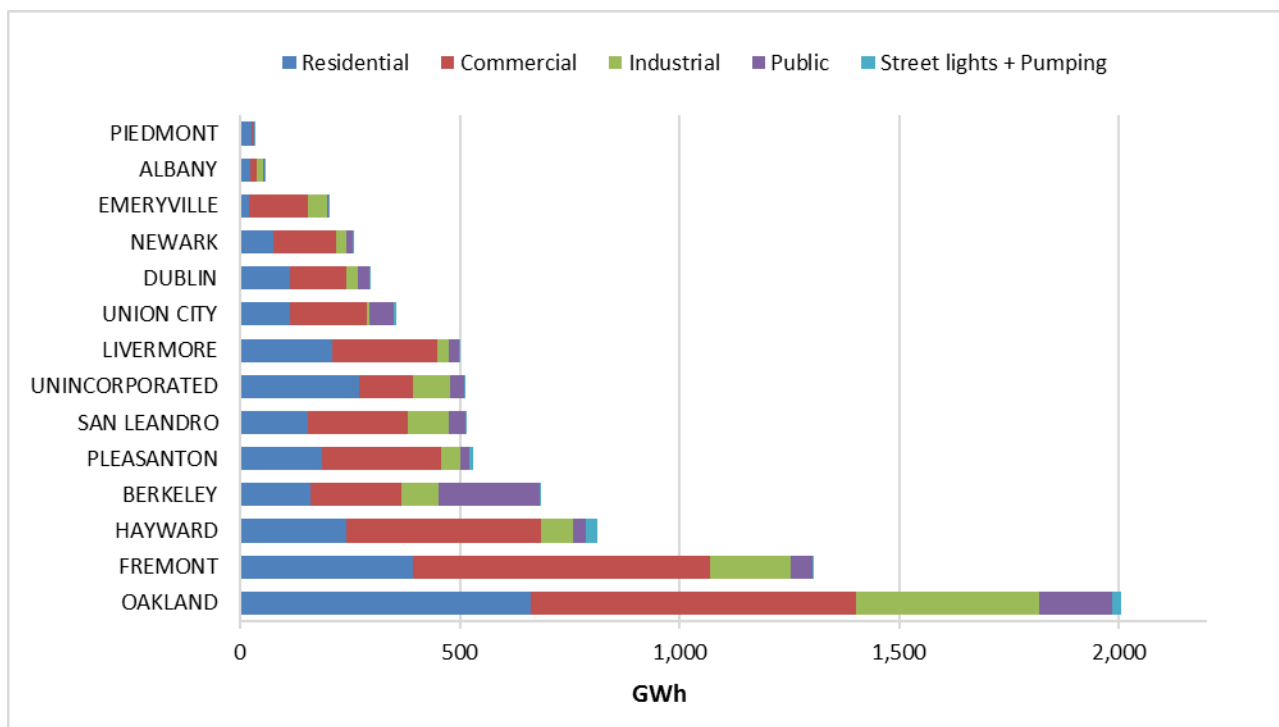
Figure 1. Task Map



Alameda County Loads and CCA Load Forecasts

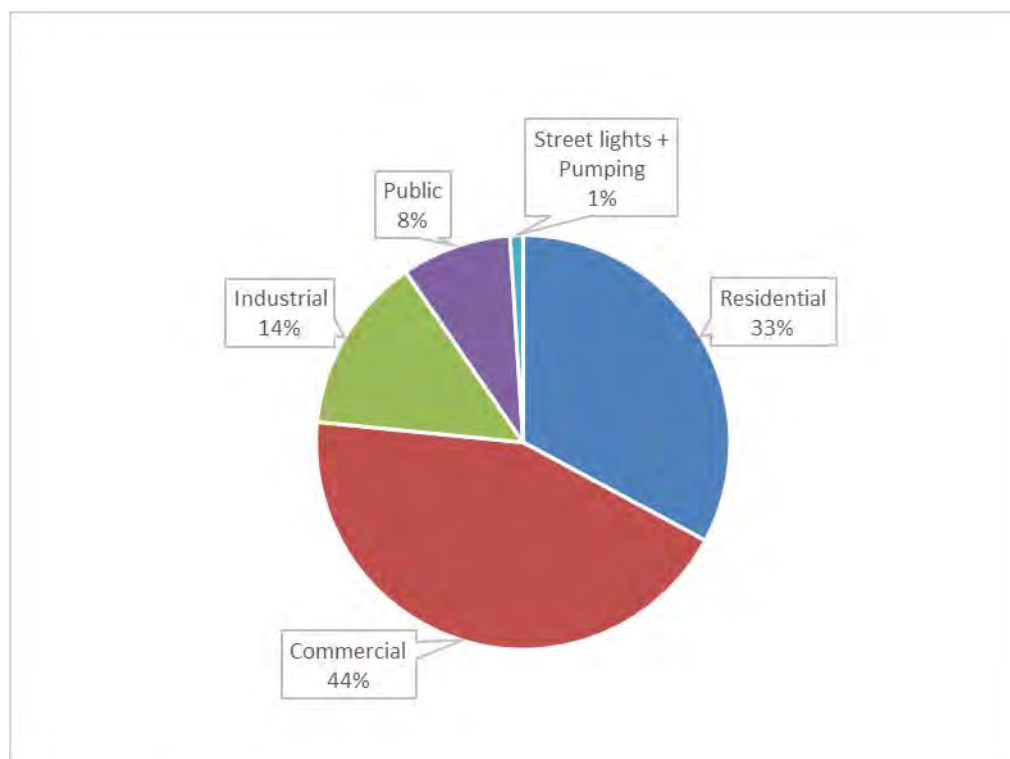
MRW used PG&E bills from 2014 for all PG&E bundled service customers within the Alameda County region as the starting point for developing electrical load and peak demand forecasts for the Alameda CCA program.⁸ Figure 2 provides a snapshot of Alameda County load in 2014 by city and by rate class. PG&E's total electricity load in 2014 from Alameda County bundled customers was approximately 8,000 GWh.⁹ The cities of Oakland, Fremont, and Hayward were together responsible for half the county load, with Berkeley, San Leandro, and Pleasanton also contributing substantially. Residential and commercial customers made up the majority of the county load, with smaller contributions from the industrial and public sectors (Figure 3). This same sector-level distribution of load is also apparent at the jurisdictional level for most cities, with the exception of the city of Berkeley. The city of Berkeley's load has a significant public-sector footprint due to the presence of the University of California, Berkeley.

Figure 2. PG&E's 2014 Bundled Load in Alameda County by Jurisdiction and Rate Class



⁸ Detailed monthly usage data provided by PG&E to Alameda County.

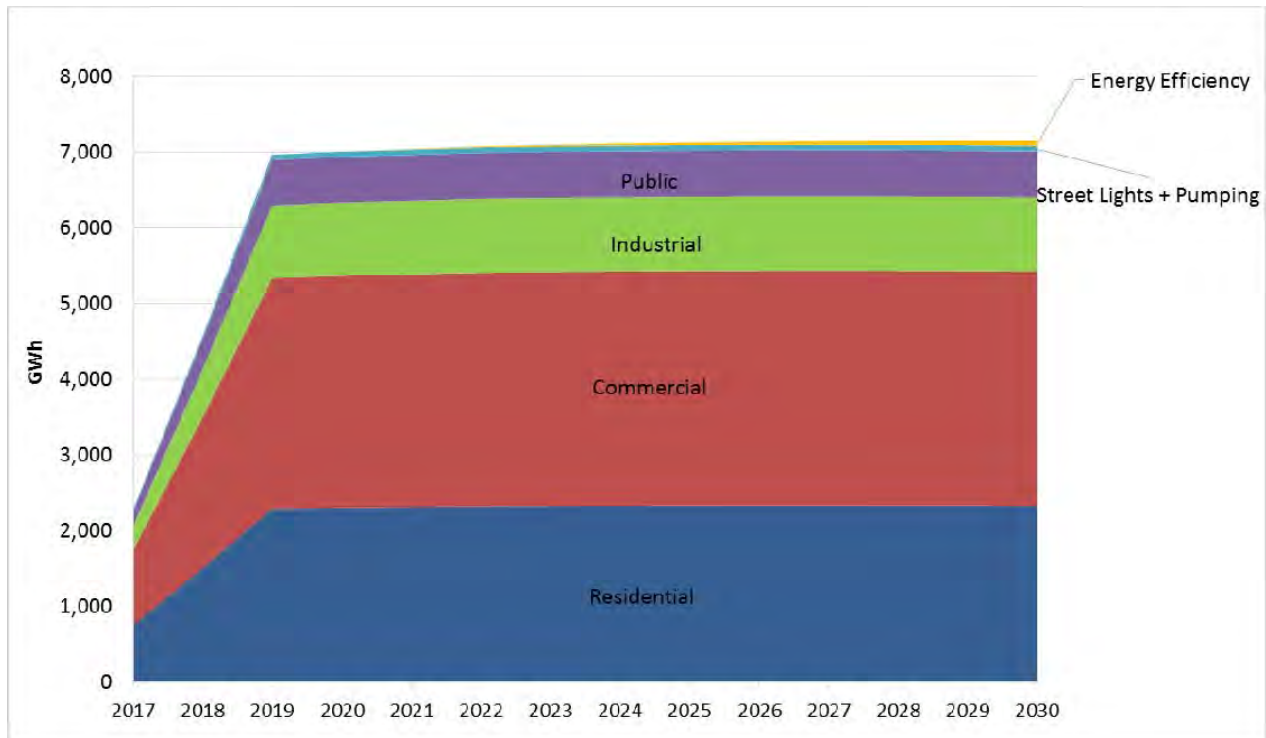
⁹ As determined from bill data provided by PG&E. "Bundled" load includes only load for which PG&E supplies the power; it excludes load from Direct Access customers and load met by customer self-generation.

Figure 3. PG&E's 2014 Bundled Load in Alameda County by Rate Class

To estimate CCA loads from PG&E's 2014 bundled loads, MRW assumed a CCA participation rate of 85% (*i.e.*, 15% of customers opt to stay with PG&E) and a three-year phase in period from 2017 to 2019, with 33% of potential CCA load included in the CCA in 2017, 67% in 2018, and 100% in 2019. To forecast CCA loads through 2030, MRW used a 0.3% annual average growth rate, consistent with the California Energy Commission's most recent electricity demand forecast for PG&E's planning area.¹⁰ This growth rate incorporates load reductions from energy efficiency of about 6 GWh per year from 2021 through 2030.

The CCA load forecast is summarized in Figure 4, which shows annual projected CCA loads by class, with the energy efficiency savings that are included in the forecast indicated by the top (yellow) segment.

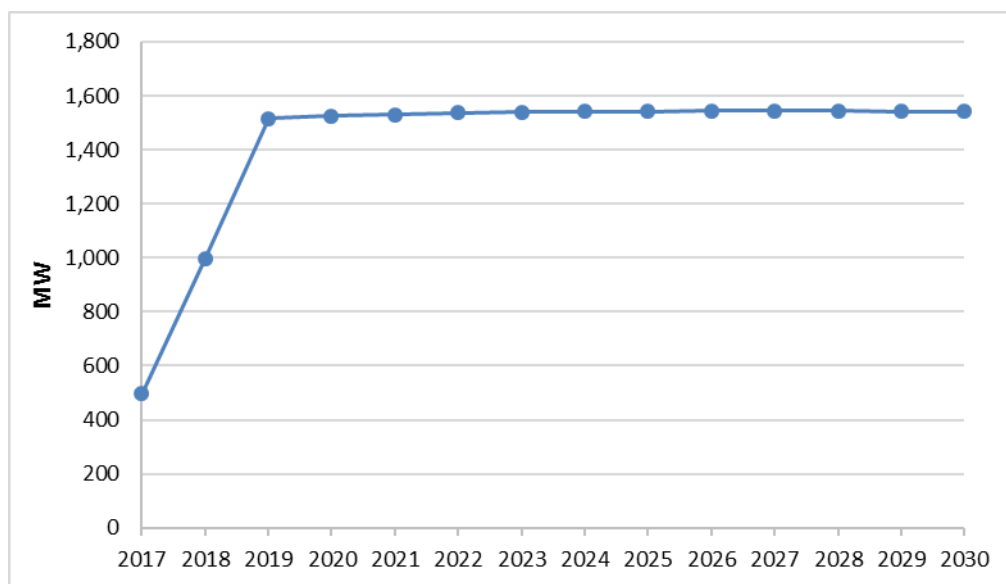
¹⁰ California Energy Commission. Form 1.1c California Energy Demand Updated Forecast, 2015 - 2025, Mid Demand Baseline Case, Mid AAEE Savings. January 20, 2015
http://www.energy.ca.gov/2014_energy_policy/documents/demand_forecast_cmf/LSE_and_BA/

Figure 4: CCA Load Forecast by Class, 2017-2030¹¹

To estimate the CCA's peak demand in 2014, MRW multiplied the load forecast for each customer class by the PG&E's 2014 hourly ratio of peak demand to load for that customer class.¹² MRW extended the peak demand forecast to 2030 using the same growth rates used for the load forecast. (Peak demand is the maximum amount of power the CCA would use at any time during the year. It is measured in megawatts (MW). It is important because a CCA must have enough power plants on (or contracted with) at all times to meet the peak demand.) This forecast is summarized in Figure 5.

¹¹ Load forecasted assumes 85% participation.

¹² Data obtained from PG&E's dynamic load profiles for Public, Industrial, Commercial and Residential customers (https://www.pge.com/nots/rates/tariffs/energy_use_prices.shtml) and static load profiles for Pumping and Streetlight customers (https://www.pge.com/nots/rates/2016_static.shtml#topic2).

Figure 6. CCA Peak Demand Forecast, 2017-2030

Energy Efficiency

The assessment of energy efficiency potential in Alameda County completed for this feasibility study used outputs from the 2013¹³ and 2015¹⁴ *Energy Efficiency Potential and Goals* studies developed by the CPUC. These CPUC studies define the technical and economic potential for energy efficiency in PG&E's service territory. They also determine the market potential used to set goals and budgets for PG&E's energy efficiency programs.¹⁵ Because of its size, varied economy, diverse demographics, and range of climates, it is likely that both energy use characteristics and the potential for energy efficiency in Alameda County is consistent with the potential for energy efficiency in PG&E's overall service territory, with some exceptions, such as a reduced presence of agricultural and oil extraction loads found elsewhere in the state. Based on these consistencies, this analysis concludes that the energy efficiency potential for electricity in PG&E's overall service territory as presented in the CPUC studies can be allocated to Alameda County in proportion to overall electricity sales, which average approximately 7.5% of total annual PG&E electricity sales.

Using this approach to interpreting the output from CPUC potential studies, Table 1 provides a range of estimates of technical and economic potential in Alameda County for a forecast horizon from the 2017 to 2024. This provides a general indication of the total amount of energy efficiency potential that exists in Alameda County that PG&E and any CCA administered programs would be serving.

¹³ 2013 California Energy Efficiency Potential and Goals Study, Final Report. Prepared for the California Public Utilities Commission by Navigant Consulting, Inc. February 14, 2014

¹⁴ Energy Efficiency Potential and Goals Study for 2015 and Beyond, Stage 1 Final Report. Prepared for the California Public Utilities Commission by Navigant Consulting, Inc. Reference No.: 174655, September 25, 2015

¹⁵ See Appendix A for a discussion of technical, economic, and market potential.

Table 1. Alameda County Average Technical and Economic Energy Efficiency Potential

Metric	Technical Potential		Economic Potential	
Range (% of sales)	21%	16%	18%	15%
Potential (GWh)	1,623	1,237	1,391	1,159

Table 2 provides a forecast of the market potential for energy efficiency based on a similar analysis market forecasts from the CPUC potential studies. The row labeled “PG&E Goals” represents Alameda County’s share of the market potential forecast which formed the basis for PG&E’s 2015 energy efficiency program portfolio savings targets.¹⁶ That is, because Alameda is in PG&E’s service area, it provides, and will continue to provide, energy efficiency programs to Alameda county residents and businesses. This row shows this amount. The row labeled “High Savings Scenario” represents the energy efficiency savings attributable to Alameda County in the CPUC potential study’s high savings scenario.¹⁷ The row labelled ”Incremental Potential” is the difference between PG&E’s 2015 portfolio goals for Alameda County and the high savings scenario for the County. This row represents the total market potential that could be served by CCA administered programs. The forecast presented in Table 2

Table 2. Alameda County Incremental Energy Efficiency Market Potential (GWh)¹⁸

Year	2017	2018	2019	2020	2021	2022	2023	2024
Alameda Component of PG&E Goals	25.9	35.8	24.6	29.4	41.1	48.2	50.0	25.9
Alameda of High Savings Scenario	44.2	59.8	56.6	65.6	71.7	84.2	88.4	44.2
Incremental Potential	18.3	24.0	32.0	36.3	30.6	36.0	38.4	18.3

While there are countless opportunities and approaches to achieve energy efficiency, several examples of technologies and programs that will yield savings above what is being targeted through the current portfolio of PG&E programs operating in Alameda County are listed below. This includes initiatives that might compliment and leverage existing technologies or programs, or highlight emerging opportunities that are in design or early deployment.

- High efficiency LED lighting initiatives targeting high lumen per watt technologies.

¹⁶ Net GWh, as defined by the CEC Mid Additional Achievable Energy Efficiency (AAEE) forecast

¹⁷ Referred to as the High AAEE Potential Scenario

¹⁸ Savings values do not include energy efficiency potential associated with building codes, appliance standards, or estimates for the agricultural or mining market sectors.

- Advanced controls for lighting and platforms that integrate advanced building information & energy management systems.
- Increased use of over 50 market ready funding and financing products that can be used to implement sustainability projects in all market sectors.
- High Opportunity Programs and Projects (HOPPs) being submitted in response to AB802, such as the Residential Pay-for-Performance HOPP being proposed by PG&E may provide an opportunity to drive higher participation Property Assessed Clean Energy (PACE) programs currently operating throughout Alameda.

CCA Supplies

The CCA's primary function is to procure supplies to meet the electrical loads of its customers. This requires balancing energy supply and demand on an hourly basis. It also requires procuring generating capacity (i.e. the ability to provide energy when needed) to ensure that customer loads can be met reliably.¹⁹ In addition to simply meeting the energy and capacity needs of its customers, the CCA must meet other procurement objectives. By law, the CCA must supply a certain portion of its sales to customers from eligible renewable resources. This Renewable Portfolio Standard (RPS), requires 33% renewable energy supply by 2020, increasing to 50% by 2030. The CCA may choose to source a greater share of its supply from renewable sources than the minimum requirements, or may seek to otherwise reduce the environmental impact of its supply portfolio. The CCA may also use its procurement function to meet other objectives, such as sourcing a portion of its supply from local projects to promote economic development in the county.

The Alameda CCA would be taking over these procurement responsibilities from PG&E for those customers who do not opt out of the CCA to remain bundled customers of PG&E. To retain customers, the CCA's offerings and rates must compete favorably with those of PG&E.

The CCA's specific procurement objectives, and its strategy for meeting those objectives, will be determined by the CCA through an implementation plan, startup activities and ongoing management of the CCA. The purpose of this study is to assess the feasibility of establishing a CCA to serve Alameda County based on a forecast of costs and benefits. This forecast requires making certain assumptions about how the CCA will operate and the objectives it will pursue. To address the uncertainty associated with these assumptions, we have evaluated three different supply scenarios and have generally made conservative assumptions about the ways in which the CCA would meet the objectives discussed above. In no way does this study prescribe actions to be taken by the CCA should one be established.

The three supply scenarios that we considered are:

¹⁹ The California Public Utilities Commission (CPUC) requires that load serving entities like CCAs demonstrate that they have procured resource adequacy capacity to meet at least 115% of their expected peak load. Since Alameda falls within the Greater Bay Area Local Reliability Area, it must also meet its share of local resource adequacy requirements.

1. **Minimum RPS Compliance:** The CCA meets the state-mandated 33% RPS requirement in 2020 and the 50% RPS requirement in 2030;
2. **More Aggressive:** The CCA's supply portfolio is set at 50% RPS from the first year onward, plus additional amounts of non-RPS compliant large hydro power to reduce GHG emissions;
3. **Ultra-Low GHG:** The CCA's supply portfolio is set at 50% RPS in the first year and increases to 80% RPS by the fifth year.

To evaluate these scenarios we assumed a simple portfolio consisting of RPS-eligible resources in an amount dictated by the particular scenario, with the balance of supply provided by non-renewable wholesale market purchases. In each case, we assumed that the RPS portfolio was predominately supplied with solar and wind resources, which are currently the low-cost sources of renewable energy. We assumed that solar and wind each contribute 45% of the renewable energy supply on an annual basis. To provide resource diversity and partly address the need for supply at times when solar and wind production are low, we assumed the remaining 10% of renewable supply would be provided by higher-cost baseload resources, such as geothermal or biomass.

As mentioned above, the CCA may choose to source a portion of its supply from local resources. Alameda County has significant potential for both wind and solar production. The wind resource is located in the Altamont Pass and largely consists of repowering existing turbines with a smaller number of much larger turbines. Costs are generally competitive with other California wind areas, however, the ability to develop projects is constrained by environmental impacts, primarily avian mortality in the Altamont Pass. A Programmatic Environmental Impact Report (PEIR) for the Alameda County portion of the Altamont Pass repowering would allow development of up to 450 MW. Since this amount of capacity may be developed regardless of whether the CCA is formed, and CCA local procurement wouldn't necessarily increase the amount of wind developed in the Altamont Pass, we have made the conservative assumption that the wind portfolio would effectively be from projects located outside of Alameda County. Thus, for the purpose of this study, we assumed that all of the local procurement by the CCA would be from solar energy, including a mix of smaller and larger projects.²⁰

Figure 7 through Figure 9 show the assumed build-out of new resources under each of the three scenarios outlined above.

²⁰ Note that customer-owned generation, such as rooftop photovoltaic panels, is reflected in the load forecast rather than considered part of the supply portfolio. (I.e., the load forecast is what the CCA must serve, not the gross consumption at the home prior to factoring in customer-side PV.)

Figure 7. Senario 1 CCA Build-Out

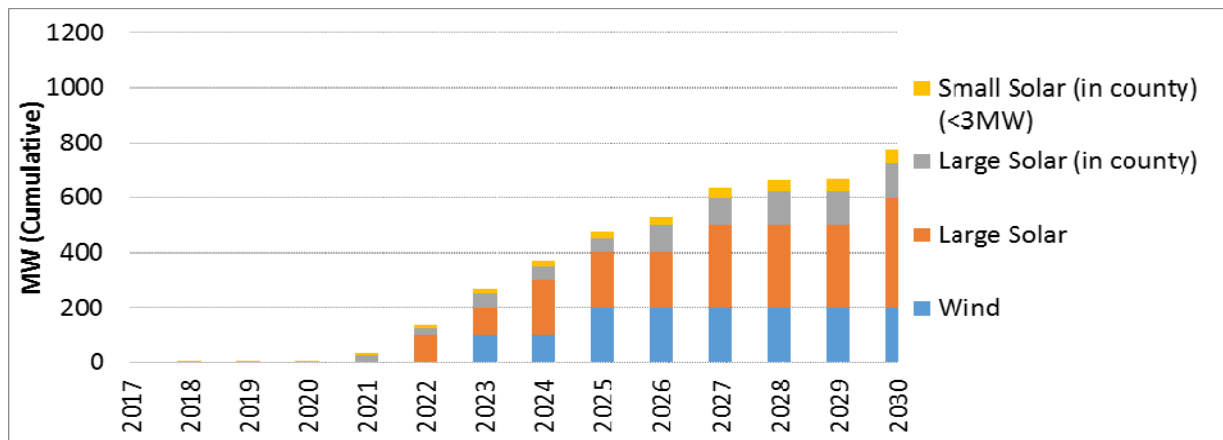


Figure 8. Scenario 2 CCA Build-Out

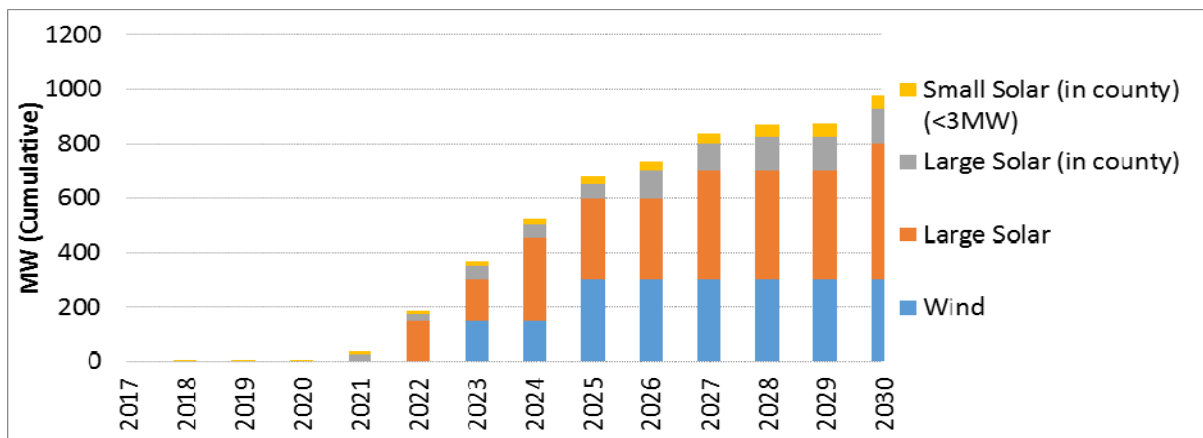
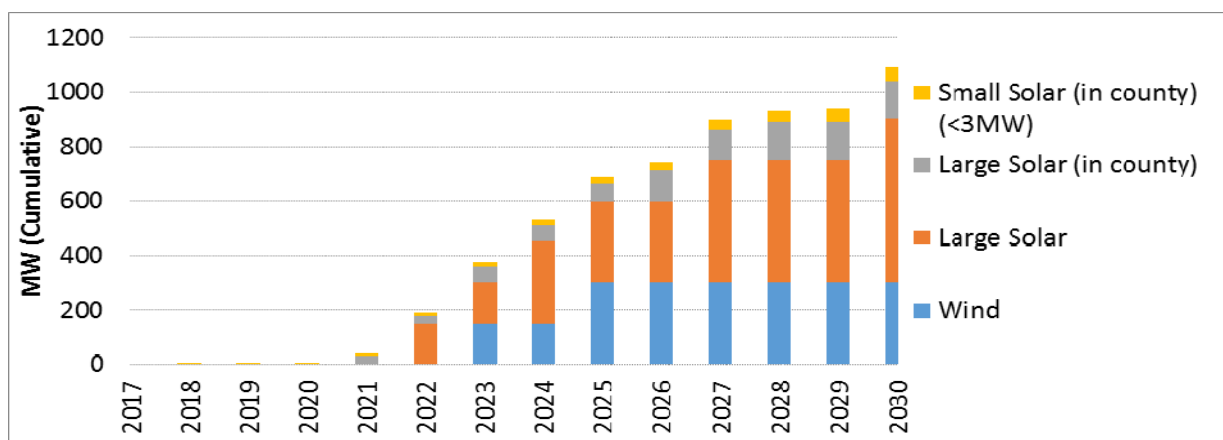


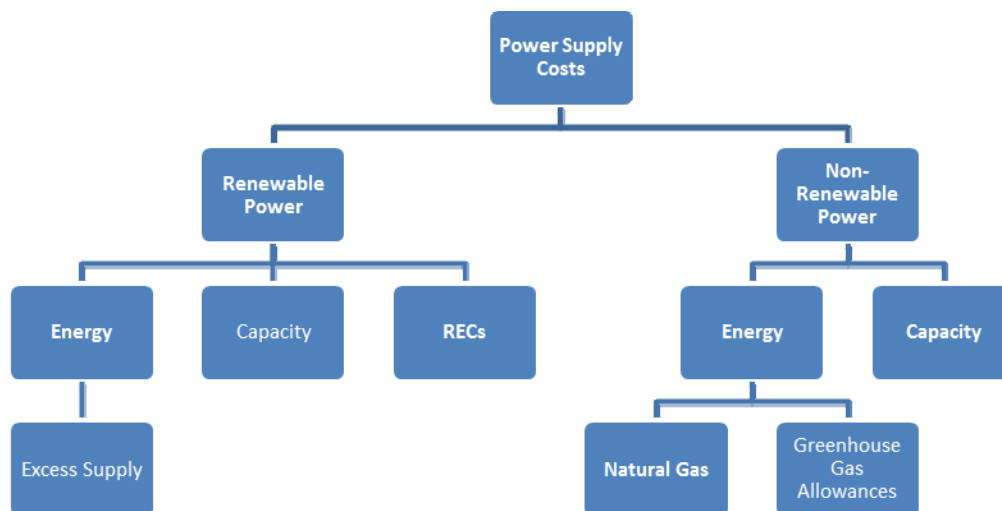
Figure 9. Scenario 3 CCA Build-Out



Power Supply Cost Assumptions

As discussed above, the CCA would procure a portfolio of resources to meet its customers' needs, which would consist of a mix of renewable and non-renewable (i.e., wholesale market) resources. As shown in Figure 10, the products to be purchased by the CCA consist generally of energy, capacity and renewable attributes (which for counting purposes take the form of renewable energy credits, or RECs).²¹

Figure 10. Power Supply Cost Elements



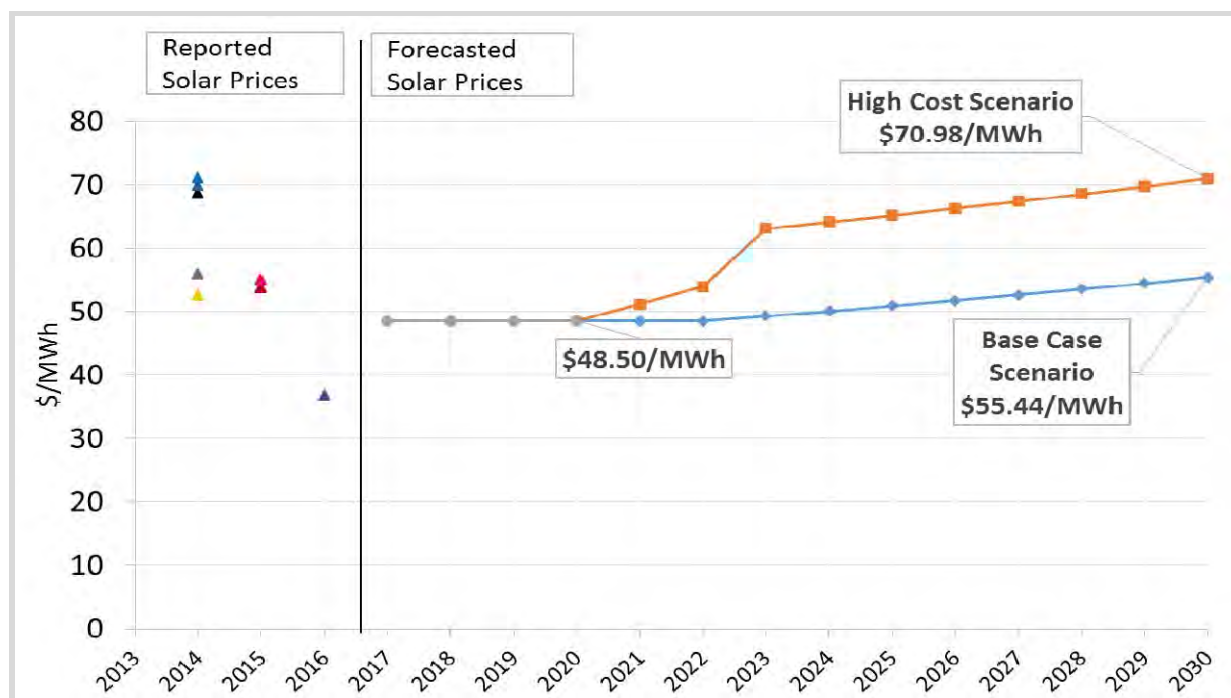
The CCA will be procuring supplies from the same competitive market for resources as PG&E. As a result, we assume that the costs for renewable and non-renewable energy and for resource adequacy capacity are the same for the CCA as for new purchases made by PG&E (as used in our forecast of PG&E rates discussed below). Wholesale market prices for electricity in California are largely driven by the cost of operating natural gas fueled power plants, since these plants typically have the highest operating costs and are the marginal units. As a result, market prices are a function of the efficiency of the marginal generators, the price of natural gas and the cost of GHG allowances. MRW developed forecasts of these elements to derive a power price forecast for use in determining costs for the CCA and PG&E. Capacity prices are based on prices for resource adequacy contracts reported by the CPUC.

MRW developed a forecast of renewable generation prices starting from an assessment of the current market price for renewable power. For the current market price, MRW relied on wind and solar contract prices reported by California municipal utilities and CCAs in 2015 and early 2016, finding an average price of \$49/MWh for the solar contracts, \$55/MWh for windpower

²¹ RECs are typically bundled with energy deliveries from renewable energy projects, with each REC representing 1 MWh of renewable energy. A limited number of unbundled RECs may be used to meet RPS requirements. For the purpose of this study we have not considered unbundled RECs and have rather estimated costs based on renewable energy contracts where the RECs are bundled.

and \$80/MWh for geothermal.²² We used these prices as the starting point for our forecast of CCA renewable energy procurement costs. For geothermal, which is a relatively mature technology, we assumed that new contract prices would simply escalate with inflation. Solar and wind prices are a function of technology costs, which have generally been declining over time; financing costs, which have been very low in recent years; and tax incentives, which significantly reduce project costs, but phase out over time. In the near-term we would not expect prices to increase as technology costs and continued tax incentives provide downward pressure and likely offset any increase in financing costs or other competitive pressure from an increasing demand for renewable energy in California. Thus we have held solar and wind prices constant in nominal dollars through 2020. Beyond 2020, with increasing competitive pressure associated with the drive to a 50% RPS and the anticipated phase-out of federal tax incentives (offset in part by continued declining technology costs), we would expect prices to increase somewhat and have assumed they escalate at the rate of inflation. In addition to this base case price outlook, we also consider a high solar cost scenario based on work performed by Lawrence Berkeley Laboratory on the value of tax incentives. In the high scenario we assume that costs increase with the phase-out of federal tax incentives, without being offset by declining technology costs. Figure 11 shows the resulting solar price forecasts for the two scenarios.

Figure 11. Solar Price Forecast



²² MRW relied exclusively on prices from municipal utilities and CCAs because investor-owned utility contract prices from this period are not yet public. We included all reported wind and solar power purchase agreements, excluding local builds (which generally come at a price premium), as reported in *California Energy Markets*, an independent news service from Energy Newsdata, from January 2015-January 2016 (see issues dated July 31, August 14, October 16, October 30, 2015, and January 15, 2016).

Locally-Sited and Developed Renewables

As discussed above, the CCA may choose to contract with or develop renewable projects in the local area to promote economic development or other benefits. For the purpose of this study, we assume that incremental local development resulting from the CCA would be largely solar. Since the solar resource in Alameda County is not as strong as in the desert and inland areas where new utility-scale projects are typically developed (and upon which the above solar price forecast was developed), solar generation costs in Alameda County are expected to be somewhat higher than our price forecast. Based on renewable energy supply curves developed for the CPUC, we assume a 15% premium for projects located in Alameda County.²³

Given the limited open space for very large solar projects in the County, we expect a portion of the local projects included in a hypothetical CCA portfolio to be smaller in size (e.g., < 3 MW). Smaller solar projects tend to have higher generation costs since they don't have the same economies of scale as the larger projects upon which our estimates of market prices are based. We have assumed a 55% generation cost premium for smaller projects, based on the same supply curve study referenced above. Future price changes and economies of scale might lower this value.

In developing the hypothetical portfolios depicted in Figure 7 through Figure 9, we made conservative assumptions about how much local solar development may occur as a result of the CCA. The supply curve study performed for the CPUC estimated roughly 300 MW of solar supply in Alameda County, based on an assessment that five percent of the estimated 6,000 MW of technical potential could be developed, largely as a result of land use conflicts or slope issues that would make solar development infeasible in certain areas. We assume that over the forecast period through 2030, about 1/3 of the estimated 300 MW large solar supply potential in Alameda County is developed as a result of commitments by the CCA.

A discussion of the impacts and implications of greater local renewables can be found in Chapter 7.

Other CCA Supply Costs

The CCA is expected to incur additional costs associated with its procurement function. For example, if the CCA relies on a third-party energy marketing company to manage its portfolio it will likely incur broker fees or other expenses equal to roughly 5% of the forecasted contract costs. The CCA would also incur costs charged by the California Independent System Operator (CAISO) for ancillary services (activities required to ensure reliability) and other expenses. MRW added 5.5% to the CCA's power supply cost to cover these CAISO costs. Finally, we added an expense associated with managing the CCA's renewable supply portfolio. Based on an analysis of the expected CCA load shape and the typical generation profile of California solar and wind resources, we observed that there will be hours in which the expected deliveries from renewable contracts will be greater than the CCAs load in that hour. This results from the amount of renewable capacity that must be contracted to meet annual RPS targets and the variability in renewable generation that leads to higher deliveries in some hours and lower

²³ CPUC RPS calculator (RETI 2.0)

deliveries in other hours. When high renewable energy deliveries coincide with low loads, the CCA will need to sell the excess, likely at a loss, or curtail deliveries, and potentially have to make up those renewable energy purchases during higher load hours to comply with the RPS. The result is that the procurement costs will be somewhat higher than simply contracting with sufficient capacity to meet the annual RPS.

PG&E Rate and Exit Fee Forecasts

MRW developed a forecast of PG&E's bundled generation rates and CCA exit fees in order to compare the projected rates that customers would pay as Alameda CCA customers to the projected rates and fees they would pay as bundled PG&E customers.

PG&E Bundled Generation Rates

To ensure a consistent and reliable financial analysis, MRW developed a 30-year forecast of PG&E's bundled generation rates using market prices for renewable energy purchases, market power purchases, greenhouse gas allowances, and capacity that are consistent with those used in the forecast of Alameda CCA's supply costs. MRW additionally forecast the cost of PG&E's existing resource portfolio, adding in market purchases only when necessary to meet projected demand. MRW assumed that near-term changes to PG&E's generation portfolio would be driven primarily by increases to the Renewable Portfolio Standard requirement in the years leading up to 2030 and by the retirement of the Diablo Canyon nuclear units at the end of their current license periods in 2024 and 2025. More information about this forecast is provided in Appendix B.

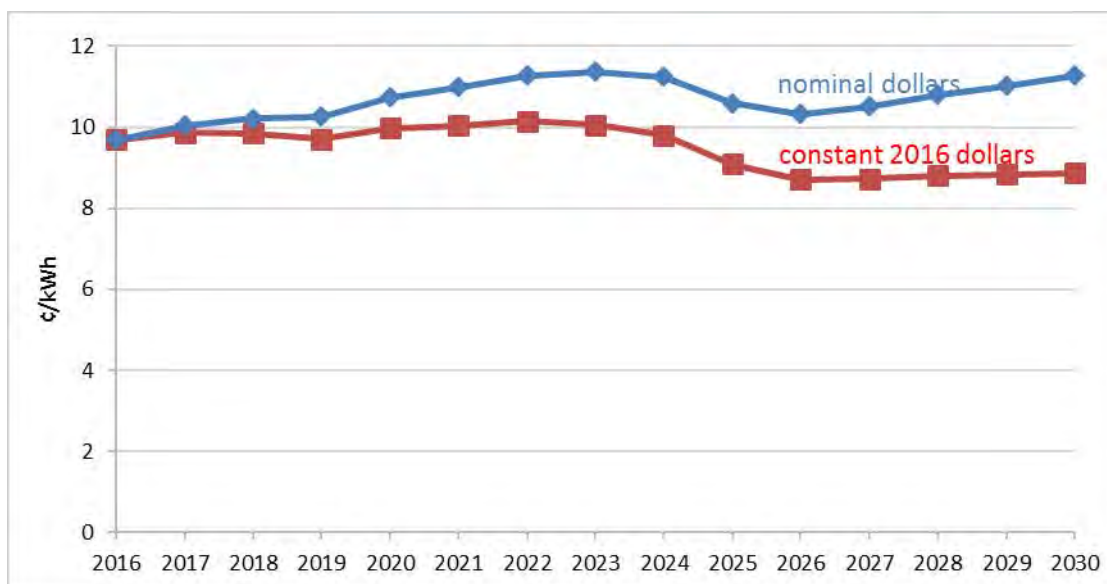
MRW forecasts that, on average, PG&E's generation rates will increase just slightly faster than inflation through 2030, with 2030 rates 3% higher than today's rates when considered on a constant dollar basis (i.e., assuming zero inflation). Underlying this result are three distinct rate periods:

1. An initial period of faster rate growth through 2023 (1.3% above inflation);
2. A period of rate decline from 2023-2026 (2.5% below inflation) primarily due to the retirement of Diablo Canyon²⁴; and
3. A period of dampened rate growth through 2030 (0.2% above inflation) primarily due to the replacement of high-cost renewable power contracts currently in PG&E's portfolio with new lower-priced contracts (reflecting the significant fall in renewable power prices in recent years).

PG&E's bundled generation rates in each year of MRW's forecast are shown in Figure 12, on both a nominal and constant-dollar basis.

²⁴ More information can be found in the Appendix C

Figure 12: PG&E Bundled Generation Rates, nominal and constant-dollar forecasts



PG&E Exit Fee Forecast

In addition to the bundled rate forecast, MRW developed a forecast of the Power Charge Indifference Adjustment (“PCIA”), which is a PG&E exit fee that is charged to CCA customers. The PCIA is intended to pay for the above-market costs of PG&E generation resources that were acquired, or which PG&E committed to acquire, prior to the customer’s departure to CCA. The total cost of these resources is compared to a market-based price benchmark to calculate the “stranded costs” associated with these resources, and CCA customers are charged what is determined to be their fair share of the stranded costs through the PCIA.

MRW forecasted the PCIA charge by modeling expected changes to PCIA-eligible resources and to the market-based price benchmark through 2030, using assumptions consistent with those used in the PG&E rate model. Based on our modelling, we expect the PCIA to increase by 8% over the 2016-2018 period (4% in constant dollars) and subsequently to decline in most years until it drops off completely in the late 2030s. MRW’s forecast of the residential PCIA charge through 2030 is summarized in Table 3.

Table 3. PG&E Residential PCIA Charges, ¢/kWh (nominal)

2015	2018	2020	2025	2030
2.3	2.5	2.2	1.1	0.9

Pro Forma Elements and CCA Costs of Service

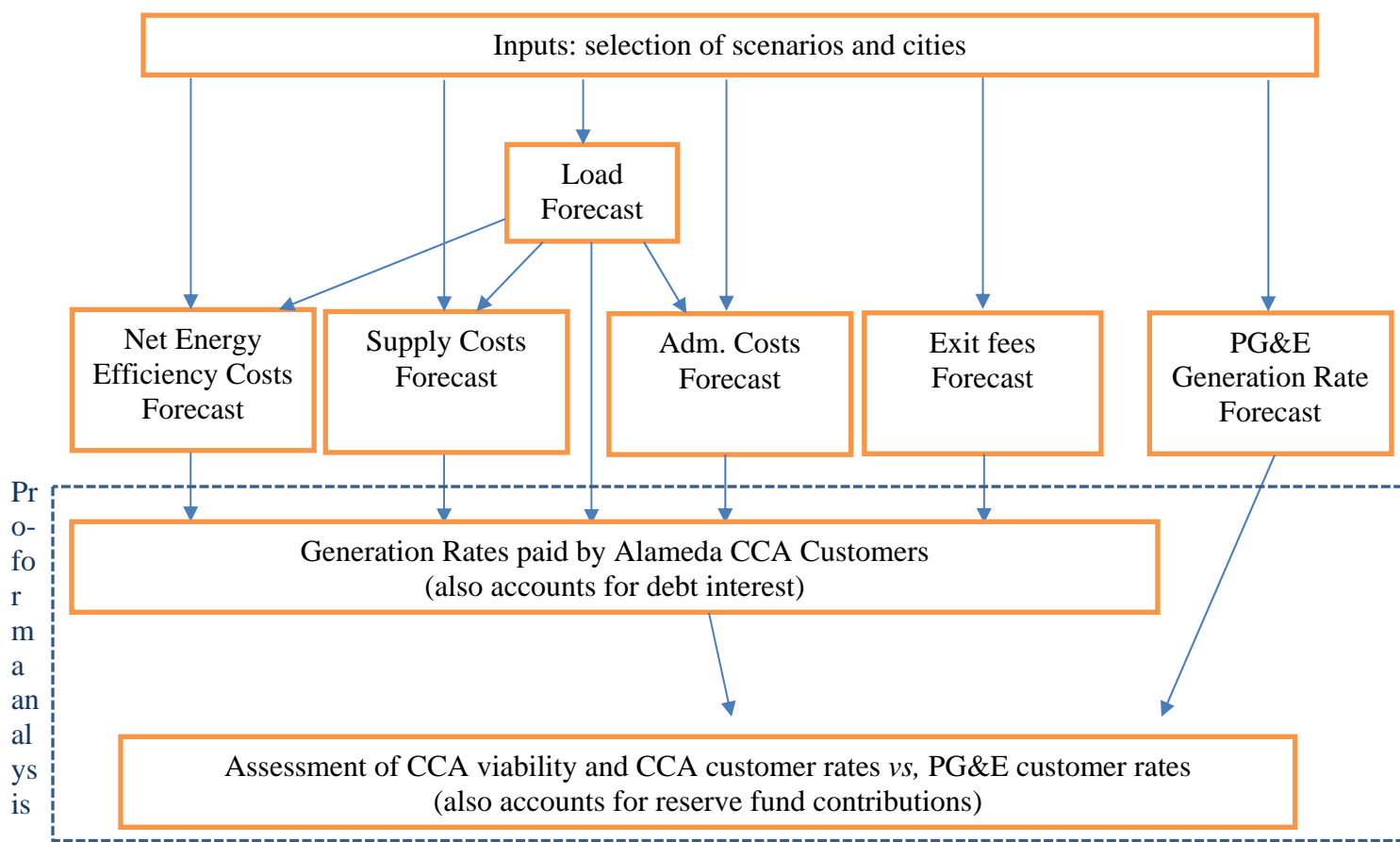
MRW conducted a pro forma analysis to evaluate the expected financial performance of the CCA and the CCA’s competitive position *vis a vis* PG&E. The analysis was conducted on a forward looking basis from the expected start of CCA operations in 2017 through the year 2030, with several scenarios considered to address uncertainty in future circumstances.

Pro Forma Elements

Figure 13 provides a schematic of the pro forma analysis, outlining the input elements of the analysis and the output results. The analysis involves a comparison between the generation-related costs that would be paid by Alameda CCA customers and the generation-related costs that would be paid by PG&E bundled service customers. Costs paid by CCA customers include all CCA-related costs (*i.e.*, supply portfolio costs, net energy efficiency costs,²⁵ and administrative and general costs) and exit fee payments that CCA customers will be required to make to PG&E.

As discussed in previous sections, supply portfolio costs and energy efficiency program costs are informed and affected by CCA loads, by the requirements the CCA will need to meet (or will choose to meet) such as with respect to renewable procurement, and by CCA participation levels, which can vary depending on whether or not all cities in the county choose to join the CCA. Administrative and general costs are discussed further below.

Figure 13. Pro forma Analysis



²⁵ We anticipate that Alameda CCA’s energy efficiency costs will be fully offset by Public Benefits Charge revenue provided by PG&E for the purpose of energy efficiency programming and that net costs to Alameda CCA will be zero.

Startup Costs

Table 4 shows the estimated CCA startup costs. They are based on the experience of the existing CCAs as well as from other CCA feasibility assessments.

Table 4. Estimated Start-Up Costs

Item	Cost
Technical Study	\$200,000
JPA Formation/Development	\$100,000
Implementation Plan Development	\$50,000
Power Supplier Solicitation & Contracting	\$75,000
Staffing	\$1,000,000
Consultants and Legal Counsel	\$500,000
Marketing & Communications	\$500,000
PG&E Service Fees	\$75,000
CCA Bond	\$100,000
Miscellaneous	\$500,000
Total	\$ 3,300,000
Working Capital	\$51,000,000
Total	\$54,300,000

Working capital is set to equal three months of CCA revenue, or approximately \$50 million. This amount would cover the timing lag between when invoices for power purchases (and other account payables) must be remitted and when income is received from the customers. Initially, the working capital is provided by a bank on credit to the CCA. Typical power purchase contracts require payment for the prior month's purchases by the 20th of the current month. Customers' payments are typically received 60 to 90 days from when the power is delivered.

These startup costs are assumed to be financed over 5 years at 5% interest.

Energy Efficiency Program Costs

CCA's have the opportunity use both electric and gas public purpose program funds to provide energy efficiency programs to customers, and using rules defined in CPUC Ruling R.09-11-014 and various cost reports.²⁶ As discussed in Chapter 7, approximately \$3.9 million would be available for programs administered by a CCA to Alameda County residents, including both

²⁶ Electric and Gas Utility Cost Report. Public Utilities Code Section 913 Report to the Governor and Legislature, April 2016.

CCA and PG&E customers, or \$3.5 million if these programs serve only CCA customers, assuming a 15% opt-out rate. This latter case was modeled.

Administrative and General Cost Inputs

Administrative and general costs cover the everyday operations of the CCA, including costs for billing, data management, customer service, employee salaries, contractor payments, and fees paid to PG&E. MRW conducted a survey of the financial reports of existing CCAs to develop estimates of the costs that would be faced by an Alameda County CCA. Administrative and general costs are phased in from 2017 to 2019, as the CCA operations expand to cover the entire territory of the county; after that, costs are escalated by 2% each year to account for the effects of inflation.

Administrative and general costs are unchanged under the three renewable level scenarios, but do vary based on how many cities join the CCA and the number of participating customer accounts. As previously mentioned, a 15% opt-out rate has been assumed for customer participation.

Cost of Service Analysis and Reserve Fund

To determine annual CCA costs and the rates that would need to be charged to CCA customers to cover these costs, MRW summed the three categories of CCA costs (*i.e.*, supply portfolio costs, net energy efficiency costs, and administrative and general costs) and added in debt financing to cover start-up costs and initial working capital. Financing was assumed to be for a five-year period at an interest rate of 5%. These costs were divided by projected CCA loads to develop the average rate the CCA would need to charge customers to cover its costs (“minimum CCA rate”).

To establish the Alameda CCA rate, MRW adjusted the minimum CCA rate, if needed, based on the competitive position of the CCA. In particular, when the total CCA customer rate (*i.e.*, the minimum CCA rate plus the PG&E exit fee) was below the projected PG&E generation rate,²⁷ MRW increased the minimum CCA rate up to the amount needed to meet the reserve refund targets while still maintaining a discount. MRW used the surplus CCA revenue from these rate increases (“Reserve Fund”) in order to maintain Alameda CCA competitiveness with PG&E rates in years in which total CCA customer rates would otherwise be higher than PG&E generation rates.²⁸

²⁷ For this analysis, MRW used the average of the projected PG&E generation rates across all rate classes, weighted by the projected Alameda CCA load in each rate class.

²⁸ MRW applied a Reserve Fund cap of 15% of the annual operating cost. After this cap was reached, no further rate increases were applied for the purpose of Reserve Fund contributions.

Chapter 3: Cost and Benefit Analysis

As described in the prior chapter, as part of the pro forma analysis, MRW calculated Alameda CCA rates that would, where feasible, cover CCA costs and maintain long-term competitiveness with PG&E. This chapter uses those rates to compare the costs and benefits of the Alameda CCA across three scenarios: (1) Renewable Compliance, (2) Accelerated RPS and (3) 80% RPS by 2021. Costs and benefits are evaluated by comparing total CCA customer rates (including PG&E exit fees) to PG&E generation rates to assess the net bill savings (costs) for customers that join the CCA.

Scenario 1 (Renewable Compliance)

Under Scenario 1, the Alameda CCA meets all RPS requirements (including Senate Bill 350 requirements) and does not obtain incremental renewable power or low-carbon power in excess of these requirements.

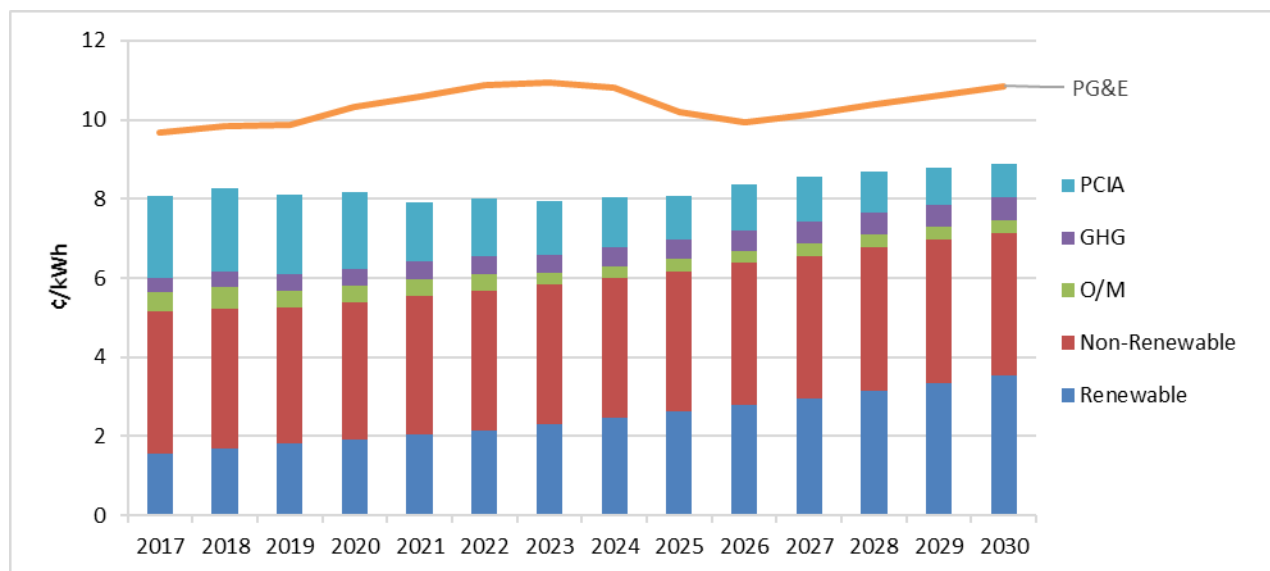
Rate Differentials

Figure 14 summarizes the results of this scenario in the form of the total Alameda CCA customer rate (vertical bars) and the comparable PG&E generation rate (line).²⁹ Of the CCA cost elements, the greatest cost is for non-renewable generation followed by the cost for the renewable generation, which increases over the years according to the RPS standards. Another important CCA customer cost is the PCIA exit fee, which is expected to decrease in most years beginning in 2019 and to become less important over time.

Under Scenario 1, the differential between PG&E generation rates and Alameda CCA customer rates is positive in each year (*i.e.*, CCA rates are lower than PG&E rates). As a result, Alameda CCA customers' average generation rate (including contributions to the reserve fund) can be set at a level that is lower than PG&E's average customer generation rate in each year. The annual differential between the PG&E rate and the total CCA customer rate is expected to vary significantly over the course of this period (Figure 14). During the initial period from 2017-2023, the differential between the two rates increases (*i.e.*, the CCA becomes more cost-competitive) due to an expected decrease in the exit fees charged to Alameda CCA customers. Beginning in 2024, the rate differential narrows due to a decrease in PG&E generation rates stemming from the closure of the Diablo Canyon nuclear plant. After 2026, the difference between the two rates is expected to increase at a modest rate as PG&E's generation rates stabilize and exit fees decline.

²⁹ All rates are in nominal dollars

Figure 14. Scenario 1 Rate Savings, 2017-2030



Residential Bill Impacts

Table 5 shows the average annual savings for Residential customers under Scenario 1. The average annual bill for the residential customer on the Alameda CCA program will be on average 7% lower than the same bill on PG&E rates.

Table 6. Scenario 1 Savings for Residential CCA Customers

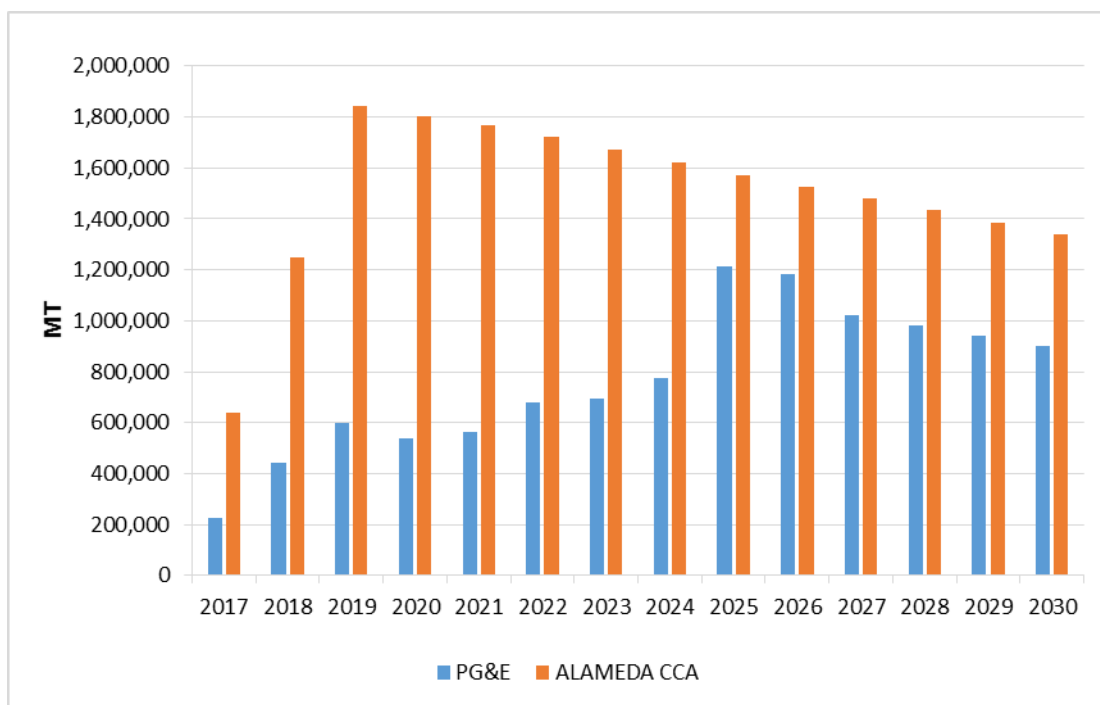
Residential	Monthly Consumption (kWh)	Bill with PG&E (\$)	Bill with Alameda CCA (\$)	Savings (\$)	Savings (%)
2017	650	147	142	5	3%
2020	650	160	145	15	9%
2030	650	201	188	13	6%

Greenhouse Gas Emissions

Figure 15 shows the GHG emissions from 2017-2030 for Alameda CCA under Scenario 1, and PG&E’s expected emissions for the same load if no CCA is formed. The CCA’s GHG emissions initially increase from 2017 to 2019 as the CCA is phased in across the county (from serving 33% potential county load in 2017 to 100% in 2019), and then decrease steadily in the following years as the CCA’s renewable content grows pursuant to SB 350’s requirements of 50% RPS by 2030. PG&E emissions are lower than those of the CCA in this scenario due to the diversity in

PG&E's electric mix. Besides renewable generation, over 40% of PG&E's supply portfolio is made up of nuclear and large hydro generation, both of which are emissions-free generation technologies. PG&E's GHG emissions decrease before 2019 and increase between 2019 and 2024 due to the changes in its RPS procurement.³⁰ In 2025, the retirement of the Diablo Canyon nuclear generation plant increases PG&E's GHG emissions by approximately 30% as the utility will need to increase its fuel-fired generation to make up for the loss. In the following years PG&E's GHG emissions are expected to decrease as it ramps up renewable procurement to meet its mandated RPS goals.

Figure 16. Scenario 1 GHG Emissions by Year Year (“Normal” PG&E Hydro Conditions)



Scenario 2 (Accelerated RPS)

Under Scenario 2, Alameda CCA meets 50% of its load through renewable power starting from 2017, while 50% of its non-renewable load is met through hydro-electricity.

Rate Differentials

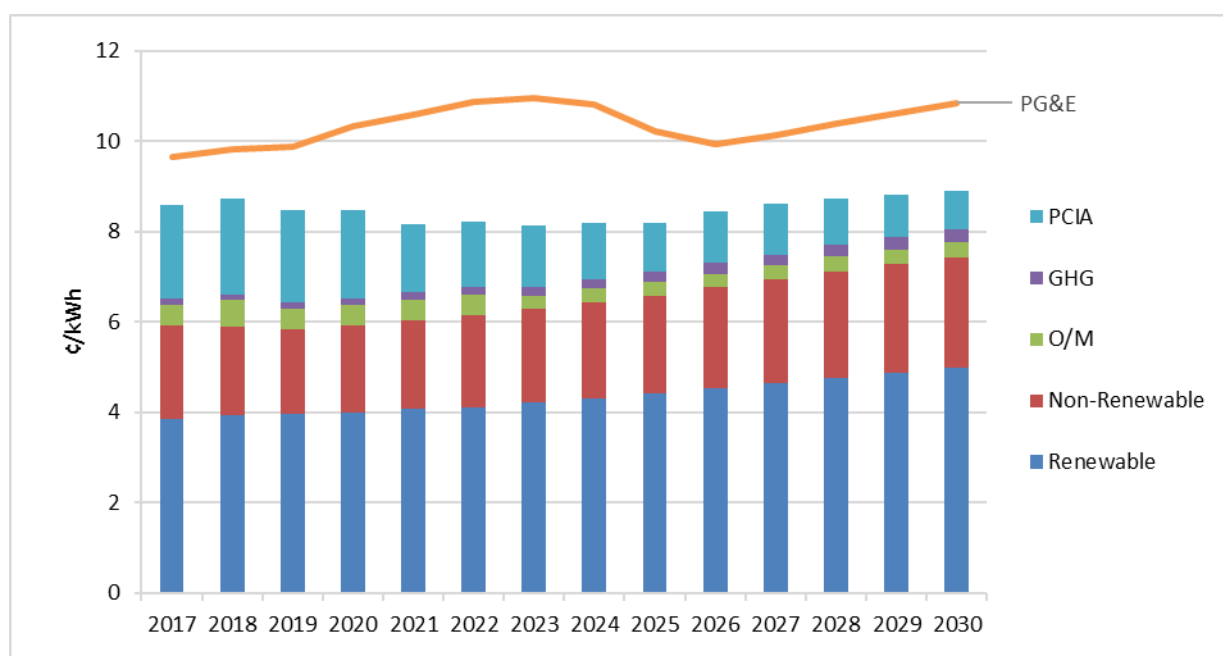
Figure 17 summarizes the results for this scenario, with the vertical bars representing the Alameda CCA customer rate and the counterpart PG&E generation rate shown as a line. In this

³⁰ According to the PG&E RPS plan PG&E Final 2015 Renewable Energy Procurement Plan, filed in CPUC proceeding R.15-02-020, January 14, 2016, Appendix D, Table 2 and Table 4, the RPS procurement in 2019-2024 falls in average 3.5% annual.

scenario, the renewable lost is the largest single element of the CCA rate, reflecting the higher renewable content of this scenario. Non-renewable generation is the next largest cost component of the rate, followed by the PCIA exit fee. The PCIA exit fee is expected to decrease in most years beginning in 2019, as it did in the case of Scenario 1. However, the costs associated with GHG allowance purchases are a lower portion of the total costs in this scenario because 50% of the non-renewable generation is expected to be met by hydro-electricity, which is a non-emitting resource. This limits the need for purchase of GHG allowances.

The differential between PG&E generation rates and Alameda CCA customer rates in Scenario 2 is lower than that under Scenario 1; however, it continues to follow a similar pattern over the years with respect to PG&E rates, and it is positive in all years from 2017 to 2030. As was the case under Scenario 1, because of this positive differential, Alameda CCA customers' average generation rate (including contributions to the reserve fund) can be set at a level that is lower than PG&E's average customer generation rate in each year under this scenario as well.

Figure 17. Scenario 2 Rate Savings, 2017-2030



Residential Bill Impacts

Table 7 below shows the average annual savings for residential customers under Scenario 2. The annual bill for a residential customer on the Alameda CCA program will be for the period 2017-2030 on average 6.5% lower than the same bill on PG&E rates. This is lower than, but close to, bill savings under Scenario 1.

Table 7. Scenario 2 Savings for Residential CCA Customers

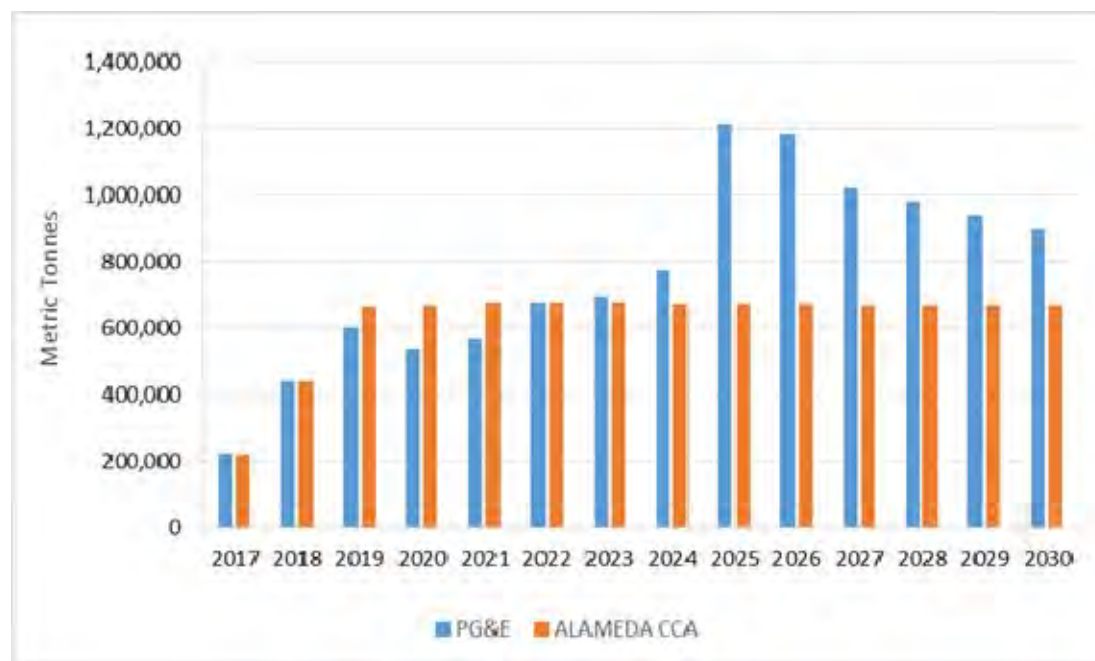
Residential	Monthly Consumption (kWh)	Bill with PG&E (\$)	Bill with Alameda CCA (\$)	Savings (\$)	Savings (%)
2017	650	147	146	1	1%
2020	650	160	147	13	8%
2030	650	201	188	13	6%

GHG Emissions

The Alameda CCA’s GHG emissions under Scenario 2 are much lower than those under Scenario 1. This is due to the higher renewable content in the CCA’s generation mix under Scenario, as well as the 50% hydro content in the non-renewable generation mix.

Figure 18 compares the GHG emissions from 2017-2030 for the Alameda CCA under Scenario 2 with what PG&E’s emissions would be for the same load if no CCA is formed. The Alameda CCA’s emissions increase from 2017 to 2019 as the CCA is phased in across the entire county, and then remain flat through 2030. PG&E’s GHG emissions are initially slightly lower than the CCA’s emissions, but as the CCA’s emissions flatten out, PG&E’s emissions follow a generally upward trend and surpass CCA emissions in 2024, with the expected retirement of Diablo Canyon in 2025 – further bumping up PG&E’s emissions by approximately 30% in 2025. Following this, PG&E’s emissions are expected to decrease from 2026 to 2030 as PG&E procures renewables to meet its mandated RPS goals. However, they still remain higher than the CCA’s expected GHG emissions.

Note that the analysis assumes “normal” hydroelectric output for PG&E. during the drought years, PG&E’s hydro output has been at about 50% of normal, and the utility has made up these lost megawatt-hours through additional gas generation. This means that our PG&E emissions are the PG&E emissions shown here are lower than the “current” emission. If, as is expected by many experts, the recent drought conditions are closer to the “new normal, then PG&E’s GHG emissions in the first 8 years would be approximately 30% higher, resulting in GHG savings for Scenario 2 rather than parity.

Figure 18. Scenario 2 GHG Emissions by Year (“Normal” PG&E Hydro Conditions)

Scenario 3 (80% RPS by 2021)

Scenario 3 is the most aggressive scenario considered, in terms of renewable procurement. Under this scenario, the Alameda CCA starts with 50% of its load being served by renewable sources in 2017, and increases this at a quick pace to 80% of its load being served by renewable sources in 2021. In addition, 50% of its non-renewable supply is met through large hydro-electric sources.

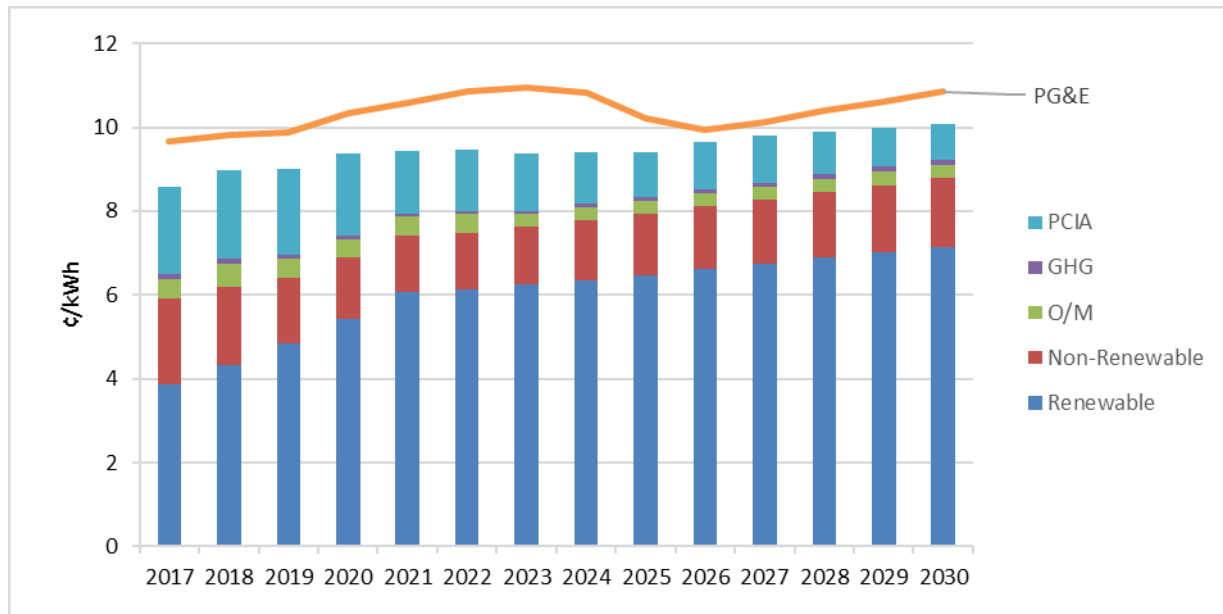
Rate Differentials

Figure 19 summarizes the rates for the Alameda CCA under Scenario 3 from 2017 to 2030, and also shows PG&E’s expected generation rate for comparison. Under this scenario, the costs for renewables form the largest component of the CCA’s rates, and grows steadily to account for nearly 60% of the total CCA rate in 2019, and then nearly 70% of total CCA rate by 2030. Non-renewable generation is the next largest cost component of the rate, followed by the PCIA exit fee. The PCIA exit fee is expected to decrease in most years beginning in 2019, as it did in the case of Scenarios 1 and 2. As with Scenario 2, the costs associated with GHG allowance purchases are a lower portion of the total costs in this scenario because 50% of the non-renewable generation is expected to be met by hydro-electricity, which is a non-emitting resource. However, as the renewable content increases and the non-renewable content decreases, the need for purchase of GHG allowances is further lowered, making the GHG costs an even smaller component of the total rate.

The differential between PG&E generation rates and Alameda CCA customer rates in Scenario 3 is the lowest of the three scenarios, as this scenario has the most expensive supply portfolio. However, the expected Alameda CCA rates continue to be lower than expected PG&E

generation rates for all years from 2017 to 2030. Though this positive differential still allows for the collection of reserve fund contributions through the CCA’s rates in all the years under consideration, between 2026 to 2028 the differential is very small.

Figure 19. Scenario 3 Rate Savings, 2017-2030



Residential Bill Impacts

Table 8 below shows the average impacts on the bills of residential customers under Scenario 3. The annual bill for a residential customer on the Alameda CCA program will be on average 3% lower (over the 2017-2030 study period) than the same customers on PG&E rates, under this scenario.

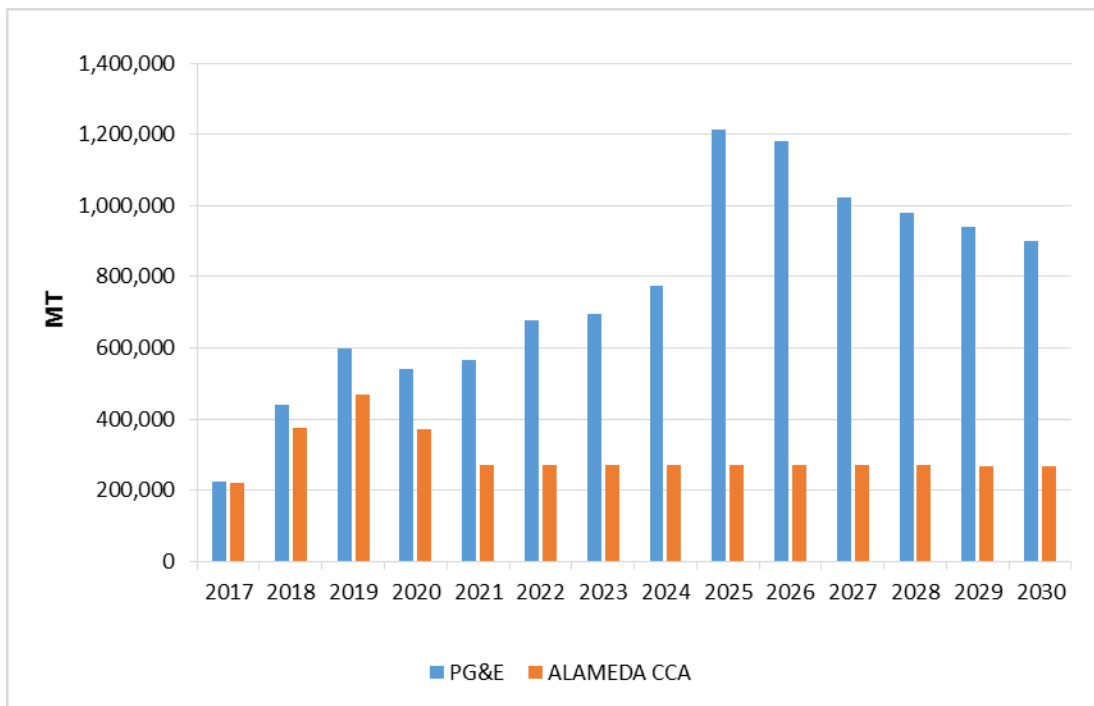
Table 8. Scenario 3 Savings for Residential CCA Customers

Residential	Monthly Consumption (kWh)	Bill with PG&E (\$)	Bill with Alameda CCA (\$)	Savings (\$)	Savings (%)
2017	650	147	146	1	1%
2020	650	160	154	6	4%
2030	650	201	196	5	2%

GHG Emissions

Similar to Scenarios 1 and 2, under Scenario 3, the Alameda CCA’s GHG emissions first increase from 2017 to 2019 as the CCA is phased in into the entire county. However, in Scenario 3 this increase is partially off-set by the increasing renewable content in the CCA’s supply mix. Thus the CCA’s emissions in this scenario grow at a slower rate from 2017 to 2019 than in the first 2 scenarios, then decrease till 80% renewable supply is achieved in 2021, and remain flat thereafter. The CCA’s GHG emissions under this scenario are lower than PG&E’s expected emissions for the same load if no CCA is formed. Figure 20 shows the expected GHG emissions from the CCA and PG&E for all years from 2017 to 2030.

Figure 20. Scenario 3 GHG Emissions by Year Year (“Normal” PG&E Hydro Conditions)



Chapter 4: Sensitivity of Results to Key Inputs

In addition to the base case forecast described above, MRW has assessed alternative cases to evaluate the sensitivity of the results to possible conditions that would have an impact on Alameda CCA's feasibility study. The metric considered to compare the alternative sensitivity cases to the base case is the differential between the annual average generation rates for PG&E bundled customers and for Alameda CCA customers.³¹

The base-case analysis (Chapter 3 –Scenario 1) was developed as a reasonable and conservative assessment of the Alameda CCA. In addition to the base case analysis, MRW analyzed alternative cases to address six risks: (1) the relicensing of the Diablo Canyon nuclear units, (2) higher renewable supply costs, (3) higher PCIA charges, (4) higher natural gas prices, (5) lower PG&E portfolio costs, and (6) a combination of the last four of these five risks (stress scenario).

Diablo Canyon Relicensing Sensitivity

In the base case the Diablo Canyon nuclear units are retired at the end of their current operating licenses (Unit 1 in 2024 and Unit 2 in 2025).³² At this time, nuclear retirement appears to be the lower-cost option for PG&E ratepayers given, on the one hand, low market prices for replacement power (both gas-fired and renewable) and, on the other hand, the significant costs PG&E would likely incur to undertake a cooling system modification and potentially other upgrades that would be required to relicense the plant and continue operations.³³ Under the relicensing scenario, PG&E's generation rate would therefore increase, providing a competitive benefit to the Alameda CCA.³⁴ As shown in Table 8, MRW anticipates that the average rate differential over the 2017-2030 period would increase by 1.35¢/kWh under the Diablo Canyon relicensing scenario.

³¹The Alameda CCA rate includes the PG&E exit fees (PCIA charges) that will be charged to CCA customers but does not include the rate adjustment for the reserve fund.

³² This assumption is consistent with the CPUC's proposed assumptions for long-term transmission planning. "Administrative Law Judge's Ruling Seeking Comment on Assumptions and Scenarios for use in the California Independent System Operator's 2016-17 Transmission Planning Process and Future Commission Proceedings," CPUC proceeding R.13-12-010, February 8, 2016, page 41.

³³ The new cooling system, which would be required per state regulations implementing the Federal Clean Water Act, Section 316(b), would have an estimated cost of \$4.5 billion. Subcommittee Comments on Bechtel's Assessment of Alternatives to Once-Through-Cooling for Diablo Canyon Power Plant. November 18, 2014, page 10.

³⁴ An increase in PG&E's rates results in an increase to the CCA customers' exit fees (which pay for the above-market costs of PG&E's rates). However, this exit fee increase is much smaller than the PG&E rate increase, and the relicensing scenario provides an overall benefit to the CCA.

Table 9. Diablo Canyon Relicensing Sensitivity Results, 2017-2030

	Average PG&E Rate (¢/kWh)	Average Rate Differential (¢/kWh)
Base Case	10.36	2.1
Diablo Canyon Relicensing	11.75	3.4

Higher Renewable Power Prices Sensitivity

This sensitivity case evaluates the impact of higher prices for renewable power on the CCA's financial viability. As discussed in Appendix B, in the base case, renewable power prices are flat in nominal dollars through 2022, based on the assumption that projected declines in renewable development costs will offset increases associated with the planned expiration of federal renewable tax credits.^{35,36} In the Higher Renewable Power Prices sensitivity, we assume that renewable prices would be flat in nominal dollars through 2022 if it were not for the tax credit expirations and add the impact of the tax credit expirations to the base case prices. Average renewable power prices in this scenario are 0-10% higher than in the base case scenario through 2021, about 20% higher in 2021 and 2022, and 30% higher after 2022 when the solar investment tax credit is reduced to 10%. These higher prices affect both the CCA and PG&E, but they have a greater effect on the CCA because PG&E has significant amounts of renewable resources under long-term contract. The impact of this stress case is to reduce the 2017-2030 average rate differential by 0.3¢/kWh relative to the base case.

Table 10. Higher Renewable Power Prices Sensitivity Results, 2017-2030

	Average Renewable Power Prices (¢/kWh) ³⁷	Average Rate Differential (¢/kWh)
Base Case	5.4	2.1
Higher Renewable Power Prices	6.6	1.8

³⁵ Investment Tax Credit (ITC) which is commonly used by solar developers, is scheduled to remain at its current level of 30% through 2019 and then to fall over three years to 10%, where it is to remain. The federal Production Tax Credit (PTC), which is commonly used by wind developers, is scheduled to be reduced for facilities commencing construction in 2017-2019 and eliminated for subsequent construction.

U.S. Department of Energy. Business Energy Investment Tax Credit (ITC). <http://energy.gov/savings/business-energy-investment-tax-credit-itc>; U.S. Department of Energy. Electricity Production Tax Credit (PTC). <http://energy.gov/savings/renewable-electricity-production-tax-credit-ptc>

³⁶ The base case forecast would also be consistent with a scenario in which the tax credit expirations are delayed.

³⁷ Average for solar and wind utility scale generation (>3MW), not including local Alameda County generation.

Higher Exit Fee (PCIA) Sensitivity

PG&E's PCIA exit fees are subject to considerable uncertainty. Under the current methodology, PCIA rates can swing dramatically from one year to the next, and this methodology is currently under review and may be adjusted in the coming years. MRW therefore evaluated a stress case in which PCIA rates don't fall after 2018, as anticipated in the base case, but instead remain at 2018 levels through 2030. This increases the 2030 PCIA to 250% of its base case value. The impact of this stress case is to reduce the 2017-2030 average rate differential by 0.7¢/kWh relative to the base case.

Table 11. Higher PCIA Exit Fee Sensitivity Results, 2017-2030

	Average PCIA Rate (¢/kWh)	Average Rate Differential (¢/kWh)
Base Case	1.4	2.1
Higher Exit Fees (PCIA)	2.1	1.4

Higher Natural Gas Prices Sensitivity

Natural gas prices have been low and relatively steady over the last few years, but they have historically been quite volatile and subject to significant swings from local supply disruptions (*e.g.*, Hurricanes Katrina and Rita in 2005). MRW analyzed a gas price sensitivity case using the U.S. Energy Information Administration's High Scenario natural gas prices forecast,³⁸ which is up to 60% higher than MRW's base case forecast in some years. Natural gas price increases affect power supply costs for both Alameda CCA and PG&E; however, the nuclear and hydroelectric capacity in PG&E's resource mix makes PG&E less sensitive than Alameda CCA to changes in natural gas prices. The net effect of higher natural gas prices is therefore to increase CCA rates relative to PG&E rates³⁹ (*i.e.*, reduce the average rate differential). Under the sensitivity conditions considered, the 2017-2030 average rate differential decreases relative to the base case by 0.9¢/kWh.

³⁸ U.S. Energy Information Administration. "2015 Annual Energy Outlook," Table 13

³⁹ For the Scenario 3 the high gas natural prices case is favorable (*i.e.*, the rate differential is higher than the rate differential for the Base Case).

Table 12. Higher Natural Gas Prices Sensitivity Results, 2017-2030

	Average Natural Gas Price (\$/MMBtu)	Average Rate Differential (¢/kWh)
Base Case	4.85	2.1
Higher Natural Gas Prices	7.67	1.2

Lower PG&E Portfolio Cost Sensitivity

While changes to natural gas prices and renewable power prices affect both the CCA and PG&E, dampening the impact on the CCA's cost competitiveness, reductions to the costs to operate and maintain PG&E's nuclear and hydroelectric facilities would provide cost savings to PG&E that would not be offset by cost savings to the CCA. MRW considered a case in which PG&E's overall generation rates are 10% below the base case, driven by reductions to PG&E's nuclear and hydroelectric portfolio costs. Under such a scenario, the 2017-2030 average rate differential would be reduced by 1 cent per kWh relative to the base case scenario.

Table 13. Lower PG&E Portfolio Sensitivity Results, 2017-2030

	Average PG&E Rate (¢/kWh)	Average Rate Differential (¢/kWh)
Base Case	10.4	2.1
Lower PG&E Portfolio Costs	9.3	1.1

Stress Case and Sensitivity Comparisons

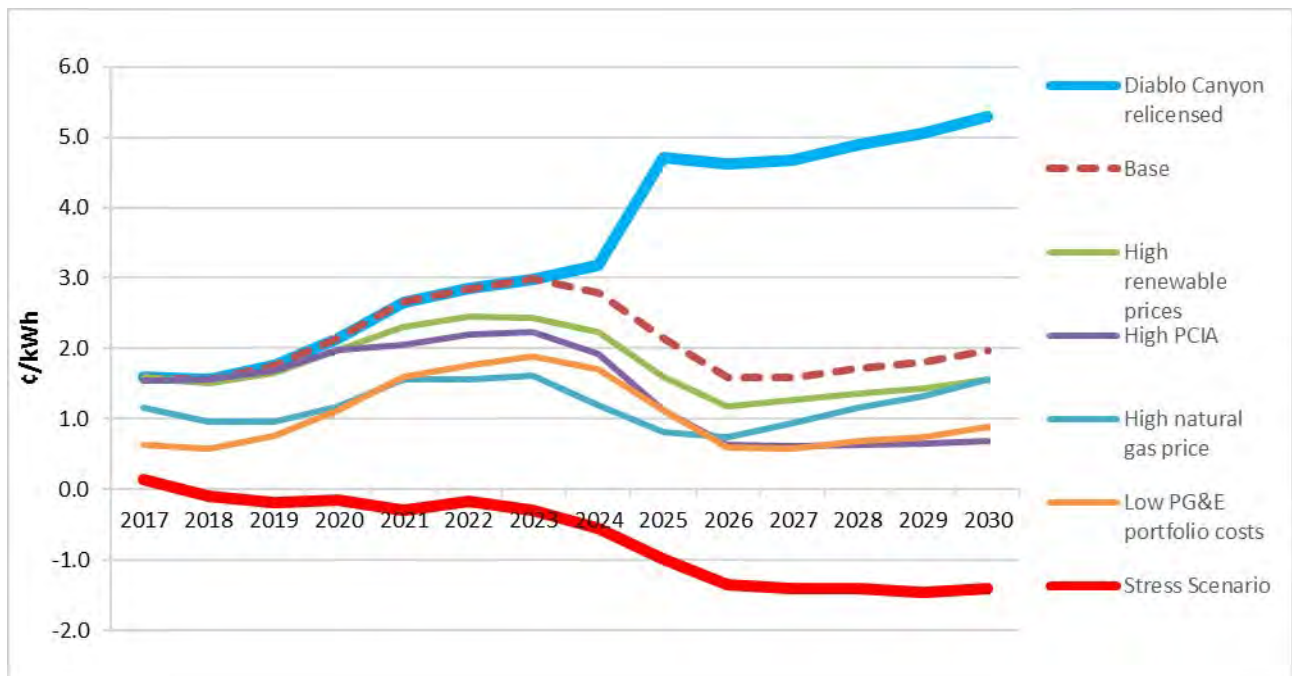
For all but the Diablo Canyon relicensing case, rate differentials (*i.e.*, the CCA's competitive positions) are lower in the sensitivity cases than in the base case scenario, for all years from 2017 to 2030 (Figure 21). To evaluate a more extreme scenario, MRW developed a stress case that combines all the negative sensitivity cases: (1) higher renewable power prices, (2) lower PG&E portfolio costs, (3) higher PCIA exit fees, and (4) higher natural gas prices. The 2017-2030 average rate differential for this stress case is negative, at -0.7¢/kWh, meaning that CCA customer costs would exceed PG&E customer costs under this scenario.

Table 14. Stress Test Results, 2017-2030

	Average Rate Differential (¢/kWh)
Base	2.1
Stress Scenario	-0.7

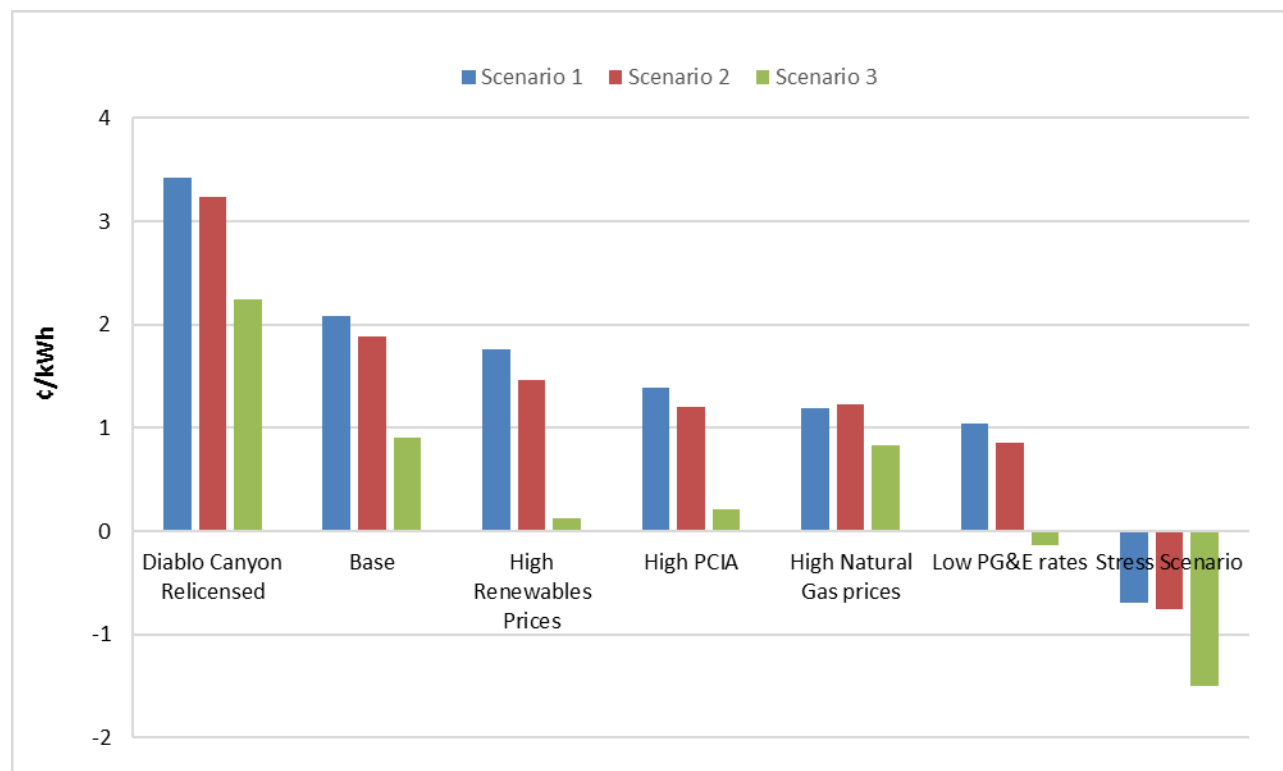
Figure 21 shows the difference between the PG&E customer rate and the Alameda CCA customer rate (including exit fees) in the base case and in each of the sensitivity scenarios, for each year from 2017 to 2030. As Figure 21 illustrates, CCA customer rates are lower than PG&E customer rates in each of the individual sensitivity cases in each year and are lower than PG&E customer rates in the stress test case from 2017-2023. Beginning in 2024, CCA customer rates exceed PG&E customer rates in the stress test case (*i.e.*, the rate differential is negative) due to the reduction in PG&E rates as Diablo Canyon is retired and replaced with lower-cost power sources.

Figure 21. Difference Between PG&E Customer Rates and CCA Customer Rates Under Each Sensitivity Case, 2017-2030



The results shown above reflect the RPS Compliance supply scenario. MRW additionally evaluated each sensitivity scenario under the two alternative supply scenarios: (1) Accelerated RPS and (2) 80% RPS by 2021. Figure 22 depicts the average rate differentials for 2017-2030 for each sensitivity case under the three supply scenarios.

Figure 22. Difference Between PG&E Customer Rates and CCA Customer Rates Under Each Sensitivity Case and Supply Scenario, 2017-2030 Average



Scenario 1 (RPS Compliance) is the least costly scenario for the CCA and therefore has the highest rate differential under most of the sensitivity cases considered. Scenario 2 (Accelerated RPS), though still quite competitive with PG&E, fares slightly worse, with a rate differential approximately 8% lower than in Scenario 1 for most of the sensitivity cases considered. The one exception is the “High Natural Gas Price” sensitivity case, in which Scenarios 1 and 2 have about the same results. This is due to the higher renewable content in Scenario 2, which makes the supply portfolio less susceptible to volatility in natural gas prices than Scenario 1. Scenario 3 (80% RPS by 2021) has the highest renewable content and is the costliest scenario, with rate differentials much lower than those in Scenario 1 and Scenario 2. Scenario 3 is anticipated to be competitive with PG&E in most cases (on average); however, the margins are much lower, particularly in the “High Renewable Prices” sensitivity case, and they become negative in the “Low PG&E rates” sensitivity case (*i.e.*, CCA customer rates are higher than PG&E rates). On

the other hand, Scenario 3 is relatively unaffected by the “High Natural Gas Prices” sensitivity case due to the lower share of natural gas power in this supply portfolio.

In the stress case, Alameda CCA customer rates exceed PG&E customer rates on average over the 2017-2030 period for all three scenarios, with the rate differential being highest in Scenario 3 at -1.5¢/kWh . This is double the Scenario 2 stress case rate differential of -0.75¢/kWh .

Conclusions

Under the base case scenario, Alameda CCA customer rates compare quite favorably to PG&E rates in all years from 2017 to 2030, under all three supply scenarios. Furthermore, under the base supply scenario (RPS compliance), Alameda CCA customer rates remain below PG&E rates under all but the most extreme sensitivity case considered. However, under the alternate supply scenarios, as the CCA renewable content increases, the CCA becomes less competitive with PG&E. This is especially pronounced in the 80%-by-2021 scenario, which shows marginal or negative competitiveness *vis a vis* PG&E in a number of scenarios. Under the stress case, irrespective of the supply scenario considered, CCA rates are higher than PG&E rates. While the stress case may appear extreme given that it involves four adverse sensitivities simultaneously occurring, cost volatility in the power industry is well-established, and the possibility of adverse conditions arising should be understood and planned for in any CCA venture.

Chapter 5: Macroeconomic Impacts

Each of the three scenarios discussed thus far is next examined for job impacts within Alameda County. To understand just how job impacts can come about, and the extent of those changes (plus or minus), a brief description of elements associated with the CCA and how they influence the existing economy is provided.

How a CCA interacts with the Surrounding Economy

The establishment and operation of a CCA creates a new set of spending (also referred to as demands) elements as a community changes the type of electricity generation they want to purchase, where the new mix of generation is (to be) located, adjustments necessary for existing generating assets of the provider utility, and implications on customers' bills as a result of retail rate differentials. Some of these new elements have temporary effects, while others have long-term effects. Investment in locally situated elements (such as operation & maintenance) will result in the direct creation of jobs, and when a job is created in a sector, there will be a multiplier response on "backwardly-linked" jobs with supplier businesses. The new elements include:

- Administration – [direct jobs, long-term effect] county staffing, professional-technical services and I/T-database services
- Net Rate Savings (or bill savings) – [long-term effect] county households have an increase in their spending ability, county commercial and industrial energy customers experience a reduction in their costs-of-doing business which makes them each more competitive, garnering more business that requires more employees, and municipal energy customers can provide more local services which requires more local government staff.
- New Renewable Capacity Investment within County – [direct jobs, short-term]
- New Renewable Operations within County – [direct jobs, long-term]
- New Energy-efficiency within County – [direct jobs, short-term]
- Net Generating Capacity and Operations offsets for PG&E outside of county – [direct jobs, short & long-term]

To frame expectations around how many direct jobs can be created in the county from the above CCA elements, consideration must be given to (a) how much of the spending associated with the CCA scenario is fulfilled by a within county business or resident workforce, and (b) what do these locally-fulfilled dollars represent in terms of current annual county business activity, e.g. is this a large spending event.

Table 15 presents these considerations, which are shaped in part by assumptions defined by the MRW study team. For instance, the labor share required on the annual investments (or the operating budget) was assumed to be 100 percent satisfied by within county resident laborers.

Table 15. Initial Investment within Alameda County from Proposed CCA

CCA Scenario	2017 to 2030			
	Local Capture on RE investments (billion\$)	As % of County's Total RE investment	As % of County's Expected Economic Activity	Bill Savings (billion\$)
1	\$0.42	44%	0.01%	\$1.57
2	\$0.42	44%	0.01%	\$1.51
3	\$0.45	45%	0.01%	\$0.52

As can be seen from the table, the initial local investment that would result from building and operating additional renewable projects in Alameda County between the years 2017 to 2030 represents a very small portion of the County's total expected economic activity,⁴⁰ even assuming all of the project costs are directed locally (usually 56% of the project costs would be funneled outside the county due to procurement of equipment from outside the county). By contrast bill savings for scenarios 1 and 2 provide over three fold the benefits of initial local investment. These bill savings indirectly stimulate the economy and ultimately create jobs.

Table 16 illustrates this through high-level results expressed as average annual job changes for the three CCA scenarios. While scenarios 1 and 2 create nearly identical direct jobs (due to comparable investment in local renewable projects), scenario 1 creates far more TOTAL jobs. This is due to the higher bill savings under scenario 1. Scenario 3 creates a few more direct jobs, but far fewer total jobs, due to decreased bill savings as compared to the other two scenarios. As a result, its total job impact is 55 percent of the scenario 1 total job impact. A more detailed discussion of these results will follow later.

Table 16. Average Annual Jobs created in Alameda County by the CCA – Direct and Total Impacts

CCA Scenario	2017 – to – 2030		County Impacts	
	Local Capture on RE investments (billion\$)	Bill Savings (billion\$)	Average Annual <u>DIRECT</u> Jobs	Average Annual <u>TOTAL</u> Jobs
1	\$0.42	\$1.57	165	1322
2	\$0.42	\$1.51	166	1286
3	\$0.45	\$0.52	174	731

⁴⁰ Forecast to be \$3,500 billion (nominal). Source REMI Policy Insight model, Alameda County forecast.

How Job Impacts Are Measured

The scenario-specific elements described in the prior section are expressed as annual dollar amounts (plus or minus) in comparison to what would have been expected in the county economy without a CCA. Initially these amounts supplied by MRW and Tierra are general, representing total project cost by year. The annual investment for specific types of renewable energy projects and of making further energy-efficiency improvements are really comprised of some portion spent on installation labor, a large portion for the equipment (either manufactured in the region or if not, a leakage to imports), and some small portion soft project costs. These details are necessary for modeling impacts on the county economy due to a CCA program.

A macroeconomic impact (industry) forecasting model of Alameda County⁴¹ is used, the dollar amounts, with further data refinement (detail) are introduced to the model, the economy adjusts to these spending and savings changes by year and then identifies annual impacts in terms of dollar concepts (wages, sales, prices, gross regional product) and jobs, among numerous other metrics. Appendix E provides some high-level background on the REMI Policy Insight model. This model was chosen since it is uniquely qualified over other models and approaches to understand how price (or rate) changes on the business segment (Commercial /Industrial energy customers) influence business activity levels. Since electric rate differentials are a key consideration in pursuing a CCA, the study required a method that would adequately address this.

Scenario Results

MRW created the three supply scenarios by considering how much within county RE investment (for future generating assets) the CCA could fund, and how much it might invest elsewhere in California (rest of California or roCA). Program administration and energy efficiency deployment investments are the same in all three scenarios. As can be seen from Table 17, scenario 3 has the most proposed CCA renewables investment within county but, it has the lowest bill savings. In contrast scenario 1 would site a smaller renewables investment by the CCA as within county, but has proportionally much higher bill savings.

⁴¹ The model is a Policy Insight model by Regional Economic Models, Inc. (REMI) of Amherst, MA. It is a model that has been used by the CA Energy Commission, CALTrans, Los Angeles MTA, ABAG, City of San Francisco, and the South Coast AQMD. For this study a two-region socio-economic forecasting model (the county, and balance of State) with 23- industries was used.

Table 17. Initial Comparison of Proposed CCA Scenarios

2017 to 2030	Million\$ nominal	Million \$ nominal DEMAND					
Scenario	Bill Savings	CCA Renewable Investment		PG&E offset RE invest. roCA	CCA Renewable O&M		PG&E Offset Renew. O&M
		Alameda	roCA		Alameda	roCA	Alameda
1	\$1,574	\$623	\$1,676	-\$1,946	\$47	\$133	-\$153
2	\$1,513	\$623	\$2,217	-\$2,446	\$47	\$190	-\$206
3	\$522	\$674	\$2,514	-\$2,785	\$51	\$200	-\$219

Note: Customers' bill savings account for PG&E's indifference charge, and any out-of-pocket expenditures for customer-sited renewable or efficiency projects.

Job and Gross Regional Product Total Impacts

The yearly profile for the county's total impacts – whether as jobs (Figure 23) or dollars of gross regional product (GRP) (

Figure 24) – shows that scenario 1 outperforms the other two scenarios. All scenarios share the year 2023 as the year of maximum positive impact which is due to maximum net rate savings. The cumulative GRP impact through 2030 for scenario 1 represents a 0.12% change relative to the county's forecasted GRP without a CCA.

Figure 23. Alameda County Total Job Impacts by Scenario

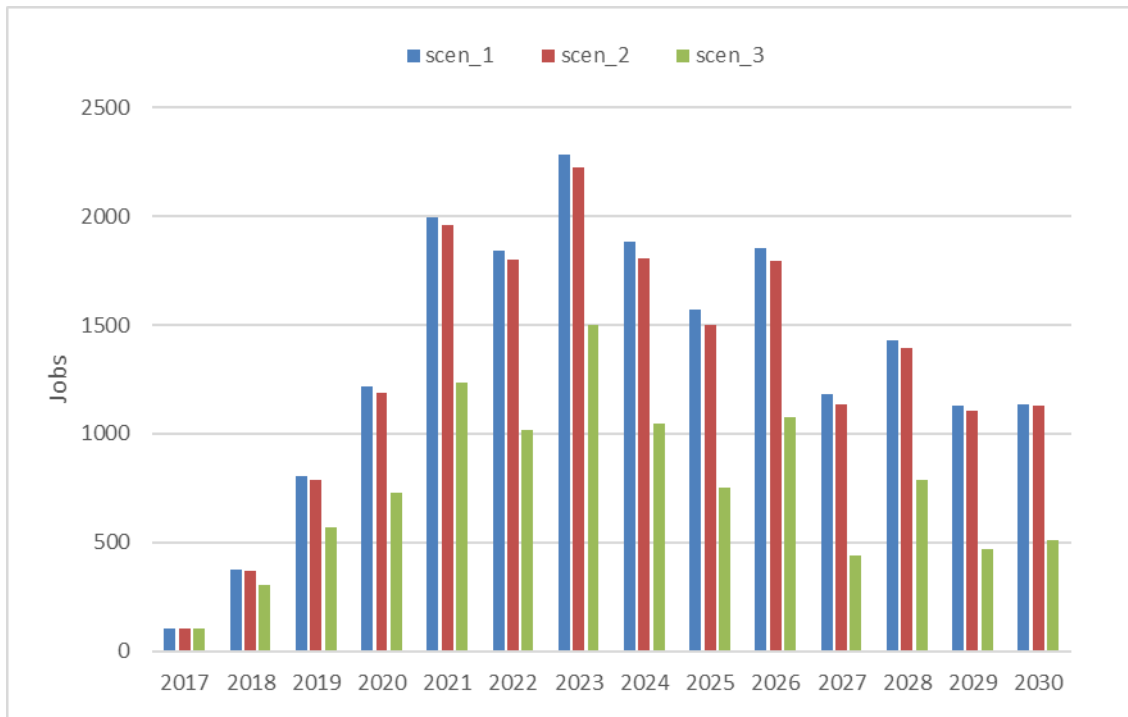
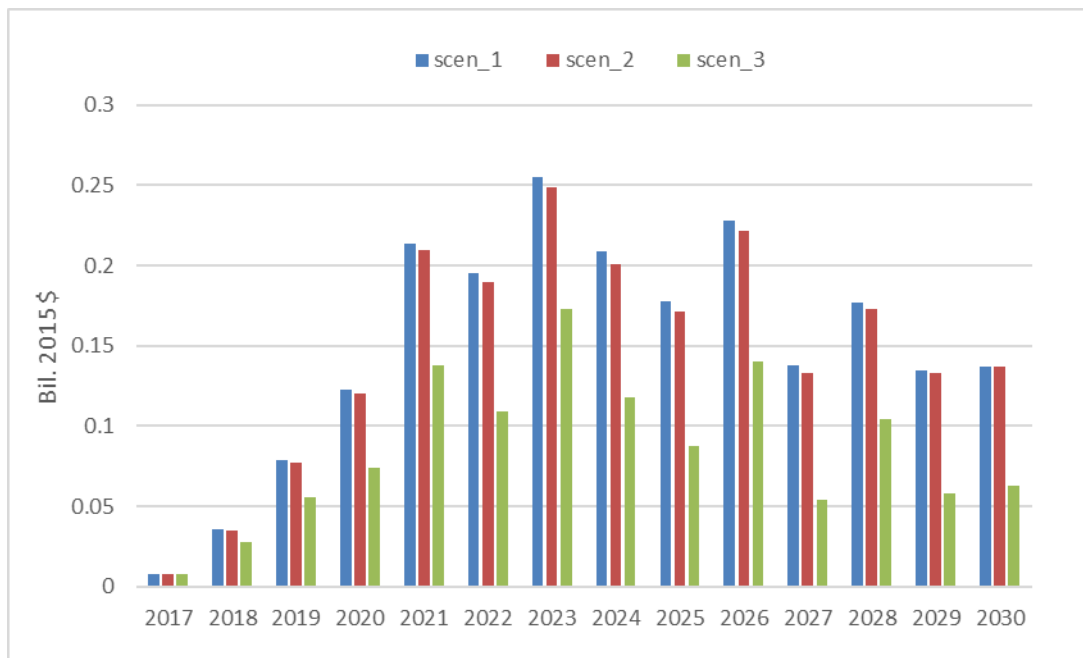


Figure 24. Alameda County Total Gross Regional Product Impacts by Scenario



County Job impact by Stage of Job generation, Scenario 1

Job changes typically start from a direct productive event that alters the need for labor, such as constructing a facility or opening/closing a business. Then there are the local cycles of business-to-business supplier transactions that follow (called indirect jobs), cycles of household spending from the direct and indirect paychecks (called induced jobs), and sometimes there are job changes due to changes in costs (rates) of a location which affect doing-business in the county. These are job impacts from competitiveness effects. The indirect and induced combined are referred to as multiplier effects. The total job impact reflects the direct, the multiplier, and the competitiveness effects. Figure 25 juxtaposes the county's direct job impacts with the total job impacts from Scenario 1. The majority of job creation in the scenario is from non-direct economic influences - specifically from the net rate savings which drives approximately 76 percent of the county's job gain (Figure 26). As shown in Appendix E, Scenario 2 would have an identical profile of direct jobs but a slightly lower total job profile, due to almost \$60 million of curtailed net rate savings (relative to scenario 1) through 2030. Scenario 3 has a slightly higher direct job profile but a greatly reduced total job impact profile.

Figure 25. CCA Scenario 1 County Job Impacts

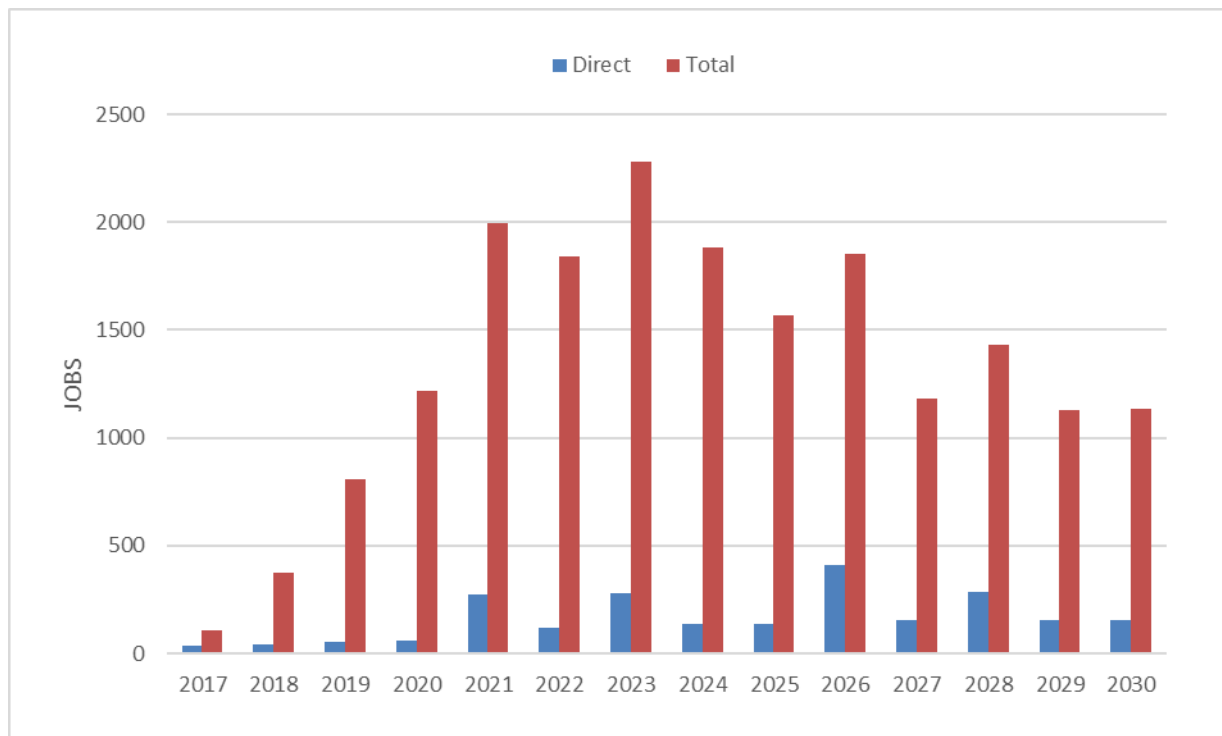
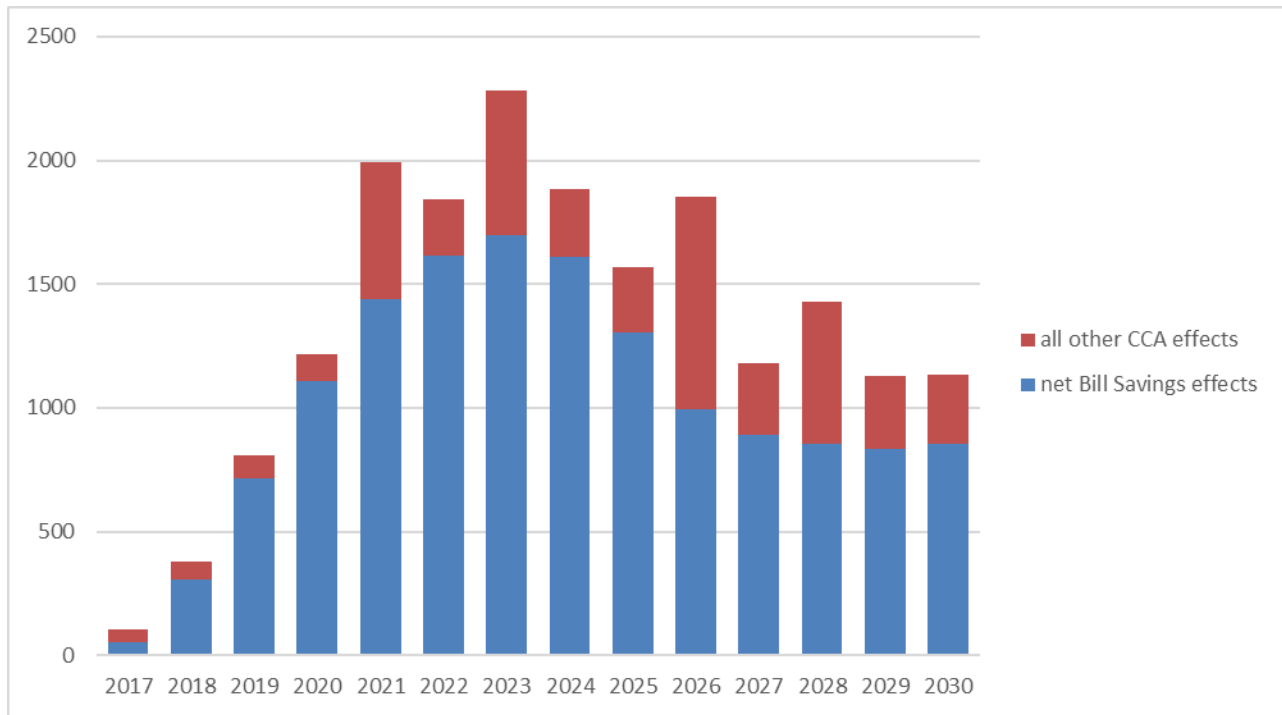


Figure 26. Alameda County CCA Scenario 1 Total Jobs Impacts by Source

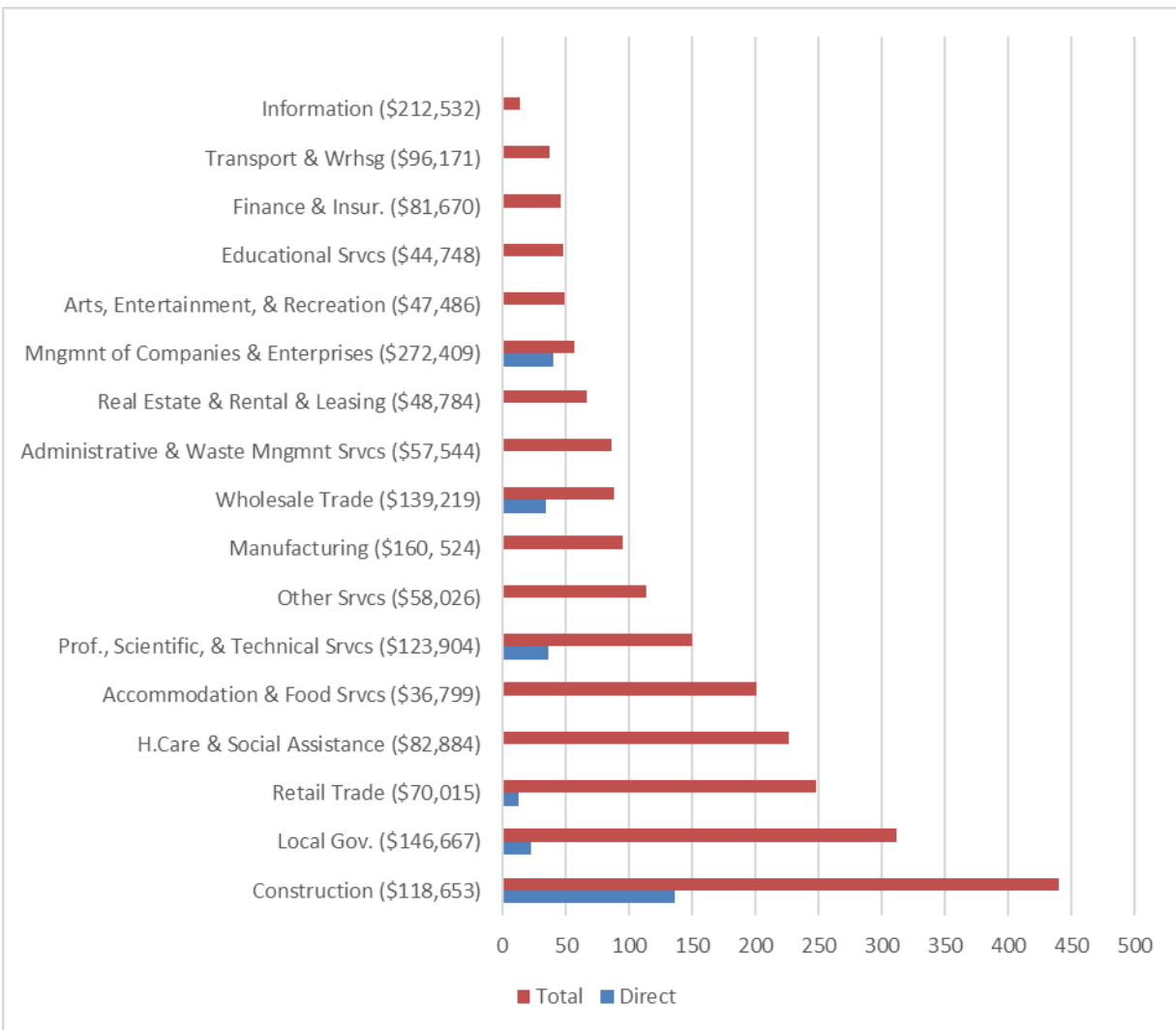


County Job Impacts by Sector 2023 (Scenario 1)

The county’s sectors which will create these jobs are shown next in Figure 27. The year 2023 is selected since it is when the maximum job impact was shown. Not all sectors are involved with CCA activities (the absence of direct jobs) but all do experience business growth -hence added jobs- as a result of multiplier effects and competitiveness effects. The per-worker 2023 (forecasted and nominal) earnings rate is shown to the right of the sector name. The average (weighted) annual earnings implied across the 2,282 jobs gained within the county in 2023 is \$102,120.

The results of the other two Scenarios are found in Appendix E.

Figure 27. Alameda County Jobs Changes by sector (annual earnings per worker), 2023



Focus on Construction Sector Jobs

The county economy does not forfeit Construction sector jobs (nor does the balance of California economy). In fact, as Figure 27 shows, Construction experiences the largest direct (136 jobs) and total job change (440) for 2023 among all sectors. The degree to which any of these jobs are held by union members or equivalently non-union laborers “working under a collective bargaining agreement (CBA)” is addressed by understanding the publicly available data sources that are used in calibrating any region of a REMI model. It should be noted that the REMI model does not carry a union segmentation on the industry specific employment data. REMI relies upon data series from the U.S. Department of Labor, Commerce and Census. All the data products are the result of states providing a mix of annual and quarterly reports. A consistent characterization of REMI’s Construction sector employment is obtained from (Census’) the

Current Population Survey – Earnings Report (2014) which for California shows approximately 20 percent of construction employment is engaged in work ‘covered’ by a CBA.⁴² Again those working under a CBA need not all be union members. The Construction sector activity in the two-region REMI model is therefore a blend of work, (20:80) covered-to-non-covered projects.

Table 18 shows average annual direct and total job impacts by scenario and how many occur in the Construction sector and which would be “covered” by a CBA. Because the direct construction jobs (in particular) vary markedly from year to year (depending upon if a generation project is under construction or not, it is informative to look at a single year). Table 19 shows the construction jobs in 2023, the peak year for direct construction activity. As the table shows, when a project is utility-scale is under construction, the construction jobs increase to about ten times the average number.

Table 18. County’s Average Annual Construction Job Impacts

Scenario	Jobs in All Sectors		Jobs in Construction Sector		Jobs Associated with CBA	
	Direct	Total	Direct	Total	Direct	Total
1	165	1322	80	235	16	47
2	166	1286	81	231	16	46
3	174	731	86	160	17	32

Table 19. Peak-Year Construction Job Impacts

CCA Scenario	Jobs in Construction Sector		Jobs Associated with CBA	
	Direct	Total	Direct	Total
1	136	440	27	88
2	137	432	27	86
3	154	326	31	65

The CBA distinction is important as it uses the prevailing hourly wage set by the CA Dept. of Industrial Relations⁴³ for public-funded projects. It is premature to determine how much of the

⁴² www.unionstats.com

⁴³ See page 49 of <http://www.dir.ca.gov/oprl/pwd/Determinations/Northern/Northern.pdf>

proposed CCA renewable capacity in any of the scenarios would indeed be public-funded (as opposed to power purchase agreements with third party private project developers). The straight-time⁴⁴ prevailing hourly “covered” wage rate for FY2016 in the northern counties (including Alameda County) for Group 3 construction laborers is \$49.74 which is 21 percent higher than the market rate (indicative of the aforementioned 20:80 blend) of \$40.96 in the REMI model.

A sensitivity run (Table 21) was conducted just for the macroeconomic impacts that considers 100 percent union or “covered” labor for the direct effect only. This did not require MRW to inflate the renewable project costs and then recalculate forecasted CCA electric rates as would be warranted. Instead – for scenario 1- the fixed (NREL JEDI model derived) labor share on MRW’s initial annual renewable investment would hire fewer but better paid (by 21 percent) construction laborers. As Table 20 shows the prevailing wage sensitivity has 13 fewer average annual direct (Construction) jobs but the gain in direct “covered” jobs means 51 construction laborers would be paid more.

Table 21. Scenario 1 Sensitivity on Direct Construction Requirements

	Market Wage (20% covered: 80% not covered)	Prevailing Wage (100% covered)
Scenario Direct Jobs	165	152
As Construction	80	67
UNION (Covered)	16	67
Non-UNION	64	0
	Market Wage (20% covered: 80% not covered)	Prevailing Wage (100% covered)
Scenario Total Jobs	1343	1321
As Construction	235	221
UNION (Covered)	47	98
Non-UNION	188	123

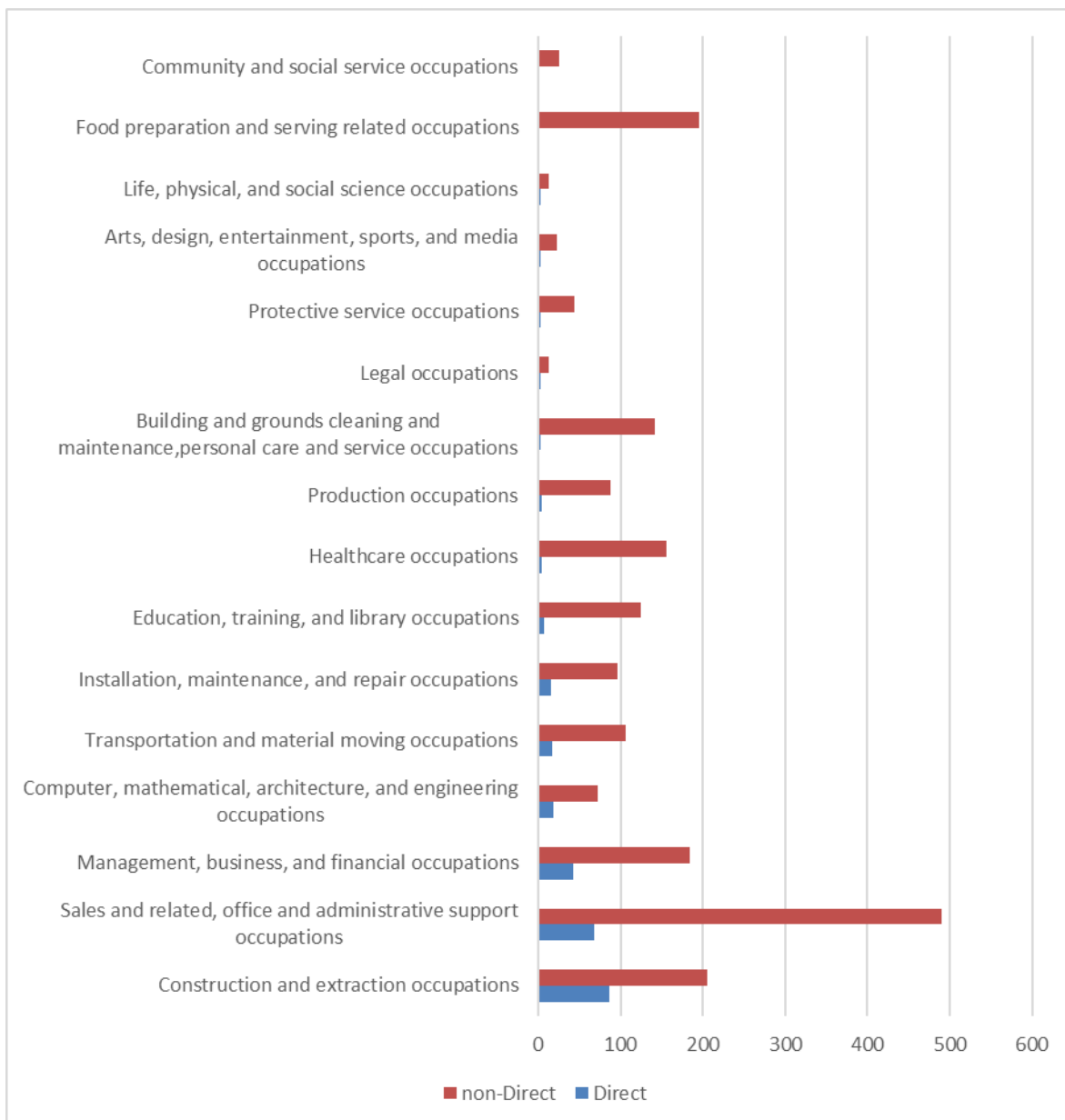
The other approach to testing this sensitivity would entail inflating the annual investment cost on renewable projects by the 21 percent labor premium, restating a higher set of CCA electric rate projections (from these renewable capacity additions) than the current report is based upon, leading to a reduced ‘rate savings’ effect. This would more drastically dampen the macroeconomic impacts than shown in Table 22 since the net rate savings have been shown to account for 76 percent of the county’s positive job impacts.

⁴⁴ Current Employer Statistics data for 2014 show on average a 40-hour work week in the Construction sector.

Occupation Impacts for Alameda County, 2023

Sectors that experience job changes will mean changes over a mix of their occupational requirements. For the maximum year of county job impact, 2023, the broad category occupational impacts are presented in Figure 28 for Scenario 1 as relates to the direct jobs and the non-direct jobs (direct plus non-direct equals the total jobs). They are shown in ascending order of direct stage occupational requirements. It should not be surprising that the non-direct stage of economic stimulation for the county creates a more pronounced set of occupational opportunities due to the magnitude of net rate savings benefitting all customer segments within the county. Note Military and Farming occupations are omitted due to zero or very small response in both stages of job generation.

Figure 28. Occupational Impacts Scenario 1, 2023



Chapter 6: Other Risks

Aside from the risks identified above, the CCA or the political jurisdictions that are part of the CCA could be at risk. This section addresses some of those risks.⁴⁵

Financial Risks to CCA Members

A CCA is effectively an association of various political subdivisions. The formation documents for the CCA define the rights and responsibilities of each member of the CCA. Given the large number of political subdivisions that might participate in an Alameda County CCA, MRW assumes that the Alameda CCA would be formed under a Joint Powers Authority, in much the same way as MCE Clean Energy and Sonoma Clean Power.

The CCA will ultimately take on various financial obligations. These include obtaining start-up financing, establishing lines of credit, and entering into contracts with suppliers. Because a CCA will take on such financial obligations, it is likely very important to the prospective member political subdivisions that the financial obligations of the CCA cannot be assigned to the members.

As a result, it is critical that the Joint Powers Authority and any other structuring documents are carefully drafted to ensure that the member agencies are not jointly obligated on behalf of the CCA (unless a member agency chooses to bear such obligations). The CCA should obtain competent legal assistance when developing the formation documents.⁴⁶

Procurement-Related Risks

Because a CCA is responsible for procurement of supply for its customers, the CCA must develop a portfolio of supply that meets the resource preferences of its customers (e.g., ratio of renewable versus non-renewable supply) while controlling risks (e.g., ratio of short-term versus long-term purchase agreements) and meeting regulatory mandates (e.g., resource adequacy and RPS requirements). Thus, it is tempting to assume that customers would prefer a fully hedged supply portfolio. However, such insurance comes at a cost and a CCA must be mindful of the potential competition from PG&E. As a result, the CCA's portfolio must be both flexible while meeting the needs of its customers.

The CCA will likely need to negotiate a flexible supply arrangement with its initial set of suppliers. Such an arrangement is important since the CCA's loads are highly uncertain during CCA ramp-up. Without such an arrangement, the CCA faces the risk of under- or over-procuring renewable or non-renewable supplies. Excessive mismatches between supply and demand of these different products would expose the CCA's customers to major purchases or sales in the spot markets. These spot purchases could have a major impact on the CCA's financials.

⁴⁵ Note that this section does not provide legal opinion regarding specific risks, especially those related to the formation or the structure of the Joint Powers Authority under which MRW assumes the CCA will be established.

⁴⁶ Cities such as El Cerrito and Benicia have conducted legal analyses when they were considering joining MCE, which should also be consulted.

The CCA will by necessity have to procure a certain amount of short-term supplies. These short-term supplies bring with them price volatility for that element of the supply portfolio. While this volatility is not unexpected, the CCA must be mindful that such volatility could increase the need for reserve funds to help buffer rate volatility for the CCA's customers. Funding such reserve funds could be challenging in this time of low gas prices (resulting in high PCIA charges).

The CCA will be entering the renewable market at an interesting time. While all LSEs must meet the expanded RPS targets by 2030, at least the IOUs are currently over-procured relative to their 2020 RPS targets. Whether the IOUs will attempt to sell off some of their near-term renewable supplies is unknown. However, if the IOUs believe that this is a good time to acquire additional renewables, the CCA could face stiff competition for renewable supplies, meaning that the green portfolio costs for the CCA might be higher than expected.

Finally, it should be noted that as greater levels of renewables are developed to meet the State's very aggressive RPS goals, it is possible that the traditional peak period will change. Adding significant amounts of solar could depress prices during the middle of the day. This could result in the need to try to sell power to out-of-state market participants during the middle of the day, possibly even at a loss. It could also result in the curtailment of renewable resources (even resources owned or controlled by the CCA). This could force the CCA to acquire greater levels of renewable supplies, thereby increasing costs.

Legislative and Regulatory Risks

As noted above, the CCA must meet various procurement requirements established by the state and implemented by the CPUC or other agencies. These include procuring sufficient resource adequacy capacity of the proper type and meeting RPS requirements that are evolving.⁴⁷ Additional rules and requirements might be established. These could affect the bottom line of the CCA.

PCIA Uncertainty

Assembly Bill 117, which established the CCA program in California, included a provision that states that customers that remain with the utility should be "indifferent" to the departure of customers from utility service to CCA service. This has been broadly interpreted by the CPUC to mean that the departure of customers to CCA service cannot cause the rates of the remaining utility "bundled" customers to go up. In order to maintain bundled customer rates, the CPUC has instituted an exit fee, known as the "Power Charge Indifference Adjustment" or "PCIA" that is charged to all CCA customers. The PCIA is intended to ensure that generation costs incurred by PG&E before a customer transitions to CCA service are not shifted to remaining PG&E bundled service customers.

Even though there is an explicit formula for calculating the PCIA, forecasting the PCIA is difficult, since many of the key inputs to the calculation are not publicly available, and the results are very sensitive to these key assumptions. For PG&E, the PCIA has varied widely; for example, at one time the PCIA was negative.

⁴⁷ Rules to establish RPS requirements under the new 50% RPS mandate are currently being debated at the CPUC.

Current CCAs have chosen to have customers bear the financial risk associated with the level of exit fees they will pay to PG&E. Thus, for a customer taking CCA service to be economically better off (i.e., pay less for electricity), the sum of the CCA charges plus the PCIA must be lower than PG&E's generation rate.

This risk can be mitigated in two ways. First, as discussed in more detail elsewhere, a rate stabilization fund can be created. Second, the CCA can actively monitor and vigorously participate in CPUC proceedings that impact cost recovery and the PCIA.

Impact of High CCA Penetration on the PCIA

Currently, the PCIA calculation is based on the cost and value of a utility's portfolio, without regard to how much of that portfolio is to be paid for by bundled customers and how much by Direct Access (DA) and CCA customers. As such, the PCIA is not affected by the number of DA/CCA customers.

Currently, for bundled customers the rate impacts associated with fluctuating PCIA's are relatively small, but this will change as the number of DA/CCA customers grows. At some point, bundled customers' rates may experience marked volatility as the impacts of the annual PCIA rate swings reverberate to bundled rates. This may be unacceptable to ratepayer advocates and the Commission.

The PCIA rate volatility in part reflects changes to the utilities generation costs, which is appropriately reflected in bundled customers' rates. But, often to a large degree, it reflects changes to the market price benchmark, which should not be relevant to bundled customer rates. For a utility with flat RPS costs, this would have increased the RPS-related PCIA, which would have reduced bundled rates, even though there was no change in RPS costs. This could also happen in the reverse direction, increasing bundled rates when there is no increase in underlying generation costs.

Once DA/CCA load gets large enough that there are real stranded contracts, we suspect that the Commission is going to look much more closely at the value of these stranded contracts (and how to get the most value for them).

Bonding Risk

Pursuant to CPUC Decision 05-12-041, a new CCA must include in its registration packet evidence of insurance or bond that will cover such costs as potential re-entry fees, specifically, the cost to PG&E if the CCA were to suddenly fail and be forced to return all its customers back to PG&E bundled service. Currently, a bond amount for CCAs is set at \$100,000.

This \$100,000 is an interim amount. In 2009, a Settlement was reached in CPUC Docket 03-10-003 between the three major California electric utilities (including PG&E), two potential CCAs (San Joaquin Valley Power Authority and the City of Victorville) and The Utility Reform Network (TURN) concerning how a bonding amount would be calculated. The settlement was vigorously opposed by MCE and San Francisco and never adopted.

Since then, the issue of CCA bond requirements has not been revisited by the CPUC. If it is, the bonding requirement will likely follow that set for Energy Service Providers (ESPs) serving direct access customers. This ESP bond amount covers PG&E's administrative cost to reintegrate a failed ESP's customers back into bundled service, plus any positive difference between market-based costs for PG&E to serve the unexpected load and PG&E's retail generation rates. Since the ESP bonding requirement has been in place, retail rates have always exceeded wholesale market prices, and thus the ESP's bond requirement has been simply the equal to a modest administrative cost.

If the ESP bond protocol is adopted for CCAs, during normal conditions, the CCA Bond amount will not be a concern. However, during a wholesale market price spike, the bond amount could potentially increase to millions of dollars. But the high bond amount would likely be only short term, until more stable market conditions prevailed. Also it is important to note that high power prices (that would cause a high bond requirement) would also depress PG&E's exit fee and would also raise PG&E rates, which would in turn likely provide the CCA sufficient headroom to handle the higher bonding requirement and keep its customers' overall costs competitive with what they would have paid had they remained with PG&E. As discussed above, JPA member entities would not be individually liable for any increase in the bond amount.

Chapter 7: Other Issues Investigated

Funding, Costs, and Impacts of the Energy Efficiency Program Scenario

Having established that both adequate economic and market potential exist beyond what is currently being targeted through PG&E programs, the MRW Team estimated how much efficiency could reasonably be captured by assessing the availability of funding for energy efficiency, and the cost of to acquire it through various programs. Understanding available funding options and costs allowed the MRW team to determine the amount of energy efficiency that could be acquired in various funding options and use this to calculate the economic inputs for the REMI model.

To assess funding, CCA's have several funding options, including;

- Funds from Non-bypassable Electric Charges – CPUC Ruling R.09-11-014 defined various funding options for CCAs that are administrators of energy efficiency programs, and also outlined some of the funding authorities available to CCA's that elect to not administer programs
- Funds from Non-bypassable Gas Charges – CPUC Decision D.14-10-046 allows CCA's to administer programs that include funds collected from natural gas customer. This analysis did not estimate the value of these funds.
- Income from CCA Operations. Income generated through CCA operations may be used to fund customer programs.
- Funding secured by aligned organizations, such as StopWaste's Energy Council, on behalf of a CCA.
- Increased funding through the expansion of the CCA territory. Under current regulations it is allowed for a CCA to define its service territory more broadly than a city or county. As such, the rules that define the funding for Alameda County residents would apply to new participants in a CCA and so provide incremental program funding. For example, in 2015 Marin Clean Energy began serving customer in Contra Costa County and has increased its available program funding as a result of this enrollment.

This analysis only considered the impact of Non-bypassable Electric Charges. Using rules defined in CPUC Ruling R.09-11-014 and various cost reports⁴⁸, Table 23 shows that approximately \$3.9M would be available for programs administered by a CCA to Alameda County residents, including both CCA and PG&E customers, or \$3.5M if these programs serve only CCA customers, assuming a 15% opt-out rate.

⁴⁸ Electric and Gas Utility Cost Report. Public Utilities Code Section 913 Report to the Governor and Legislature, April 2016.

Table 23. Annual Funding Models for Non-bypassable Electric Charges

Annual Funding Models for Non-bypassable Electric Charges	Estimated Value
Program Administrator - CCA and PG&E customers	\$3,941,000
Program Administrator - CCA customer only	\$3,350,000

The cost of energy was determined by analyzing the 2015 PG&E portfolio to identify the costs per first year net kWh for programs that are likely to be the most representative of programs administered by an Alameda CCA. An analysis the PG&E portfolio, including the programs presented in Table 24, indicates that \$0.61 per net first year kWh is a reasonable estimate of the current unit cost of energy efficiency.

Table 24. Select Unit Costs for Energy Efficiency (\$/ net kWh)

Program Administrator	Sub-Program Name	Percent Program Savings that are Electric	Cost Per First Year Net kWh Equivalent
PG&E	Commercial Energy Advisor	18%	\$0.18
MCE	MEA 02 - Small Commercial	79%	\$0.37
PG&E	Lighting Programs Total	100%	\$0.38
MCE	MEA01 2013-14 MF - Multifamily	36%	\$0.59
PG&E	East Bay	93%	\$0.59
Third Party	RightLights	100%	\$0.75
PG&E	Energy Savers	100%	\$0.81
Third Party	Energy Fitness Program	100%	\$0.84

The MRW teams defined the level of energy efficiency input into the REMI model by dividing the available funding by the units cost of energy efficiency as defined above, using the following assumptions;

- Available annual budget for energy efficacy programs is based on the maximum funding equation provided in R.09-11-014, and assuming programs are administered only to CCA customers. As discussed in Table 23, this represents approximately \$3.5M annually.
- The cost of energy efficiency programs most likely to be offered under and a CCA would be \$0.61 per net first year kWh.

- The savings from energy efficiency during the forecast horizon would grow at a rate consistent with expected annual energy demand as defined in the 2015 CEC IEPR demand forecast.⁴⁹
- Demand savings would be consistent with the ratio of demand to energy savings achieved by the programs most likely to be offered by a CCA as presented in Table 24.

Based on this methodology, Table 25 provides a summary of model energy and demand savings inputs. Note that these savings numbers are incremental to PG&E goals, which average about 42 GWh annually from 2021 through 2024, as defined in the CPUC potential model, which has a forecast horizon ending in 2024.

Table 25. Model Energy and Demand Savings Inputs

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Annual incremental energy savings (GWh)	5.7	5.8	5.9	5.9	6.0	6.0	6.1	6.1	6.2	6.3
Annual incremental demand savings (MW)	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0

“Minimum” CCA Size?

MRW’s analysis above assumed that all eligible Alameda County cities join the Alameda CCA program with a participation rate of 85% from each city, resulting in an anticipated CCA load of about 7 million MWh per year.⁵⁰ If fewer customers join, CCA rates will generally be higher because about \$8 million of annual CCA costs are invariant to the amount of CCA load. Along with the number of customers, the customer make-up is also important. For example, a higher share of residential customers would improve the competitiveness of the CCA, while a higher share of commercial customers or industrial customers would weaken the competitiveness of the CCA. Since cities vary in their distribution of customers by rate class, a city opting out of the CCA could affect the competitiveness of the CCA due to both the reduction in CCA load and the shift in customer make-up.

The “minimum” load needed for CCA customer rates to be no higher than PG&E customer rates is approximately 450,000 MWh per year, assuming the average customer portfolio for Alameda County and Supply Scenario 1. This value was estimated by assuming that the fixed costs remained the same (i.e., did not scale with sales) and then lowering the sales until the hypothetical reduced CCA’s rates were equal to PG&E’s. As shown in the Figure 29, this is roughly the load from each of the medium-sized cities (e.g., Pleasanton and San Leandro) and much smaller than the load from the larger cities (e.g., Berkeley, Oakland, and Fremont). As

⁴⁹ Form 1.1 - PGE Planning Area California Energy Demand 2015 Revised - Mid Demand Case. Electricity Consumption by Sector (GWh)

⁵⁰ In the alternate supply scenarios, the “minimum” annual load assuming the average customer portfolio for Alameda County and the base case is 550,000 MWh (Scenario 2) and 1,000,000 MWh (Scenario 3). These “minimum” loads are also far below the expected annual CCA load of 7 million MWh.

long as two medium-sized cities or one larger city joins the CCA, this “minimum” load will be met. It is not a true minimum, however, because the true minimum depends on the make-up of the customer portfolio.

Figure 30. Potential load (85% participation) per city

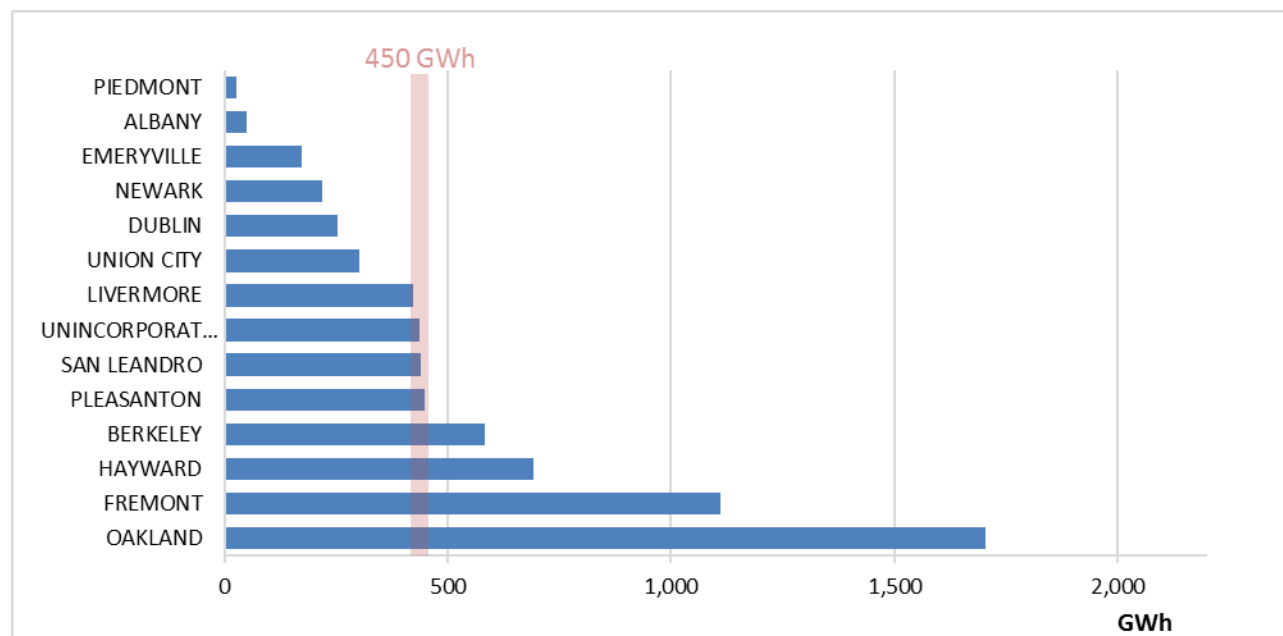


Table 26. Examples of Combinations of Cities and the Average Generation Rate

Examples of city combinations	ONLY BERKELEY		ONLY PLEASANTON		ONLY DUBLIN + NEWARK		TOTAL ALAMEDA COUNTY
	Potential Load (MWh)	Customer Class (%)	Potential Load (MWh)	Customer Class (%)	Potential Load (MWh)	Customer Class (%)	Customer Class (%)
Residential	136,000	23.37%	158,000	35.11%	160,000	33.83%	32.90%
Commercial	176,000	30.24%	232,000	51.56%	234,000	49.47%	43.70%
Industrial	74,000	12.71%	36,000	8.00%	41,000	8.67%	13.80%
Public	193,000	33.16%	19,000	4.22%	35,000	7.40%	8.60%
Street lights + Pumping	3,000	0.52%	5,000	1.11%	3,000	0.63%	1.00%
TOTAL	582,000		450,000		473,000		
Average PG&E rate (¢/kWh)		9.71		10.56		10.51	10.36
Average Alameda rate (¢/kWh)		9.92		10.48		10.19	8.28
Differential rate (¢/kWh)		-0.21		0.08		0.32	2.08

Individuals and Communities Self-Selecting 100% Renewables

The existing CCAs all offer customers an option to choose to receive 100% of their power from renewable resources in exchange for a rate premium. However, each CCA's program is different. MCE Clean Energy has offered its "Deep Green" at a rate premium of 1¢/kWh since its inception. Sonoma Clean Power offers its "Evergreen" option at approximately the same price as PG&E's "Solar Choice" rate. Lancaster Choice Energy offers its Smart Choice as a fixed monthly premium rather than a variable rate. In all cases, only a very modest number of CCA customers—on the order of a few percent—have selected the 100% green rate option.

Table 27. CCA 100% Green Rate Premiums

CCA	Rate Option	Increment Above Default Rate
Marin Clean Energy	Deep Green	1¢/kWh
Sonoma Clean Power	EverGreen	3.5¢/kWh
Lancaster Choice Energy	Smart Choice	\$10/month
Potential Alameda Co. CCA	TBD	~1.5¢/kWh

Any full renewable pricing option offered by the Alameda CCA would have to be set by the CCA's management. The value shown in Table 27, ~1.5¢/kWh, is the average incremental cost of green power used in the CCA supply assessment (Scenario 2) over the study period. (Initially, it would have to be ~1.9¢/kWh.) Thus the actual number of hypothetical customers selecting the rate would not impact the economics of the CCA customer who remain on the standard rate.

- Representatives from at least two communities, Berkeley and Albany, have expressed interest in having their residents and businesses default onto a 100% renewable rate. If priced at the cost of incremental renewables, such as is assumed in Table 27, then there would be no financial impact on the CCA or its remaining customers. Nonetheless, it could have implications:
- Separate CCA opt-out notifications would be needed. A key feature of the opt-out notification is the price comparisons against PG&E. As the default rate would be different for these communities, a different notice would have to be sent. This would simply increase the start-up cost for the CCA, the increment could be paid for by the city electing a different default rate.
- Having a higher default rate might increase the number of opt-outs in the community.
- PG&E's billing system would have to be able to handle city- or zip code-specific default options. That is, as new residential or businesses move to a self-selected green community, the billing system would need to know to default them on a

different rate schedule than a customer in a different CCA community. This may or may not be an issue.

Competition with a PG&E Community Solar Program

PG&E has been offering a solar choice program known as Green Tariff Shared Renewable Program since February 2015.⁵¹ The program was established under Senate Bill 43, and pursuant to Decision 15-01-051 from the CPUC, to extend access to renewable energy to ratepayers that are currently unable to install onsite generation.⁵² It offers homes and businesses the option to purchase 50% or 100% of their energy use from solar resources. The program provides those with homes or apartments or businesses that cannot support rooftop solar the opportunity to meet their electricity requirements through renewable energy and support the growth of renewable energy resources.

PG&E's current Solar Choice program costs residential customers an additional 3.58¢/kWh. Given that MRW projects that the CCA can offer 100% green power at ~1.5¢/kWh over its own Scenario 1 or Scenario 2 rate (which is projected to be less than PG&E's), we do not see PG&E's Community Solar Program as an immediate threat.

The program is open for enrollment until subscriptions reach 272 MW or January 1, 2019, whichever comes first.⁵³ While this does limit the ability for PG&E to provide a 100% renewable option in the long-run, at the start of the CCA this program it provides an opportunity for customers who desire 100% renewable power to remain with PG&E.

Additional Local Renewables

As noted in Chapter 2, relatively conservative penetrations of locally-sited renewable generation (solar) was included in the quantitative analysis. Even in scenario 3, the most aggressive with respect to renewables, the modeling assumed only 175 MW of in-county solar. Other individuals and studies have placed the potential for solar in the Alameda County at much higher levels. For example, a 2012 study conducted for Pacific Environment, a San Francisco-Based environmental non-governmental agency, placed the "technical potential" for rooftop and parking lot PV at over 3,700 MW.⁵⁴ However, it must be noted that technical potential is different than economic or achievable potentials; it represented the absolute ceiling on this kind of PV in the county.

Assuming that greater amounts of this solar potential can in practice be tapped has a number of implications for the results of this study. First, greater local solar will increase CCA costs. As noted in the supply section of Chapter 2, in-county solar costs about 15% more than solar located in lower cost, inland counties, and small solar, such as is quantified in the Pacific Environment report, is typically 55% more costly than central solar. This increased cost will narrow the

⁵¹ PG&E website

http://www.pge.com/en/b2b/energysupply/wholesaleelectricssuppliersolicitation/RFO/CommunitySolarChoice.page?WT.mc_id=Vanity_communitysolarchoice . Accessed 5/16/2016

⁵² California Public Utilities Commission, Decision 15-01-051, p.3

⁵³ Solar Choice Program FAQs website,

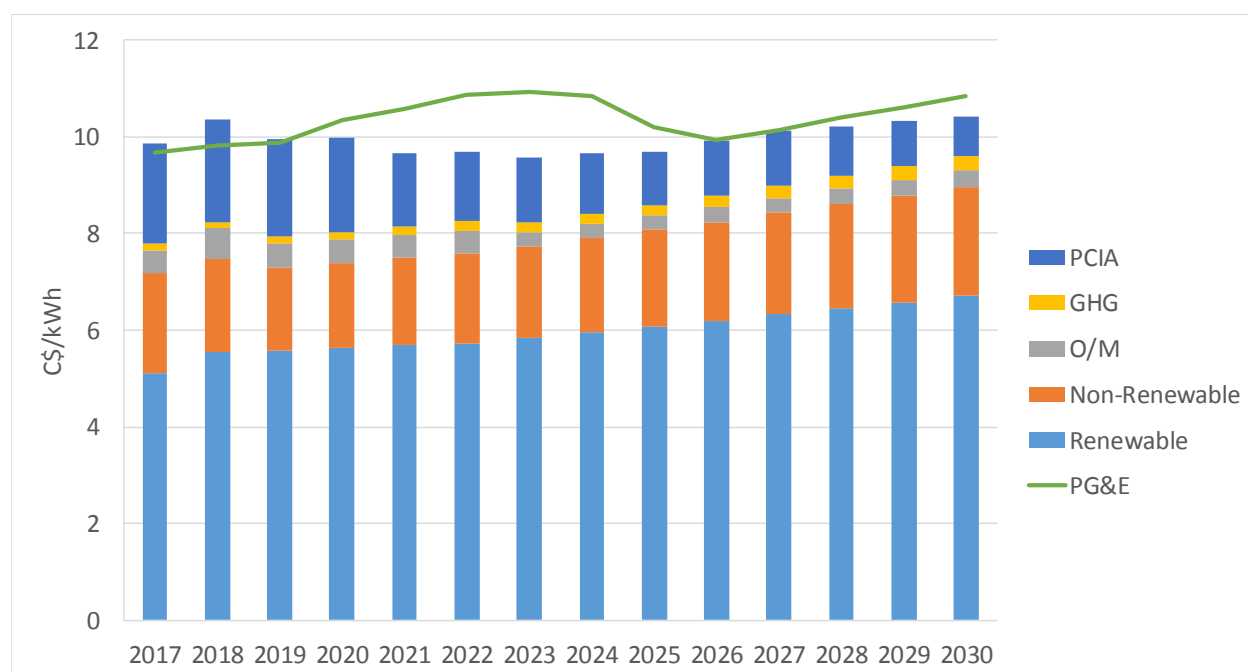
<https://www.pge.com/en/myhome/saveenergymoney/solar/choice/faq/index.page> Accessed, 5/16/2016

⁵⁴ Powers, Bill, "Bay Area Smart Energy 2020," March 2012.

difference between the rates that the CCA can offer and PG&E. Still, as the analysis has shown, there is significant financial “headroom” to allow for this.

To explore this, we ran Scenario 2 with the assumption that 50% of the renewables were locally sourced. This implies that in 2025, there would be about 925 MW small solar (less than 3MW, including rooftop) and 888 MW large solar in the county (assuming that it can be phased in that quickly). As shown in Figure 31, the margin between the CCA’s costs (bars) and the projected PG&E generation rates is much closer than in the standard Scenario 2. This is not unexpected, as local renewables are assumed to be more costly than large-scale ones located in lower-cost areas of the state.

Figure 31. Scenario 2 with 50% of the Renewables Met Using In-County Generation



The impacts on the macroeconomics are more complex. Additional local solar would increase local direct jobs by employing more workers to install and maintain solar arrays. On the other hand, the greater driver of jobs, the bill savings from reduced rates, would go down with the increased CCA costs. While this scenario was not explicitly modeled, the results of the three scenarios at were model strongly suggest that total economic activity and jobs would decrease with the inclusion of more local renewables in the CCA’s supply portfolio.

A macroeconomic and jobs impact of Alternative Scenario 2 will be explored quantitatively in REMI in an addendum to this report, to be issued in late June.

Chapter 8: Conclusions

Overall, a CCA in Alameda County appears favorable. Given current and expected market and regulatory conditions, an Alameda County CCA should be able to offer its residents and business electric rates that are a cent or more per kilowatt-hour less than that available from PG&E.

Sensitivity analyses suggest that these results are relatively robust. Only when very high amounts of renewable energy are assumed in the CCA portfolio (Scenario 3), combined with other negative factors, do PG&E's rates become consistently more favorable than the CCAs.

An Alameda CCA would also be well positioned to help facilitate greater amounts renewable generation to be installed in the County. While the study assumed a relatively modest amount for its analysis—about 175 MW, other studies suggest that greater amounts are possible. Because the CCA would have a much greater interest in developing local solar than PG&E, it is much more likely that such development would actually occur with a CCA in the County than without it.

The CCA can also reduce the amount greenhouse gases emitted by the County, but only under certain circumstances. Because PG&E's supply portfolio has significant carbon-free generation (large hydroelectric and nuclear generators), the CCA must contract for significant amounts of carbon-free power above and beyond the required qualifying renewables in order to actually reduce the county's electric carbon footprint. For example, even assuming that the CCA implements a portfolio with 50% qualifying renewables and contracts with carbon-free hydropower 50% of the remaining power (i.e., 50% renewable, 25% hydro, 25% fossil/market), it would only then just barely result in net carbon reductions. However, the extent to which GHG emissions reductions occur is also a function of the amount of hydroelectric power that PG&E is able to use. If hydro output (continues) to be below historic normal levels, then the CCA should be able to achieve GHG savings, (as long as it is also contracting for significant amounts of carbon-free (likely hydroelectric) power). Therefore, if carbon reductions are a high priority for the CCA, a concerted effort to contract with hydroelectric or other carbon-free generators would be needed.

A CCA can also offer positive economic development and employment benefits to the County. At the peak, the CCA would create approximately 2300 new jobs in the region. The large amount for be for construction trades, totaling 440 jobs. What may be surprising is that much for the jobs and economic benefit come from reduced rates; residents, and more importantly businesses, can spend and reinvest their bill savings, and thus generate greater economic impacts.



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TO: CCE City Staff and City Steering Committee Representatives

FROM: Chris Bazar, Director, Community Development Agency
Bruce Jensen, Senior Planner
Shawn Marshall, CCE Consultant

DATE: November 8, 2016

RE: CCE Financing Requirements and Options

Background

The following is a detailed summary of capital and credit requirements for new Community Choice Energy (CCE) programs that is informed by the experiences of other multi-jurisdictional CCE programs in California. This framework will inform the discussions of the new East Bay Community Energy (EBCE) Board of Directors as it pursues agency working capital and longer term credit arrangements. It should be noted, however, that CCE credit terms/availability are rapidly evolving, and there may be other credit opportunities or structures the EBCE Board may wish to consider.

Financing for new, multi-jurisdictional CCE programs generally falls into three capital categories:

- 1) Seed Capital -- Initial program planning and start-up
- 2) Bridge Financing/Line of Credit -- Program launch/initial power contract(s)
- 3) Working Capital/Term Debt – for longer term EBCE operations, power projects

Seed Capital: Financing for pre-revenue start-up has generally been provided by local governments interested in forming a CCE program. In EBCE's case, the County of Alameda has stepped up to provide \$3.7 million in upfront monies to cover the costs of early planning, technical analytics, and the various tactical steps involved in EBCE formation and program implementation. As discussed in the JPA Agreement, this initial capital investment will be reimbursed to the County within 3 or less years of EBCE program launch and revenue.

Bridge Financing/Line of Credit: New CCE programs (and their JPAs) need to form independent, long-term banking and credit relationship(s) to move from initial start-

up into full operations. A bridge loan or initial line of credit covers pre-revenue, negative cash flow in the early stages of program launch and, most importantly, provides the capital necessary to sign contracts in the wholesale power market. EBCE cannot launch and begin serving customers until those contracts are signed and executed. The amount of early working capital that is needed will be dependent on EBCE's customer phasing plans, early staffing/Agency expenses, and the size and cost of the initial energy contract(s). Lines of credit can range from a low of \$5M to a high of \$20M or more depending on the program size at initial launch.

This debt is usually put in place approximately 6 months prior to program launch, is short-term (e.g., a 1-2 year line of credit), and is often provided by a lender, although it can be municipally or vendor financed as well.

Unless there is some other arrangement agreed to by the JPA Board, the amount of pre-revenue credit needed to support the new program will require a credit guaranty. This credit backing, analogous to a co-sign on a mortgage loan, is usually provided by one or more members of the CCE Agency. The guaranty requirement is released soon after revenues begin flowing (usually within 6-12 months) and the Agency is ready for longer-term debt and larger lines of credit.

Some notes regarding bridge financing/early working capital:

- This type of financing requires a guaranty to cover pre-revenue credit, which will be released when the CCE is generating solid revenues
- This debt will provide the credit backing required for the initial energy supply contract, utility bond and supplier deposits, and early operating expenses.
- This debt can be used to repay initial seed capital once the program is generating revenue
- During the time the CCE is seeking working capital, it will also want to consider other banking services such as deposit accounts, secured account ("lockbox") services and the like. If these services are provided by the lender as a bundled package with the loan, interest rates and terms are generally more favorable.

Longer Term Debt/Term Loans, Etc: Once the program is revenue-positive, fully independent, and operationally more mature, EBCE will want to consider longer-term debt, lines of credit and perhaps bond financing to support an expanded portfolio of energy contracts, local energy programs, and local power development.

Typically, this type of longer-term debt is used to refinance early working capital and, because it is backed by Agency revenues, does not have a credit guaranty requirement. This type of debt is generally offered at a stable, fixed rate that can be repaid over time and may be accompanied by a separate line of credit to serve as backing for power contracts. Existing CCE programs have

found it important to focus on building early program reserves in order to secure better credit terms and receive a credit rating which is required for bond financing.

It should be noted that CCE's can be very large with significant capital requirements, especially as the program matures. It is important to make sure the bank is large enough to finance your program over the long term. Banks need to live within their loan-deposit caps, so it is essential to ensure enough credit capacity for the program's long-term needs.

Underwriting Considerations

When a bank or other lender considers lending to a new CCE program, it will consider a number of factors including the management team: Does the Chairman, CEO, and other management team demonstrate knowledge of the power markets, power procurement, utility functions and energy programs? Does the team have a combination of relevant, seasoned experience and a spirit of innovation and entrepreneurship? Does it have political savvy and a robust regulatory function and marketing program?

The bank will also consider the program's revenue projections and financial modeling, which provides a detailed forecast of program expenses and revenues over a period of years. The knowledge and credibility of the author of the financial pro forma(s) and operating budget is very important. Finally, the bank will also consider the level of community support, number of local government members/ potential customers, and the efficacy of the JPA Board, governance structure and risk management controls in its underwriting process.

What Does this Mean for the Cities?

As noted earlier, Alameda County has committed to providing the upfront monies needed to support most of the pre-revenue expenses to get EBCE to launch. The debt that is contemplated above is that which is needed to support EBCE's initial power supply purchases and longer-term Agency operations.

Credit and financing is one of the first issues that the new EBCE Board will be addressing in the new year. As noted, there are a few ways to fulfill early credit needs, one of which MAY include some level of credit support (via a letter of credit) from member jurisdictions that are willing to participate. This would be a request, *not a requirement*, of EBCE Agency members.

A question has arisen about the disposition of a credit guarantee provided by a member agency if that agency decides to terminate JPA membership and participation. Per the EBCE JPA Agreement, here's how that is addressed:

- 1) The only opportunity for a member jurisdiction to withdraw from EBCE prior to launch of service is if the program can't beat PG&E on generation rates, level of renewables and GHG emissions. No credit will be spent (nor power contract signed) until EBCE has power supply proposals that say with certainty that these minimum thresholds can be met. If those thresholds are met, the member agencies are obligated to move forward. If the thresholds cannot be met, the line of credit will go unused and the County will be "out" its initial seed capital. We do not expect this to happen.
- 2) If a jurisdiction decides to terminate membership and participation after program launch, the status of the credit guarantee will be included with its pro-rata share of residual contract expenses and other carry-over costs associated with its departure. The good news is that the credit guarantee requirements don't remain in place for long (usually a year or less) and it's highly unlikely a city would leave within the first year. The cost and administrative considerations would make departure so soon after program launch difficult for the member agency.

If you have any questions about this information, please feel free to reach out to Bruce Jensen on our team by email or phone. As noted, credit and financing for the new Agency will be one of the early operational elements the EBCE Board will address.



City of San Leandro

Meeting Date: November 21, 2016

Resolution - Council

File Number: 16-591

Agenda Section: ACTION ITEMS

Agenda Number:

TO: City Council

FROM: Chris Zapata
City Manager

BY: City Council

FINANCE REVIEW: David Baum
Finance Director

TITLE: RESOLUTION Approving an Agreement to Participate in a Joint Powers Agency For a Community Choice Aggregation Program in Alameda County

WHEREAS, the San Leandro City Council has demonstrated its commitment to an environmentally sustainable future through its policy goals and actions, including energy reduction, clean energy programs, and the expansion of local renewable power supply; and

WHEREAS, the City Council adopted a Climate Action Plan in December 2009 to reduce greenhouse gas emissions; and

WHEREAS, Community Choice Aggregation is a mechanism by which local governments assume responsibility for providing electrical power for residential and commercial customers in their jurisdiction in partnership with local commercial energy purveyors and owners of transmission facilities, which in the case of Alameda County is Pacific Gas & Electric Company; and

WHEREAS, Community Choice Aggregation has the potential to reduce greenhouse gas emissions related to the use of power in Alameda County; provide electric power and other forms of energy to customers at a competitive cost; carry out programs to reduce energy consumption; stimulate and sustain the local economy by developing local jobs in renewable energy; and promote long-term electric rate stability and energy security and reliability for residents through local control of electric generation resources; and

WHEREAS, the City Council and the Alameda County Board of Supervisors have examined and identified Community Choice Aggregation as a key strategy to meet local clean energy goals and projected greenhouse gas reduction targets; and

WHEREAS, in June 2014, the Alameda County Board of Supervisors directed the Alameda County Community Development Agency (CDA) to determine if a Community Choice Aggregation program is feasible for Alameda County; and

WHEREAS, in 2015, CDA staff engaged MRW & Associates of Oakland to prepare a Technical / Feasibility Study (Technical Study for Community Choice Aggregation Program in Alameda County, Draft (MRW & Associates, July 2016); and

WHEREAS, taken comprehensively, the Technical Study suggests that an Alameda County CCA would be feasible, could operate economically, could provide ratepayers reductions on their electric bills, and could both increase renewable energy and reduce greenhouse gas emissions if the right balance is achieved by a JPA; and

WHEREAS, if a municipality is to form a CCA with other municipalities, it must become a part of a Joint Powers Agency (JPA) as required by the legislation that permits CCAs, known as Assembly Bill 117 (Migden, 2002); and

WHEREAS, a draft JPA Agreement has been prepared by the Office of the County Counsel and has been reviewed by City Attorneys across Alameda County and the membership of the Steering Committee over the course of several months.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of San Leandro that the Council does hereby approve the agreement entitled, "East Bay Community Energy Authority - Joint Powers Agreement" in order to participate with other prospective signatories in a CCA Joint Powers Authority for Alameda County municipalities, and authorizes the City Manager and/or his designee to execute said agreement and any amendments or related documents.

BE IT FURTHER RESOLVED that in taking this action, the City of San Leandro is not committing to providing working capital to the JPA upon its formation and any proposals for such City involvement must be subsequently approved by the City Council of the City of San Leandro.



City of San Leandro

Meeting Date: November 21, 2016

Ordinance

File Number: 16-592

Agenda Section: ACTION ITEMS

Agenda Number:

TO: City Council

FROM: Chris Zapata
City Manager

BY: City Council

FINANCE REVIEW: David Baum
Finance Director

TITLE: ORDINANCE Authorizing the Implementation of a Community Choice Aggregation Program Pursuant to California Public Utilities Code Section 366.2

WHEREAS, the County of Alameda (“County”) and Alameda County cities, including the City of San Leandro, have been actively investigating options to provide electricity supply services to constituents within the County with the intent of achieving greater local involvement over the provision of electricity supply services, competitive electric rates, the development of local renewable energy projects, reduced greenhouse gas emissions, and the wider implementation of energy conservation and efficiency projects and programs; and

WHEREAS, Assembly Bill 117, codified as Public Utilities Code Section 366.2 (the “Act”), authorizes any California city or county whose governing body so elects, to combine the electricity load of its residents and businesses in a community wide electricity aggregation program known as Community Choice Aggregation (“CCA”); and

WHEREAS, the Act allows a CCA program to be carried out under a joint powers agreement entered into by entities that each have capacity to implement a CCA program individually; the joint power agreement structure reduces the risks of implementing a CCA program by immunizing the financial assets of participants; and to this end, since 2014, the County has been evaluating a potential CCA program for the County and the cities within Alameda County; and

WHEREAS, the County Board of Supervisors voted unanimously in June of 2014 to allocate funding to explore the creation of a CCA Program and directed County staff to undertake the steps necessary to evaluate its feasibility; and to assist in the evaluation of the CCA program within Alameda County, in 2015, the County established a Steering Committee comprised of city and stakeholder representatives, that has met monthly, and advises the Board of Supervisors on the possibility of creating a CCA Program; and

WHEREAS, the Technical Feasibility Study completed in June of 2016 shows that implementing a Community Choice Aggregation program would likely provide multiple benefits to the citizens of Alameda County, including the following:

1. Providing customers a choice of renewable energy providers;
2. Increasing local control over energy rates and other energy-related matters;
3. Providing electric rates that are competitive with those provided by the incumbent utility;
4. Reducing greenhouse gas emissions arising from electricity use;
5. Increasing local and regional renewable generation capacity;
6. Increasing energy conservation and efficiency projects and programs;
7. Increasing regional energy self-sufficiency; and
8. Encouraging local economic and employment benefits through energy conservation and efficiency projects; and

WHEREAS, representatives from the County and Alameda County cities have developed the East Bay Community Energy Authority Joint Powers Agreement (“Joint Powers Agreement”) (attached hereto as Exhibit A). The Joint Powers Agreement creates the East Bay Community Energy Authority (“Authority”), which will govern and operate the CCA program; and

WHEREAS, the County and the Alameda County cities that elect to participate in the CCA Program shall do so by approving the execution of the Joint Powers Agreement and adopting an ordinance electing to implement a CCA Program, as required by Public Utilities Code Section 366.2(c)(12); and

WHEREAS, the Authority will enter into agreements with electric power suppliers and other service providers and, based upon those agreements, the Authority plans to provide electrical power to residents and businesses at rates that are competitive with those of the incumbent utility; upon the California Public Utilities Commission approving the implementation plan prepared by the Authority, the Authority can provide service to customers within its member jurisdictions; and under Public Utilities Code Section 366.2, customers have the right to opt-out of a CCA program and continue to receive service from the incumbent utility; and customers who wish to continue to receive service from the incumbent utility will be able to do so at any time.

NOW THEREFORE THE CITY COUNCIL OF THE CITY OF SAN LEANDRO HEREBY ORDAINS AS FOLLOWS:

SECTION ONE. PURPOSE AND INTENT

The purpose and intent of this ordinance is to implement a Community Choice Aggregation (CCA) program within Alameda County and including the City of San Leandro, pursuant to the authority provided by California Public Utilities Section 366.2.

SECTION TWO. IMPLEMENTATION OF A COMMUNITY CHOICE AGGREGATION PROGRAM WITHIN THE CITY OF SAN LEANDRO PURSUANT TO PUBLIC UTILITIES CODE SECTION 366.2(c)(12)

The City Council of the City of San Leandro hereby elects to implement a Community Choice Aggregation program within the City of San Leandro by and through the City’s participation in

the East Bay Community Energy Authority, pursuant to California Public Utilities Code Section 366(c)(12).

SECTION THREE. CEQA DETERMINATION

The City Council finds, pursuant to Title 14 of the California Administrative Code, Section 15378(b)(5), that this Ordinance is exempt from the requirements of the California Environmental Quality Act (CEQA) in that it is not a Project. A Project does not include "Organization or administrative activities of governments that will not result in direct or indirect physical changes in the environment." Forming or joining a CCA presents no foreseeable significant adverse impact to the environment over the existing condition because state regulations such as the Renewable Portfolio Standard (RPS) and Resource Adequacy (RA) requirements apply equally to CCAs as they do to private utilities.

SECTION FOUR. SEVERABILITY

Every section, paragraph, clause, and phrase of this Ordinance is hereby declared severable. If, for any reason, any section, paragraph, clause, or phrase is held to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the validity or constitutionality of the remaining section, paragraphs, clauses, or phrases.

SECTION FIVE. EFFECTIVE DATE

This Ordinance shall take effect thirty (30) days following its final passage. The City Clerk is directed to cause copies of this Ordinance to be posted or published as required by Government Code section 33693.

SECTION SIX. CODIFICATION

Sections One, Two, Three, Four, Five and Six of this Ordinance shall Not be codified in the San Leandro Municipal Code.

East Bay Community Energy Authority

- Joint Powers Agreement –

Effective _____

Among The Following Parties:

EAST BAY COMMUNITY ENERGY AUTHORITY

JOINT POWERS AGREEMENT

This Joint Powers Agreement (“Agreement”), effective as of _____, is made and entered into pursuant to the provisions of Title 1, Division 7, Chapter 5, Article 1 (Section 6500 *et seq.*) of the California Government Code relating to the joint exercise of powers among the parties set forth in Exhibit A (“Parties”). The term “Parties” shall also include an incorporated municipality or county added to this Agreement in accordance with Section 3.1.

RECITALS

1. The Parties are either incorporated municipalities or counties sharing various powers under California law, including but not limited to the power to purchase, supply, and aggregate electricity for themselves and their inhabitants.
2. In 2006, the State Legislature adopted AB 32, the Global Warming Solutions Act, which mandates a reduction in greenhouse gas emissions in 2020 to 1990 levels. The California Air Resources Board is promulgating regulations to implement AB 32 which will require local government to develop programs to reduce greenhouse gas emissions.
3. The purposes for the Initial Participants (as such term is defined in Section 1.1.16 below) entering into this Agreement include securing electrical energy supply for customers in participating jurisdictions, addressing climate change by reducing energy related greenhouse gas emissions, promoting electrical rate price stability, and fostering local economic benefits such as jobs creation, community energy programs and local power development. It is the intent of this Agreement to promote the development and use of a wide range of renewable energy sources and energy efficiency programs, including but not limited to State, regional and local solar and wind energy production.
4. The Parties desire to establish a separate public agency, known as the East Bay Community Energy Authority (“Authority”), under the provisions of the Joint Exercise of Powers Act of the State of California (Government Code Section 6500 *et seq.*) (“Act”) in order to collectively study, promote, develop, conduct, operate, and manage energy programs.
5. The Initial Participants have each adopted an ordinance electing to implement through the Authority a Community Choice Aggregation program pursuant to California Public Utilities Code Section 366.2 (“CCA Program”). The first priority of the Authority will be the consideration of those actions necessary to implement the CCA Program.
6. By establishing the Authority, the Parties seek to:
 - (a) Provide electricity rates that are lower or competitive with those offered by PG&E for similar products;

- (b) Offer differentiated energy options (e.g. 33% or 50% qualified renewable) for default service, and a 100% renewable content option in which customers may “opt-up” and voluntarily participate;
- (c) Develop an electric supply portfolio with a lower greenhouse gas (GHG) intensity than PG&E, and one that supports the achievement of the parties’ greenhouse gas reduction goals and the comparable goals of all participating jurisdictions;
- (d) Establish an energy portfolio that prioritizes the use and development of local renewable resources and minimizes the use of unbundled renewable energy credits;
- (e) Promote an energy portfolio that incorporates energy efficiency and demand response programs and has aggressive reduced consumption goals;
- (f) Demonstrate quantifiable economic benefits to the region (e.g. union and prevailing wage jobs, local workforce development, new energy programs, and increased local energy investments);
- (g) Recognize the value of workers in existing jobs that support the energy infrastructure of Alameda County and Northern California. The Authority, as a leader in the shift to a clean energy, commits to ensuring it will take steps to minimize any adverse impacts to these workers to ensure a “just transition” to the new clean energy economy;
- (h) Deliver clean energy programs and projects using a stable, skilled workforce through such mechanisms as project labor agreements, or other workforce programs that are cost effective, designed to avoid work stoppages, and ensure quality;
- (i) Promote personal and community ownership of renewable resources, spurring equitable economic development and increased resilience, especially in low income communities;
- (j) Provide and manage lower cost energy supplies in a manner that provides cost savings to low-income households and promotes public health in areas impacted by energy production; and
- (k) Create an administering agency that is financially sustainable, responsive to regional priorities, well managed, and a leader in fair and equitable treatment of employees through adopting appropriate best practices employment policies, including, but not limited to, promoting efficient consideration of petitions to unionize, and providing appropriate wages and benefits.

AGREEMENT

NOW, THEREFORE, in consideration of the mutual promises, covenants, and conditions hereinafter set forth, it is agreed by and among the Parties as follows:

ARTICLE 1 **CONTRACT DOCUMENTS**

1.1 **Definitions.** Capitalized terms used in the Agreement shall have the meanings specified below, unless the context requires otherwise.

- 1.1.1** “AB 117” means Assembly Bill 117 (Stat. 2002, ch. 838, codified at Public Utilities Code Section 366.2), which created CCA.
- 1.1.2** “Act” means the Joint Exercise of Powers Act of the State of California (Government Code Section 6500 *et seq.*)
- 1.1.3** “Agreement” means this Joint Powers Agreement.
- 1.1.4** “Annual Energy Use” has the meaning given in Section 1.1.23.
- 1.1.5** “Authority” means the East Bay Community Energy Authority established pursuant to this Joint Powers Agreement.
- 1.1.6** “Authority Document(s)” means document(s) duly adopted by the Board by resolution or motion implementing the powers, functions and activities of the Authority, including but not limited to the Operating Rules and Regulations, the annual budget, and plans and policies.
- 1.1.7** “Board” means the Board of Directors of the Authority.
- 1.1.8** “Community Choice Aggregation” or “CCA” means an electric service option available to cities and counties pursuant to Public Utilities Code Section 366.2.
- 1.1.9** “CCA Program” means the Authority’s program relating to CCA that is principally described in Sections 2.4 and 5.1.
- 1.1.10** “Days” shall mean calendar days unless otherwise specified by this Agreement.
- 1.1.11** “Director” means a member of the Board of Directors representing a Party, including an alternate Director.
- 1.1.12** “Effective Date” means the date on which this Agreement shall become effective and the East Bay Community Energy Authority shall exist as a separate public agency, as further described in Section 2.1.

- 1.1.13** “Ex Officio Board Member” means a non-voting member of the Board of Directors as described in Section 4.2.2. The Ex Officio Board Member may not serve on the Executive Committee of the Board or participate in closed session meetings of the Board.
- 1.1.14** “Implementation Plan” means the plan generally described in Section 5.1.2 of this Agreement that is required under Public Utilities Code Section 366.2 to be filed with the California Public Utilities Commission for the purpose of describing a proposed CCA Program.
- 1.1.15** “Initial Costs” means all costs incurred by the Authority relating to the establishment and initial operation of the Authority, such as the hiring of a Chief Executive Officer and any administrative staff, any required accounting, administrative, technical and legal services in support of the Authority’s initial formation activities or in support of the negotiation, preparation and approval of power purchase agreements. The Board shall determine the termination date for Initial Costs.
- 1.1.16** “Initial Participants” means, for the purpose of this Agreement the County of Alameda, the Cities of Albany, Berkeley, Emeryville, Oakland, Piedmont, San Leandro, Hayward, Union City, Newark, Fremont, Dublin, Pleasanton and Livermore.
- 1.1.17** “Operating Rules and Regulations” means the rules, regulations, policies, bylaws and procedures governing the operation of the Authority.
- 1.1.18** “Parties” means, collectively, the signatories to this Agreement that have satisfied the conditions in Sections 2.2 or 3.1 such that it is considered a member of the Authority.
- 1.1.19** “Party” means, singularly, a signatory to this Agreement that has satisfied the conditions in Sections 2.2 or 3.1 such that it is considered a member of the Authority.
- 1.1.20** “Percentage Vote” means a vote taken by the Board pursuant to Section 4.12.1 that is based on each Party having one equal vote.
- 1.1.21** “Total Annual Energy” has the meaning given in Section 1.1.23.
- 1.1.22** “Voting Shares Vote” means a vote taken by the Board pursuant to Section 4.12.2 that is based on the voting shares of each Party described in Section 1.1.23 and set forth in Exhibit C to this Agreement. A Voting Shares vote cannot take place on a matter unless the matter first receives an affirmative or tie Percentage Vote in the manner required by Section 4.12.1 and three or more Directors immediately thereafter request such vote.

1.1.23 “Voting Shares Formula” means the weight applied to a Voting Shares Vote and is determined by the following formula:

(Annual Energy Use/Total Annual Energy) multiplied by 100, where (a) “Annual Energy Use” means (i) with respect to the first two years following the Effective Date, the annual electricity usage, expressed in kilowatt hours (“kWh”), within the Party’s respective jurisdiction and (ii) with respect to the period after the second anniversary of the Effective Date, the annual electricity usage, expressed in kWh, of accounts within a Party’s respective jurisdiction that are served by the Authority and (b) “Total Annual Energy” means the sum of all Parties’ Annual Energy Use. The initial values for Annual Energy use are designated in Exhibit B and the initial voting shares are designated in Exhibit C. Both Exhibits B and C shall be adjusted annually as soon as reasonably practicable after January 1, but no later than March 1 of each year subject to the approval of the Board.

1.2 **Documents Included.** This Agreement consists of this document and the following exhibits, all of which are hereby incorporated into this Agreement.

- Exhibit A: List of the Parties
- Exhibit B: Annual Energy Use
- Exhibit C: Voting Shares

1.3 **Revision of Exhibits.** The Parties agree that Exhibits A, B and C to this Agreement describe certain administrative matters that may be revised upon the approval of the Board, without such revision constituting an amendment to this Agreement, as described in Section 8.4. The Authority shall provide written notice to the Parties of the revision of any such exhibit.

ARTICLE 2 **FORMATION OF EAST BAY COMMUNITY ENERGY AUTHORITY**

2.1 **Effective Date and Term.** This Agreement shall become effective and East Bay Community Energy Authority shall exist as a separate public agency on December 1, 2016, provided that this Agreement is executed on or prior to such date by at least three Initial Participants after the adoption of the ordinances required by Public Utilities Code Section 366.2(c)(12). The Authority shall provide notice to the Parties of the Effective Date. The Authority shall continue to exist, and this Agreement shall be effective, until this Agreement is terminated in accordance with Section 7.3, subject to the rights of the Parties to withdraw from the Authority.

2.2 Initial Participants. Until December 31, 2016, all other Initial Participants may become a Party by executing this Agreement and delivering an executed copy of this Agreement and a copy of the adopted ordinance required by Public Utilities Code Section 366.2(c)(12) to the Authority. Additional conditions, described in Section 3.1, may apply (i) to either an incorporated municipality or county desiring to become a Party that is not an Initial Participant and (ii) to Initial Participants that have not executed and delivered this Agreement within the time period described above.

2.3 Formation. There is formed as of the Effective Date a public agency named the East Bay Community Energy Authority. Pursuant to Sections 6506 and 6507 of the Act, the Authority is a public agency separate from the Parties. The debts, liabilities or obligations of the Authority shall not be debts, liabilities or obligations of the individual Parties unless the governing board of a Party agrees in writing to assume any of the debts, liabilities or obligations of the Authority. A Party who has not agreed to assume an Authority debt, liability or obligation shall not be responsible in any way for such debt, liability or obligation even if a majority of the Parties agree to assume the debt, liability or obligation of the Authority. Notwithstanding Section 8.4 of this Agreement, this Section 2.3 may not be amended unless such amendment is approved by the governing boards of all Parties.

2.4 Purpose. The purpose of this Agreement is to establish an independent public agency in order to exercise powers common to each Party and any other powers granted to the Authority under state law to participate as a group in the CCA Program pursuant to Public Utilities Code Section 366.2(c)(12); to study, promote, develop, conduct, operate, and manage energy and energy-related climate change programs; and, to exercise all other powers necessary and incidental to accomplishing this purpose.

2.5 Powers. The Authority shall have all powers common to the Parties and such additional powers accorded to it by law. The Authority is authorized, in its own name, to exercise all powers and do all acts necessary and proper to carry out the provisions of this Agreement and fulfill its purposes, including, but not limited to, each of the following:

- 2.5.1** to make and enter into contracts, including those relating to the purchase or sale of electrical energy or attributes thereof;
- 2.5.2** to employ agents and employees, including but not limited to a Chief Executive Officer and General Counsel;
- 2.5.3** to acquire, contract, manage, maintain, and operate any buildings, works or improvements, including electric generating facilities;
- 2.5.4** to acquire property by eminent domain, or otherwise, except as limited under Section 6508 of the Act, and to hold or dispose of any property;
- 2.5.5** to lease any property;
- 2.5.6** to sue and be sued in its own name;

- 2.5.7 to incur debts, liabilities, and obligations, including but not limited to loans from private lending sources pursuant to its temporary borrowing powers such as Government Code Section 53850 *et seq.* and authority under the Act;
- 2.5.8 to form subsidiary or independent corporations or entities, if appropriate, to carry out energy supply and energy conservation programs at the lowest possible cost consistent with the Authority's CCA Program implementation plan, risk management policies, or to take advantage of legislative or regulatory changes;
- 2.5.9 to issue revenue bonds and other forms of indebtedness;
- 2.5.10 to apply for, accept, and receive all licenses, permits, grants, loans or other assistance from any federal, state or local public agency;
- 2.5.11 to submit documentation and notices, register, and comply with orders, tariffs and agreements for the establishment and implementation of the CCA Program and other energy programs;
- 2.5.12 to adopt rules, regulations, policies, bylaws and procedures governing the operation of the Authority ("Operating Rules and Regulations");
- 2.5.13 to make and enter into service, energy and any other agreements necessary to plan, implement, operate and administer the CCA Program and other energy programs, including the acquisition of electric power supply and the provision of retail and regulatory support services; and
- 2.5.14 to negotiate project labor agreements, community benefits agreements and collective bargaining agreements with the local building trades council and other interested parties.

2.6 Limitation on Powers. As required by Government Code Section 6509, the power of the Authority is subject to the restrictions upon the manner of exercising power possessed by the City of Emeryville and any other restrictions on exercising the powers of the Authority that may be adopted by the Board.

2.7 Compliance with Local Zoning and Building Laws. Notwithstanding any other provisions of this Agreement or state law, any facilities, buildings or structures located, constructed or caused to be constructed by the Authority within the territory of the Authority shall comply with the General Plan, zoning and building laws of the local jurisdiction within which the facilities, buildings or structures are constructed and comply with the California Environmental Quality Act ("CEQA").

2.8 Compliance with the Brown Act. The Authority and its officers and employees shall comply with the provisions of the Ralph M. Brown Act, Government Code Section 54950 *et seq.*

2.9 Compliance with the Political Reform Act and Government Code Section 1090. The Authority and its officers and employees shall comply with the Political Reform Act (Government Code Section 81000 *et seq.*) and Government Code Section 1090 *et seq.*, and shall adopt a Conflict of Interest Code pursuant to Government Code Section 87300. The Board of Directors may adopt additional conflict of interest regulations in the Operating Rules and Regulations.

ARTICLE 3 **AUTHORITY PARTICIPATION**

3.1 Addition of Parties. Subject to Section 2.2, relating to certain rights of Initial Participants, other incorporated municipalities and counties may become Parties upon (a) the adoption of a resolution by the governing body of such incorporated municipality or county requesting that the incorporated municipality or county, as the case may be, become a member of the Authority, (b) the adoption by an affirmative vote of a majority of all Directors of the entire Board satisfying the requirements described in Section 4.12, of a resolution authorizing membership of the additional incorporated municipality or county, specifying the membership payment, if any, to be made by the additional incorporated municipality or county to reflect its pro rata share of organizational, planning and other pre-existing expenditures, and describing additional conditions, if any, associated with membership, (c) the adoption of an ordinance required by Public Utilities Code Section 366.2(c)(12) and execution of this Agreement and other necessary program agreements by the incorporated municipality or county, (d) payment of the membership fee, if any, and (e) satisfaction of any conditions established by the Board.

3.2 Continuing Participation. The Parties acknowledge that membership in the Authority may change by the addition and/or withdrawal or termination of Parties. The Parties agree to participate with such other Parties as may later be added, as described in Section 3.1. The Parties also agree that the withdrawal or termination of a Party shall not affect this Agreement or the remaining Parties' continuing obligations under this Agreement.

ARTICLE 4 **GOVERNANCE AND INTERNAL ORGANIZATION**

4.1 Board of Directors. The governing body of the Authority shall be a Board of Directors ("Board") consisting of one director for each Party appointed in accordance with Section 4.2.

4.2 Appointment of Directors. The Directors shall be appointed as follows:

4.2.1 The governing body of each Party shall appoint and designate in writing one regular Director who shall be authorized to act for and on behalf of the Party on matters within the powers of the Authority. The governing body of each Party also shall appoint and designate in writing one alternate Director who may vote on matters when the regular Director is absent

from a Board meeting. The person appointed and designated as the regular Director shall be a member of the governing body of the Party. The person appointed and designated as the alternate Director shall also be a member of the governing body of the Party.

- 4.2.2 The Board shall also include one non-voting ex officio member as defined in Section 1.1.13 (“Ex Officio Board Member”). The Chair of the Community Advisory Committee, as described in Section 4.9 below, shall serve as the Ex Officio Board Member. The Vice Chair of the Community Advisory Committee shall serve as an alternate Ex Officio Board Member when the regular Ex Officio Board Member is absent from a Board meeting.
- 4.2.3 The Operating Rules and Regulations, to be developed and approved by the Board in accordance with Section 2.5.12 may include rules regarding Directors, such as meeting attendance requirements. No Party shall be deprived of its right to seat a Director on the Board.

4.3 Terms of Office. Each regular and alternate Director shall serve at the pleasure of the governing body of the Party that the Director represents, and may be removed as Director by such governing body at any time. If at any time a vacancy occurs on the Board, a replacement shall be appointed to fill the position of the previous Director in accordance with the provisions of Section 4.2 within 90 days of the date that such position becomes vacant.

4.4 Quorum. A majority of the Directors of the entire Board shall constitute a quorum, except that less than a quorum may adjourn a meeting from time to time in accordance with law.

4.5 Powers and Function of the Board. The Board shall conduct or authorize to be conducted all business and activities of the Authority, consistent with this Agreement, the Authority Documents, the Operating Rules and Regulations, and applicable law. Board approval shall be required for any of the following actions, which are defined as “Essential Functions”:

- 4.5.1 The issuance of bonds or any other financing even if program revenues are expected to pay for such financing.
- 4.5.2 The hiring of a Chief Executive Officer and General Counsel.
- 4.5.3 The appointment or removal of an officer.
- 4.5.4 The adoption of the Annual Budget.
- 4.5.5 The adoption of an ordinance.
- 4.5.6 The initiation of resolution of claims and litigation where the Authority will be the defendant, plaintiff, petitioner, respondent, cross complainant or cross petitioner, or intervenor; provided, however, that the Chief Executive Officer or General Counsel, on behalf of the Authority, may

intervene in, become party to, or file comments with respect to any proceeding pending at the California Public Utilities Commission, the Federal Energy Regulatory Commission, or any other administrative agency, without approval of the Board. The Board shall adopt Operating Rules and Regulations governing the Chief Executive Officer and General Counsel's exercise of authority under this Section 4.5.6.

4.5.7 The setting of rates for power sold by the Authority and the setting of charges for any other category of service provided by the Authority.

4.5.8 Termination of the CCA Program.

4.6 **Executive Committee.** The Board shall establish an Executive Committee consisting of a smaller number of Directors. The Board may delegate to the Executive Committee such authority as the Board might otherwise exercise, subject to limitations placed on the Board's authority to delegate certain Essential Functions, as described in Section 4.5 and the Operating Rules and Regulations. The Board may not delegate to the Executive Committee or any other committee its authority under Section 2.5.12 to adopt and amend the Operating Rules and Regulations or its Essential Functions listed in Section 4.5. After the Executive Committee meets or otherwise takes action, it shall, as soon as practicable, make a report of its activities at a meeting of the Board.

4.7 **Director Compensation.** Directors shall receive a stipend of \$100 per meeting, as adjusted to account for inflation, as provided for in the Authority's Operating Rules and Regulations.

4.8 **Commissions, Boards and Committees.** The Board may establish any advisory commissions, boards and committees as the Board deems appropriate to assist the Board in carrying out its functions and implementing the CCA Program, other energy programs and the provisions of this Agreement. The Board may establish rules, regulations, policies, bylaws or procedures to govern any such commissions, boards, or committees and shall determine whether members shall be compensated or entitled to reimbursement for expenses.

4.9 **Community Advisory Committee.** The Board shall establish a Community Advisory Committee consisting of nine members, none of whom may be voting members of the Board. The function of the Community Advisory Committee shall be to advise the Board of Directors on all subjects related to the operation of the CCA Program as set forth in a work plan adopted by the Board of Directors from time to time, with the exception of personnel and litigation decisions. The Community Advisory Committee is advisory only, and shall not have decision-making authority, or receive any delegation of authority from the Board of Directors. The Board shall publicize the opportunity to serve on the Community Advisory Committee, and shall appoint members of the Community Advisory Committee from those individuals expressing interest in serving, and who represent a diverse cross-section of interests, skill sets and geographic regions. Members of the Community Advisory Committee shall serve staggered four-year terms (the first term of three of the members shall be two years, and four years

thereafter), which may be renewed. A member of the Community Advisory Committee may be removed by the Board of Directors by majority vote. The Board of Directors shall determine whether the Community Advisory Committee members will receive a stipend and/or be entitled to reimbursement for expenses.

4.10 Chief Executive Officer. The Board of Directors shall appoint a Chief Executive Officer for the Authority, who shall be responsible for the day-to-day operation and management of the Authority and the CCA Program. The Chief Executive Officer may exercise all powers of the Authority, including the power to hire, discipline and terminate employees as well as the power to approve any agreement, if the expenditure is authorized in the Authority's approved budget, except the powers specifically set forth in Section 4.5 or those powers which by law must be exercised by the Board of Directors. The Board of Directors shall provide procedures and guidelines for the Chief Executive Officer exercising the powers of the Authority in the Operating Rules and Regulations.

4.11 General Counsel. The Board of Directors shall appoint a General Counsel for the Authority, who shall be responsible for providing legal advice to the Board of Directors and overseeing all legal work for the Authority.

4.12 Board Voting.

4.12.1 Percentage Vote. Except when a supermajority vote is expressly required by this Agreement or the Operating Rules and Regulations, action of the Board on all matters shall require an affirmative vote of a majority of all Directors on the entire Board (a "Percentage Vote" as defined in Section 1.1.20). A supermajority vote is required by this Agreement for the matters addressed by Section 8.4. When a supermajority vote is required by this Agreement or the Operating Rules and Regulations, action of the Board shall require an affirmative Percentage Vote of the specified supermajority of all Directors on the entire Board. No action can be taken by the Board without an affirmative Percentage Vote. Notwithstanding the foregoing, in the event of a tie in the Percentage Vote, an action may be approved by an affirmative "Voting Shares Vote," as defined in Section 1.1.22, if three or more Directors immediately request such vote.

4.12.2 Voting Shares Vote. In addition to and immediately after an affirmative percentage vote, three or more Directors may request that, a vote of the voting shares shall be held (a "Voting Shares Vote" as defined in Section 1.1.22). To approve an action by a Voting Shares Vote, the corresponding voting shares (as defined in Section 1.1.23 and Exhibit C) of all Directors voting in the affirmative shall exceed 50% of the voting share of all Directors on the entire Board, or such other higher voting shares percentage expressly required by this Agreement or the Operating Rules

and Regulations. In the event that any one Director has a voting share that equals or exceeds that which is necessary to disapprove the matter being voted on by the Board, at least one other Director shall be required to vote in the negative in order to disapprove such matter. When a voting shares vote is held, action by the Board requires both an affirmative Percentage Vote and an affirmative Voting Shares Vote. Notwithstanding the foregoing, in the event of a tie in the Percentage Vote, an action may be approved on an affirmative Voting Shares Vote. When a supermajority vote is required by this Agreement or the Operating Rules and Regulations, the supermajority vote is subject to the Voting Share Vote provisions of this Section 4.12.2, and the specified supermajority of all Voting Shares is required for approval of the action, if the provision of this Section 4.12.2 are triggered.

4.13 Meetings and Special Meetings of the Board. The Board shall hold at least four regular meetings per year, but the Board may provide for the holding of regular meetings at more frequent intervals. The date, hour and place of each regular meeting shall be fixed by resolution or ordinance of the Board. Regular meetings may be adjourned to another meeting time. Special and Emergency meetings of the Board may be called in accordance with the provisions of California Government Code Section 54956 and 54956.5. Directors may participate in meetings telephonically, with full voting rights, only to the extent permitted by law.

4.14 Officers.

4.14.1 Chair and Vice Chair. At the first meeting held by the Board in each calendar year, the Directors shall elect, from among themselves, a Chair, who shall be the presiding officer of all Board meetings, and a Vice Chair, who shall serve in the absence of the Chair. The Chair and Vice Chair shall hold office for one year and serve no more than two consecutive terms, however, the total number of terms a Director may serve as Chair or Vice Chair is not limited. The office of either the Chair or Vice Chair shall be declared vacant and the Board shall make a new selection if: (a) the person serving dies, resigns, or ceases to be a member of the governing body of the Party that the person represents; (b) the Party that the person represents removes the person as its representative on the Board, or (c) the Party that he or she represents withdraws from the Authority pursuant to the provisions of this Agreement.

4.14.2 Secretary. The Board shall appoint a Secretary, who need not be a member of the Board, who shall be responsible for keeping the minutes of all meetings of the Board and all other official records of the Authority.

4.14.3 Treasurer and Auditor. The Board shall appoint a qualified person to act as the Treasurer and a qualified person to act as the Auditor, neither of whom needs to be a member of the Board. The same person may not simultaneously hold both the office of Treasurer and the office of the Auditor of the Authority. Unless otherwise exempted from such

requirement, the Authority shall cause an independent audit to be made annually by a certified public accountant, or public accountant, in compliance with Section 6505 of the Act. The Treasurer shall act as the depositary of the Authority and have custody of all the money of the Authority, from whatever source, and as such, shall have all of the duties and responsibilities specified in Section 6505.5 of the Act. The Board may require the Treasurer and/or Auditor to file with the Authority an official bond in an amount to be fixed by the Board, and if so requested, the Authority shall pay the cost of premiums associated with the bond. The Treasurer shall report directly to the Board and shall comply with the requirements of treasurers of incorporated municipalities. The Board may transfer the responsibilities of Treasurer to any person or entity as the law may provide at the time.

4.15 Administrative Services Provider. The Board may appoint one or more administrative services providers to serve as the Authority's agent for planning, implementing, operating and administering the CCA Program, and any other program approved by the Board, in accordance with the provisions of an Administrative Services Agreement. The appointed administrative services provider may be one of the Parties. The Administrative Services Agreement shall set forth the terms and conditions by which the appointed administrative services provider shall perform or cause to be performed all tasks necessary for planning, implementing, operating and administering the CCA Program and other approved programs. The Administrative Services Agreement shall set forth the term of the Agreement and the circumstances under which the Administrative Services Agreement may be terminated by the Authority. This section shall not in any way be construed to limit the discretion of the Authority to hire its own employees to administer the CCA Program or any other program.

4.16 Operational Audit. The Authority shall commission an independent agent to conduct and deliver at a public meeting of the Board an evaluation of the performance of the CCA Program relative to goals for renewable energy and carbon reductions. The Authority shall approve a budget for such evaluation and shall hire a firm or individual that has no other direct or indirect business relationship with the Authority. The evaluation shall be conducted at least once every two years.

ARTICLE 5

IMPLEMENTATION ACTION AND AUTHORITY DOCUMENTS

5.1 Implementation of the CCA Program.

5.1.1 Enabling Ordinance. Prior to the execution of this Agreement, each Party shall adopt an ordinance in accordance with Public Utilities Code Section 366.2(c)(12) for the purpose of specifying that the Party intends to implement a CCA Program by and through its participation in the Authority.

5.1.2 Implementation Plan. The Authority shall cause to be prepared an Implementation Plan meeting the requirements of Public Utilities Code Section 366.2 and any applicable Public Utilities Commission regulations as soon after the Effective Date as reasonably practicable. The Implementation Plan shall not be filed with the Public Utilities Commission until it is approved by the Board in the manner provided by Section 4.12.

5.1.3 Termination of CCA Program. Nothing contained in this Article or this Agreement shall be construed to limit the discretion of the Authority to terminate the implementation or operation of the CCA Program at any time in accordance with any applicable requirements of state law.

5.2 Other Authority Documents. The Parties acknowledge and agree that the operations of the Authority will be implemented through various documents duly adopted by the Board through Board resolution or minute action, including but not necessarily limited to the Operating Rules and Regulations, the annual budget, and specified plans and policies defined as the Authority Documents by this Agreement. The Parties agree to abide by and comply with the terms and conditions of all such Authority Documents that may be adopted by the Board, subject to the Parties' right to withdraw from the Authority as described in Article 7.

5.3 Integrated Resource Plan. The Authority shall cause to be prepared an Integrated Resource Plan in accordance with CPUC regulations that will ensure the long-term development and administration of a variety of energy programs that promote local renewable resources, conservation, demand response, and energy efficiency, while maintaining compliance with the State Renewable Portfolio standard and customer rate competitiveness. The Authority shall prioritize the development of energy projects in Alameda and adjacent counties. Principal aspects of its planned operations shall be in a Business Plan as outlined in Section 5.4 of this Agreement.

5.4 Business Plan. The Authority shall cause to be prepared a Business Plan, which will include a roadmap for the development, procurement, and integration of local renewable energy resources as outlined in Section 5.3 of this Agreement. The Business Plan shall include a description of how the CCA Program will contribute to fostering local economic benefits, such as job creation and community energy programs. The Business Plan shall identify opportunities for local power development and how the CCA Program can achieve the goals outlined in Recitals 3 and 6 of this Agreement. The Business Plan shall include specific language detailing employment and labor standards that relate to the execution of the CCA Program as referenced in this Agreement. The Business Plan shall identify clear and transparent marketing practices to be followed by the CCA Program, including the identification of the sources of its electricity and explanation of the various types of electricity procured by the Authority. The Business Plan shall cover the first five (5) years of the operation of the CCA Program. The Business Plan shall be completed by the Authority no later than eight (8) months after the seating of the Authority Board of Directors. Progress on the implementation of the Business Plan shall be subject to annual public review.

5.5 Labor Organization Neutrality. The Authority shall remain neutral in the event its employees, and the employees of its subcontractors, if any, wish to unionize.

5.6 Renewable Portfolio Standards. The Authority shall provide its customers renewable energy primarily from Category 1 eligible renewable resources, as defined under the California RPS and consistent with the goals of the CCA Program. The Authority shall not procure energy from Category 3 eligible renewable resources (unbundled Renewable Energy Credits or RECs) exceeding 50% of the State law requirements, to achieve its renewable portfolio goals. However, for Category 3 RECs associated with generation facilities located within its service jurisdiction, the limitation set forth in the preceding sentence shall not apply.

ARTICLE 6

FINANCIAL PROVISIONS

6.1 Fiscal Year. The Authority's fiscal year shall be 12 months commencing July 1 and ending June 30. The fiscal year may be changed by Board resolution.

6.2 Depository.

6.2.1 All funds of the Authority shall be held in separate accounts in the name of the Authority and not commingled with funds of any Party or any other person or entity.

6.2.2 All funds of the Authority shall be strictly and separately accounted for, and regular reports shall be rendered of all receipts and disbursements, at least quarterly during the fiscal year. The books and records of the Authority shall be open to inspection by the Parties at all reasonable times.

6.2.3 All expenditures shall be made in accordance with the approved budget and upon the approval of any officer so authorized by the Board in accordance with its Operating Rules and Regulations. The Treasurer shall draw checks or warrants or make payments by other means for claims or disbursements not within an applicable budget only upon the prior approval of the Board.

6.3 Budget and Recovery Costs.

6.3.1 Budget. The initial budget shall be approved by the Board. The Board may revise the budget from time to time through an Authority Document as may be reasonably necessary to address contingencies and unexpected expenses. All subsequent budgets of the Authority shall be prepared and approved by the Board in accordance with the Operating Rules and Regulations.

6.3.2 Funding of Initial Costs. The County shall fund the Initial Costs of establishing and implementing the CCA Program. In the event that the

CCA Program becomes operational, these Initial Costs paid by the County and any specified interest shall be included in the customer charges for electric services to the extent permitted by law, and the County shall be reimbursed from the payment of such charges by customers of the Authority. The Authority may establish a reasonable time period over which such costs are recovered. In the event that the CCA Program does not become operational, the County shall not be entitled to any reimbursement of the Initial Costs.

6.3.4 Additional Contributions and Advances. Pursuant to Government Code Section 6504, the Parties may in their sole discretion make financial contributions, loans or advances to the Authority for the purposes of the Authority set forth in this Agreement. The repayment of such contributions, loans or advances will be on the written terms agreed to by the Party making the contribution, loan or advance and the Authority.

ARTICLE 7 **WITHDRAWAL AND TERMINATION**

7.1 Withdrawal.

7.1.1 General Right to Withdraw. A Party may withdraw its membership in the Authority, effective as of the beginning of the Authority's fiscal year, by giving no less than 180 days advance written notice of its election to do so, which notice shall be given to the Authority and each Party. Withdrawal of a Party shall require an affirmative vote of the Party's governing board.

7.1.2 Withdrawal Following Amendment. Notwithstanding Section 7.1.1, a Party may withdraw its membership in the Authority following an amendment to this Agreement provided that the requirements of this Section 7.1.2 are strictly followed. A Party shall be deemed to have withdrawn its membership in the Authority effective 180 days after the Board approves an amendment to this Agreement if the Director representing such Party has provided notice to the other Directors immediately preceding the Board's vote of the Party's intention to withdraw its membership in the Authority should the amendment be approved by the Board.

7.1.3 The Right to Withdraw Prior to Program Launch. After receiving bids from power suppliers for the CCA Program, the Authority must provide to the Parties a report from the electrical utility consultant retained by the Authority comparing the Authority's total estimated electrical rates, the estimated greenhouse gas emissions rate and the amount of estimated renewable energy to be used with that of the incumbent utility. Within 30 days after receiving this report, through its City Manager or a person expressly authorized by the Party, any Party may immediately withdraw

its membership in the Authority by providing written notice of withdrawal to the Authority if the report determines that any one of the following conditions exists: (1) the Authority is unable to provide total electrical rates, as part of its baseline offering to customers, that are equal to or lower than the incumbent utility, (2) the Authority is unable to provide electricity in a manner that has a lower greenhouse gas emissions rate than the incumbent utility, or (3) the Authority will use less qualified renewable energy than the incumbent utility. Any Party who withdraws from the Authority pursuant to this Section 7.1.3 shall not be entitled to any refund of the Initial Costs it has paid to the Authority prior to the date of withdrawal unless the Authority is later terminated pursuant to Section 7.3. In such event, any Initial Costs not expended by the Authority shall be returned to all Parties, including any Party that has withdrawn pursuant to this section, in proportion to the contribution that each made. Notwithstanding anything to the contrary in this Agreement, any Party who withdraws pursuant to this section shall not be responsible for any liabilities or obligations of the Authority after the date of withdrawal, including without limitation any liability arising from power purchase agreements entered into by the Authority.

7.2 Continuing Liability After Withdrawal; Further Assurances; Refund. A Party that withdraws its membership in the Authority under either Section 7.1.1 or 7.1.2 shall be responsible for paying its fair share of costs incurred by the Authority resulting from the Party's withdrawal, including costs from the resale of power contracts by the Authority to serve the Party's load and any similar costs directly attributable to the Party's withdrawal, such costs being limited to those contracts executed while the withdrawing Party was a member, and administrative costs associated thereto. The Parties agree that such costs shall not constitute a debt of the withdrawing Party, accruing interest, or having a maturity date. The Authority may withhold funds otherwise owing to the Party or may require the Party to deposit sufficient funds with the Authority, as reasonably determined by the Authority, to cover the Party's costs described above. Any amount of the Party's funds held by the Authority for the benefit of the Party that are not required to pay the Party's costs described above shall be returned to the Party. The withdrawing party and the Authority shall execute and deliver all further instruments and documents, and take any further action that may be reasonably necessary, as determined by the Board, to effectuate the orderly withdrawal of such Party from membership in the Authority. A withdrawing party has the right to continue to participate in Board discussions and decisions affecting customers of the CCA Program that reside or do business within the jurisdiction of the Party until the withdrawal's effective date.

7.3 Mutual Termination. This Agreement may be terminated by mutual agreement of all the Parties; provided, however, the foregoing shall not be construed as limiting the rights of a Party to withdraw its membership in the Authority, and thus terminate this Agreement with respect to such withdrawing Party, as described in Section 7.1.

7.4 Disposition of Property upon Termination of Authority. Upon termination of this Agreement as to all Parties, any surplus money or assets in possession of the Authority for use under this Agreement, after payment of all liabilities, costs, expenses, and charges incurred

under this Agreement and under any Authority Documents, shall be returned to the then-existing Parties in proportion to the contributions made by each.

ARTICLE 8

MISCELLANEOUS PROVISIONS

8.1 Dispute Resolution. The Parties and the Authority shall make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. Before exercising any remedy provided by law, a Party or the Parties and the Authority shall engage in nonbinding mediation in the manner agreed upon by the Party or Parties and the Authority. The Parties agree that each Party may specifically enforce this section 8.1. In the event that nonbinding mediation is not initiated or does not result in the settlement of a dispute within 120 days after the demand for mediation is made, any Party and the Authority may pursue any remedies provided by law.

8.2 Liability of Directors, Officers, and Employees. The Directors, officers, and employees of the Authority shall use ordinary care and reasonable diligence in the exercise of their powers and in the performance of their duties pursuant to this Agreement. No current or former Director, officer, or employee will be responsible for any act or omission by another Director, officer, or employee. The Authority shall defend, indemnify and hold harmless the individual current and former Directors, officers, and employees for any acts or omissions in the scope of their employment or duties in the manner provided by Government Code Section 995 *et seq.* Nothing in this section shall be construed to limit the defenses available under the law, to the Parties, the Authority, or its Directors, officers, or employees.

8.3 Indemnification of Parties. The Authority shall acquire such insurance coverage as the Board deems necessary to protect the interests of the Authority, the Parties and the public. Such insurance coverage shall name the Parties and their respective Board or Council members, officers, agents and employees as additional insureds. The Authority shall defend, indemnify and hold harmless the Parties and each of their respective Board or Council members, officers, agents and employees, from any and all claims, losses, damages, costs, injuries and liabilities of every kind arising directly or indirectly from the conduct, activities, operations, acts, and omissions of the Authority under this Agreement.

8.4 Amendment of this Agreement. This Agreement may be amended in writing by a two-thirds affirmative vote of the entire Board satisfying the requirements described in Section 4.12. Except that, any amendment to the voting provisions in Section 4.12 may only be made by a three-quarters affirmative vote of the entire Board. The Authority shall provide written notice to the Parties at least 30 days in advance of any proposed amendment being considered by the Board. If the proposed amendment is adopted by the Board, the Authority shall provide prompt written notice to all Parties of the effective date of such amendment along with a copy of the amendment.

8.5 Assignment. Except as otherwise expressly provided in this Agreement, the rights and duties of the Parties may not be assigned or delegated without the advance written consent of all of the other Parties, and any attempt to assign or delegate such rights or duties in contravention of this Section 8.5 shall be null and void. This Agreement shall inure to the benefit of, and be binding upon, the successors and assigns of the Parties. This Section 8.5 does not prohibit a Party from entering into an independent agreement with another agency, person, or entity regarding the financing of that Party's contributions to the Authority, or the disposition of proceeds which that Party receives under this Agreement, so long as such independent agreement does not affect, or purport to affect, the rights and duties of the Authority or the Parties under this Agreement.

8.6 Severability. If one or more clauses, sentences, paragraphs or provisions of this Agreement shall be held to be unlawful, invalid or unenforceable, it is hereby agreed by the Parties, that the remainder of the Agreement shall not be affected thereby. Such clauses, sentences, paragraphs or provision shall be deemed reformed so as to be lawful, valid and enforced to the maximum extent possible.

8.7 Further Assurances. Each Party agrees to execute and deliver all further instruments and documents, and take any further action that may be reasonably necessary, to effectuate the purposes and intent of this Agreement.

8.8 Execution by Counterparts. This Agreement may be executed in any number of counterparts, and upon execution by all Parties, each executed counterpart shall have the same force and effect as an original instrument and as if all Parties had signed the same instrument. Any signature page of this Agreement may be detached from any counterpart of this Agreement without impairing the legal effect of any signatures thereon, and may be attached to another counterpart of this Agreement identical in form hereto but having attached to it one or more signature pages.

8.9 Parties to be Served Notice. Any notice authorized or required to be given pursuant to this Agreement shall be validly given if served in writing either personally, by deposit in the United States mail, first class postage prepaid with return receipt requested, or by a recognized courier service. Notices given (a) personally or by courier service shall be conclusively deemed received at the time of delivery and receipt and (b) by mail shall be conclusively deemed given 72 hours after the deposit thereof (excluding Saturdays, Sundays and holidays) if the sender receives the return receipt. All notices shall be addressed to the office of the clerk or secretary of the Authority or Party, as the case may be, or such other person designated in writing by the Authority or Party. In addition, a duplicate copy of all notices provided pursuant to this section shall be provided to the Director and alternate Director for each Party. Notices given to one Party shall be copied to all other Parties. Notices given to the Authority shall be copied to all Parties. All notices required hereunder shall be delivered to:

The County of Alameda

Director, Community Development Agency

224 West Winton Ave.
Hayward, CA 94612

With a copy to:

Office of the County Counsel
1221 Oak Street, Suite 450
Oakland, CA 94612

if to [PARTY No. ____]

Office of the City Clerk

Office of the City Manager/Administrator

Office of the City Attorney

if to [PARTY No. ____]

Office of the City Clerk

Office of the City Manager/Administrator

Office of the City Attorney

ARTICLE 9
SIGNATURE

IN WITNESS WHEREOF, the Parties hereto have executed this Joint Powers Agreement establishing the East Bay Community Energy Authority.

By: _____

Name: _____

Title: _____

Date: _____

Party: _____

EXHIBIT A

-LIST OF THE PARTIES

(This draft exhibit is based on the assumption that all of the Initial Participants will become Parties. On the Effective Date, this exhibit will be revised to reflect the Parties to this Agreement at that time.)-

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DRAFT EXHIBIT B

-ANNUAL ENERGY USE

(This draft exhibit is based on the assumption that all of the Initial Participants will become Parties. On the Effective Date, this exhibit will be revised to reflect the Parties to this Agreement at that time.)

This Exhibit B is effective as of _____.

Party	kWh ([YEAR]*)
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*Data provided by PG&E

DRAFT EXHIBIT C

- VOTING SHARES

(This draft exhibit is based on the assumption that all of the Initial Participants will become Parties. On the Effective Date, this exhibit will be revised to reflect the Parties to this Agreement at that time.)

This Exhibit C is effective as of _____.

Party	kWh ([YEAR]*)	Voting Share Section 4.11.2
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Total

*Data provided by PG&E