



# East Bay Community Choice Energy

from concept to implementation

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## Disclaimer:

This study was prepared by the Berkeley Climate Action Coalition, Community Choice Working Group, in collaboration with the Oakland Climate Action Coalition, Clean Energy & Jobs Oakland Campaign, to educate policymakers and other stakeholders about the potential for a Community Choice energy program in the East Bay.

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## Glossary of Terms

<b>Term</b>	<b>Meaning</b>
Behind-the-meter	Refers to energy efficiency or electricity generation that takes place on the customer side of the electricity meter rather than on the grid side.
California Public Utilities Commission (CPUC)	California's agency in charge of regulating investor-owned utilities.
Demand response	Technology that lowers electricity demand (or consumption) in response to shortages in the available supply of electricity.
Feed-in tariff	A standard contract that requires the utility to pay a set amount for generated renewable electricity for a set number of years, depending on technology.
Greenhouse gas (GHG)	A gas that causes the atmosphere to trap heat radiating from the earth. The most common GHG is Carbon Dioxide, though Methane and others have this effect.
GWh (gigawatt-hour)	A unit of electrical energy that is produced or consumed. For example, the East Bay consumes about 10,000 GWh of electrical energy each year.
Investor-Owned Utility (IOU)	A privately-owned electric distribution company, such as Pacific Gas and Electric (PG&E), that in California is regulated by the CPUC.
Joint Powers Authority (JPA)	An entity permitted under the laws of some states, whereby two or more public authorities (for example, local governments, or districts) can operate collectively.
MW (megawatt)	A unit of electrical power that expresses the capacity (or power rating) of power plants or consuming devices. For example, a typical nuclear power plant has a capacity of about 1,000 MW, while a large commercial rooftop has a solar PV capacity of about 1 MW, enough power at any given moment to serve approximately 750 households.
Net-metering	A state-mandated program through which utility customers with behind-the-meter renewable generating facilities smaller than 1 MW can receive bill credit for power not used on-site and delivered to the grid (causing the meter to run backwards).
Peak load	The electrical power demand at that time, over the course of a year and during the day, when electricity consumption peaks.
Property Assessed Clean Energy (PACE)	A program whereby building or home owners can finance energy efficiency and renewable energy projects by having an additional charge added to their property tax bill. This fee repays a financier over time, and the obligation can be transferred to a new owner. Many local governments have created such programs.
Renewable Energy Certificate (REC)	A certificate of proof, that one unit of electricity was generated and delivered to the grid by an eligible renewable energy resource. A REC can be sold either with the underlying energy or "unbundled," and sold separately.
Renewable Portfolio Standard (RPS)	Legal requirements that a specific percentage of retail electrical energy for California comes from eligible renewable energy resources.
Shared solar	An arrangement by which many electricity customers each own a portion of a solar PV generating facility, and therefore receive a share of the electricity or revenue it generates.
Solar PV	A solar electricity generating technology in which solar energy is transformed into electricity through a photovoltaic (PV) effect.

## Executive Summary

Communities across California are seeking ways to address the impacts of climate change and boost their local economies. Many are exploring Community Choice energy as a vehicle for achieving these objectives.

Community Choice is a means by which city and county governments can aggregate or cluster electricity customers to provide electricity and related energy services. As a result, the local community can shape the program to prioritize desired benefits. For example, a Community Choice program determines the source of its electricity, so it can focus on a higher level of local renewable energy sources if that reflects what the community values.

A Community Choice program can be a true energy service provider, integrating energy supply with demand reduction in a manner that meets community goals related to climate action, employment creation, price stability and local control.

Accordingly, electricity customers will have an alternative provider option to the incumbent investor-owned utility.

An example development scenario and *proforma* financial analysis included in this study shows that an East Bay Community Choice energy program encompassing Alameda County could lead to the following results within a decade:

- Generate about \$865 million in net revenue over 10 years, money that stays in the local economy and could be re-invested in accordance with the policies established by a representative Board of Directors.
- Create more than 24,000 job-years over 10 years, amounting to an average yearly employment of 2,400 full-time jobs.
- Reduce energy demand equal to a medium-sized power plant (1,790 GWh per year, or about 204 MW of combined baseload and peak capacity reductions).
- Offer renewable energy content starting at 33%, rising to 65% by 2025.

- Provide about 10,000 GWh in local renewables over 10 years, with an emphasis on local solar and wind development (equivalent to a capacity of about 1,150 MW in solar PV development by 2025).
- Cut 6.3 million tons of GHG emissions by 2025, equal to taking almost 475,000 cars off the road during that period (surpassing the reductions targeted by the state's Renewable Portfolio Standard).

This study examines the potential benefits of creating an East Bay Community Choice energy program in terms of local renewables development, new community investments, job creation, greenhouse gas reductions, and lower energy bills. It explores what such a program does and describes the process of creating it. In addition, the study outlines the estimated costs and potential revenues of an East Bay program. The study also addresses the potential risks of establishing a Community Choice program and how those risks can be mitigated.

## I. What is Community Choice?

For more than a century, electricity supply has been a virtual monopoly, and consumers have had little say in how their electricity was procured and delivered. That has now changed for energy consumers in California.

Community Choice Aggregation (CCA), provided for in California by AB 117 in 2002, is a mechanism that allows cities, counties and other government entities to aggregate individual electricity customers within a defined area for the purpose of providing electricity and related energy services. Six states, including California, allow local governments to procure their own electricity supplies, with the incumbent utility continuing to operate the transmission and distribution lines. Community Choice programs provide local control over energy supply (but are distinct from municipal utilities, which own the distribution infrastructure).

Community Choice is not just about buying and selling electricity, but also about managing a community's energy resource (both demand reduction and electricity generation) to meet local objectives. By law, Community Choice programs are "opt-out" initiatives, meaning that the program can automatically enroll electricity customers unless they choose to opt out and stay with the incumbent utility.

Local communities have been motivated to establish Community Choice programs as an alternative to investor-owned utilities. Based on preferences for increased levels of renewable energy sources, local agencies can more quickly transition to a renewable energy model, encourage local investment in energy resource development, reduce greenhouse gases, procure electricity at lower prices, and provide the impetus to modernize the electricity grid to support a sustainable decentralized energy system.

Two Community Choice programs have already been established in California – in Marin and Sonoma counties. A number of other communities are in varying stages of program development. Marin County started California's first Community Choice program in 2010 and has purchased electricity on the open market as well as contracted for its own solar power generation. Sonoma County has also started a Community Choice program – due to deliver electricity in May 2014 – that emphasizes the provision of electricity generated from *local* renewable energy sources.

Thus far, these local programs have been established at the county level. City governments have joined Community Choice programs with the relationship between the jurisdictions governed by a Joint Powers Authority (JPA) agreement. Customers in those cities, as well as in the unincorporated areas governed by a county, are phased in as customers of the program unless they choose to opt out (all customers are given ample opportunity to opt out). It is possible, however, that one city could set up its own program or sign a JPA with other cities. This is certainly possible in the East Bay with large cities like Berkeley, Oakland, and Hayward.

Community Choice programs offer a number of benefits for local communities:

- **Local Control:** Community Choice gives communities control over where their electricity comes from and how their electricity dollars are spent. A Community Choice agency would be governed by a public Board of Directors, comprised of local officials and other community representatives. Through this public governance structure, communities have a say in the program's goals, how it operates, and the types of resources it procures. Surplus revenues can be reinvested into the community through targeted investments in demand reduction (such as energy efficiency) or renewable energy development. In this way, local citizens can participate in shaping the program to address community needs.
- **Local Choice:** Community Choice programs are essentially about giving consumers the choice of an alternative electricity service provider they wouldn't otherwise have. Under the current investor-owned utility model, consumers can only buy power from one company, with no say about where that power comes from or how the revenues are used. This means that consumers unhappy with the utility have nowhere to turn except the California Public Utilities Commission (CPUC).
- **Local Economic Development Benefits:** Community Choice programs have the ability to develop demand reduction resources, as well as solar, wind and other renewable resources in or near their service areas. Unlike traditional centralized electricity sources that send power over long-distance transmission lines, locally developed resources mean investment in the local economy. This investment can create meaningful economic benefits, including growth in clean energy jobs.



According to the scenario presented in this study, an East Bay Community Choice program could create demand for 1,150 MW of installed capacity by 2025, along with 204 MW of combined baseload and peak capacity reductions. Both activities could create thousands of local installation jobs.

Because Community Choice agencies can finance projects with tax-exempt revenue bonds<sup>1</sup> (which incur lower financing costs than private financing) and do not have to pay dividends to shareholders, more net revenues from a local development program would stay within the local community. The community can decide how these proceeds are utilized (perhaps either to lower rates or invest in new resources).

Finally, local economic benefits accrue also to local property owners and businesses from energy savings and on-site electricity generation encouraged by the Community Choice program. For many commercial building owners, renewable energy development can mean increased revenues, both from direct investment or by offering leasing rights to project developers.

- **Environmental Benefits:** By reducing demand and procuring more electricity from renewable resources, the Community Choice program can substantially reduce greenhouse gas (GHG) emissions associated with electricity consumption. As many municipal climate action plans have indicated, a major source of GHGs is from electricity generated by fossil fuel combustion in power plants.<sup>2</sup> According to the scenario presented in this study, an East Bay Community Choice program could cut 5.3 million metric tons of GHG emissions by 2025, surpassing the reductions targeted by the state's RPS.<sup>3</sup>

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<sup>1</sup> Revenue bonds are repaid through revenues generated by public investment rather than through increased taxes.

<sup>2</sup> According to the Santa Rosa Climate Action Plan, for example, the Plan's authors determined it would be extremely difficult for the city to meet its climate action goals unless it directly dealt with electricity consumption, and this was one of the rationales for the city council voting to join Sonoma Clean Power.

<sup>3</sup> It is difficult to forecast GHG emissions created by the procurement of electricity that relies in some part on the combustion of fossil fuels. Factors that can affect GHGs from electricity procurement include the fuel mix available to any utility or electricity provider. For example, PG&E's long-term GHG reductions depend on the availability of electricity from hydroelectric sources (subject to chronic drought due to climate change) and nuclear sources (subject to uncertain nuclear power plant re-licensing). While PG&E might rely on the construction of new natural gas facilities to offset falling hydroelectric and nuclear production, an East Bay Community Choice program would strive to cut electricity demand while acquiring

- ***New Local Energy Programs:*** A Community Choice agency can develop programs for demand reduction and new renewable generation that are very difficult to achieve at the state level. For example, the local agency can promote energy efficiency and demand response programs, above and beyond what PG&E offers. These programs can be designed specifically to meet the needs of the community.

In addition, the Community Choice program can incentivize local renewable electricity generation through well-designed net-metering and feed-in tariff programs and other ways of aggregating, sharing, and financing of new energy sources. For example, Marin's Community Choice program (Marin Clean Energy) has a policy that pays net-metering customers for excess power they generate at a much more generous rate than PG&E's – thereby encouraging greater investment in rooftop solar. Likewise, Marin Clean Energy's feed-in tariff program guarantees a long-term, fixed and secure price for power, making it much easier to finance new local renewable generation. A Community Choice program can also institute programs for shared renewable generating facilities similar to the program developed by the Sacramento Municipal Utility District.

- ***Rate Stability and Lower Prices:*** By focusing on demand reduction and the deployment of renewable resources, a Community Choice program offers the advantage of greater rate stability. In fact, the continuing decline in renewable power prices can translate into *lower* rates over the long term. For example, Sonoma County conducted an exhaustive study of the rate impacts of different amounts of local renewable energy development. The scenarios that developed renewable projects *within* Sonoma County led to the lowest rates by 2020 compared to those of PG&E.<sup>4</sup>

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increasing amounts of electricity from renewable sources, thereby minimizing its reliance on electricity from natural gas sources.

<sup>4</sup> See: <http://www.scwa.ca.gov/files/docs/carbon-free-water/cca/CCA%20Feasibility%20Report%20101211.pdf>

## II. History of Community Choice in the East Bay

Since California's Community Choice law was passed more than a decade ago, more than a dozen jurisdictions in addition to Marin and Sonoma counties are establishing or investigating Community Choice energy, including the City and County of San Francisco, San Jose, San Luis Obispo, Davis, and the counties of Monterey, San Diego, Santa Cruz, and San Benito.

In 2005, several East Bay cities (Oakland, Berkeley, and Emeryville) jointly financed a feasibility study to assess the viability of a Community Choice program and subsequently contracted with Navigant Consulting to produce an East Bay Community Choice business plan in 2008. Due in part to a faltering economy in 2008 and liability issues raised in the Navigant study, the effort to establish an East Bay Community Choice program stalled.

Conditions have changed significantly since 2008. Climate change has become a more urgent issue, and the risks of establishing a Community Choice program have markedly diminished. Not only have the market and price points for renewables dramatically improved, but new programs not envisioned in 2008 are now being implemented.

In January 2012, Governor Brown signed into law SB4, which allowed special districts to become Community Choice aggregators. As a result, in December 2012, the East Bay Municipal Utility District (EBMUD) considered taking the lead in forming an East Bay Community Choice program. Its Board of Directors ultimately rejected taking on such a role, while leaving open the possibility that the agency could administer a Community Choice program should one be established by East Bay cities.

Now that two Bay Area counties have launched Community Choice programs, a good deal of the heavy lifting has been in done (with feasibility studies, rate impact assessments, and model joint powers agreements), and the costs and effort associated with setting up a program have diminished. As with Marin and Sonoma counties, the Alameda County government could push forward a program – or it could be spearheaded by specific cities in the county.

### III. Alameda County and the East Bay

Alameda County is the seventh most populous county in California, with 14 incorporated cities and several unincorporated communities. It has significant renewable resources and, in particular, a large potential for the development of solar PV.

#### A. Population Breakdown

The total population in 2012 was about 1,554,000, according to a county estimate, with a total area of 739 square miles. This makes Alameda County three times larger in population than Sonoma County and five times larger than Marin County. The incorporated cities are Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City. The unincorporated communities that are governed directly by the County (and referred to as [census-designated places](#)) include Ashland, Castro Valley, Cherryland, Fairview, San Lorenzo, and Sunol. The County also governs a number of smaller named neighborhoods.<sup>5</sup>

As Table 1 indicates, the total population governed by the County (and who could thus participate in a Community Choice program without a city approval) is about 141,000 people or about 9% of the total county.<sup>6</sup> The City of Alameda, with about 74,000 residents, would not be eligible to participate in Community Choice because it has its own municipal utility.

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<sup>5</sup> <http://www.acgov.org/about/cities.htm>

<sup>6</sup> By comparison, it should be noted that in Sonoma County, one-third of its 500,000 residents – or 150,000 people – live in unincorporated areas. Sonoma County was willing to establish a Community Choice program even before other cities agreed to participate, with the expectation that cities would join eventually (five Sonoma County cities have joined as of February 2014).

**Table 1. Alameda County Population (2010 Census)**

<b>Incorporated Cities</b>	<b>Population</b>
Alameda	73,812
Albany	18,539
Berkeley	112,580
Dublin	46,036
Emeryville	10,080
Fremont	214,089
Hayward	144,186
Livermore	80,968
Newark	42,573
Oakland	390,724
Piedmont	10,667
Pleasanton	70,285
San Leandro	84,950
Union City	69,516
<b>Unincorporated Communities</b>	<b>Population</b>
Ashland	21,925
Castro Valley	61,388
Cherryland	14,728
Fairview	10,003
San Lorenzo	23,452
Sunol	913
All others neighborhoods	8,857 <sup>7</sup>
<b>TOTAL</b>	<b>1,510,271</b>

## B. Solar PV Potential

One of the key questions regarding an ambitious effort to develop local renewables is whether sufficient resources are available for development. The scenario outlined in this study calls for a potential 1,150 MW of installed solar PV within ten years. Marin and Sonoma counties face some constraints for large-scale solar PV projects because of the high amount of sensitive park and agricultural land. However, the East Bay has a relatively large potential for solar PV, in part because of the amount of industrial zoning.

A 2012 report, *Bay Area Smart Energy 2020*, estimated the solar PV potential in the Bay Area. It found a potential in Alameda County of 3,764 MW for

<sup>7</sup>[http://www.ciclt.net/sn/clt/capitolimpact/gw\\_city.aspx?ClientCode=capitolimpact&State=ca&StName=California&StFIPS=06&FIPS=06001](http://www.ciclt.net/sn/clt/capitolimpact/gw_city.aspx?ClientCode=capitolimpact&State=ca&StName=California&StFIPS=06&FIPS=06001)

residential and commercial rooftops and commercial parking lots.<sup>8</sup> This was the second largest potential for any county in the Bay Area. If developed, it would represent approximately 80 percent of the capacity required to meet Alameda County's needs.

In addition, the US Environmental Protection Agency maintains a database<sup>9</sup> as part of its REPowering America program, which encourages renewables development on contaminated lands (e.g. landfills, old industrial sites) that are not suitable for other development. In Alameda and Contra Costa counties, the database includes 307 sites that have key data needed to pre-screen for solar PV projects, such as total acreage, distance to substation and solar radiation per square meter per day. This database calculates a total of 12,000 MW of solar PV potential in the two counties, just for these brownfield sites alone (not including car ports, rooftops and other open spaces). While not all 307 sites would be suitable for development, depending on their remediation plans, this database does demonstrate the large solar PV resource that exists in or close to Alameda County. Data for the 42 largest sites is shown in Appendix A. Together they have a potential of more than 8,600 MW.

The two studies cited above indicate the possibilities just for solar PV development in the East Bay. Capturing this solar PV potential would require an explicit development plan, as well as enhancements to the grid. Nevertheless, sufficient potential is available for the development of renewable resources.

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<sup>8</sup> *Bay Area Smart Energy 2020* by Bill Powers, March 2012, page 108.  
([http://pacificenvironment.org/downloads/BASE2020\\_Full\\_Report.pdf](http://pacificenvironment.org/downloads/BASE2020_Full_Report.pdf))

<sup>9</sup> See <http://www.epa.gov/renewableenergyland/>

## IV. Functions of a Community Choice Program

A Community Choice program can be a true energy service provider, integrating energy supply with reduced demand in a manner that provides the community benefits outlined earlier. Community Choice is therefore about managing a community's energy resources (both demand reduction and electricity generation) to meet community objectives. The program performs the following functions:

- A. Energy Procurement and Integrated Resource Planning
- B. Rate Setting
- C. New Program Development
- D. Regulatory Compliance
- E. Public Relations and Customer Service

Each of these functions is described below.

### A. Energy Procurement and Integrated Resource Planning

The most important function of any Community Choice program is meeting the electricity demand of its customers. This should be done by integrating generation services with demand reduction, as energy saved is as valuable a resource as wind or solar (and usually cheaper). On the generation side, an East Bay program would emphasize renewable and carbon-free resources, and would have several options for meeting renewable energy goals.

Meeting electricity needs requires a Community Choice program to perform resource planning that includes load forecasting and supply planning on a long-term time horizon. The program would develop integrated resource plans that make maximum use of demand side energy efficiency, storage, and demand response programs, combined with traditional supply options and renewable energy sources.

A possible scenario for such a resource plan is outlined in Section VI. The program would start operation in 2015 with a mix that is at least 33% California-eligible renewable electricity (the state's 2020 renewables target). This mix would exceed the state-level 2015 requirement of 23%. By 2025,

the East Bay Community Choice program – under this potential scenario – would reach 65% renewable electricity.

### **Demand Reduction Services**

Key to optimizing the East Bay electricity system is reducing peak load periods so as to flatten electricity demand over time and over the region. Flattening the load profile reduces the amount of generating capacity needed to satisfy demand and thereby reduces the overall cost of electricity (typically the peak load is the most expensive electricity to provide). In particular, the amount of energy that has to be procured on the open market is reduced.

Because a Community Choice program has access to energy consumption data for every meter, it would be in a good position to lower demand in general – and to reduce peak demand in particular. The program can develop its own approach to demand reduction, with its own metrics and goals that most closely meet the needs of the East Bay. Hence, the Community Choice program should develop a demand reduction program that includes a method for identifying and implementing the largest, most cost-effective savings across the local service territory, while complementing what PG&E and other East Bay organizations are already doing under state programs directed by the CPUC.

This plan should include demand-response technologies as well, in which financial incentives are offered to customers to reduce demand upon request, as a way to shave load peaks. Typically, demand-response is ideal for customers who have the flexibility to reduce or shift consumption for relatively short periods of time when demand is highest, generating capacity is scarce and electricity is most expensive. For the Community Choice program, demand-response is an effective alternative to procuring capacity that would otherwise be needed to comply with the CPUC's resource capacity requirements.

### **Power Procurement Services**

Community Choice program staff would have a number of supply-side options at its disposal for procuring electricity:

- ***Third-Party Power Provider:*** At the start of a Community Choice program, all electricity demand – including the portion that is renewable – will be purchased on the market, while new local renewable resources



are being developed. A third party could contract for a high percentage of the program's supply at program launch while the program develops an operational record and revenue stream needed to finance its own projects. The third party will ensure that the Community Choice program meets the state's Renewable Portfolio Standard requirements for renewable energy content.

As part of the bidding process, agency staff can set referential criteria such as price, proximity of sources to the East Bay, the company's experience, its ability to comply with CPUC regulations, and its overall sustainability record. The third party should be experienced with the procurement of energy, capacity and ancillary services, scheduling coordinator services, short-term load forecasting and day-ahead and real-time electricity trading.

- ***New Generating Facilities/Power Purchase Agreements:*** The Community Choice program can also conduct an open bidding process to contract for renewable energy from new facilities. Independent power producers would submit their proposals to be evaluated by staff and a technical consultant, if necessary. Firms with successful bids – based on criteria that the program would establish ahead of time – would then negotiate power purchase agreements. Under this approach, the Community Choice agency would not own the facility but simply purchase the electricity.
- ***New Generating Facilities/Program-Owned:*** The Community Choice program could also build, own and operate new generating facilities. In this case, the facility could be situated on public property or brownfield sites and built through a developer hired by the Community Choice program. This approach might be more appropriate after the program has several years of operational experience and has established a credit rating, so that low-interest loans or revenue bonds can be used to finance these projects. Until then, a Community Choice program can partner with a private company in order to benefit from the 30% tax credit offered by the federal government.
- ***New Generating Facilities/Feed-in Tariffs:*** A feed-in tariff (FIT) program provides renewable generators a buyer of their electricity at a fixed price for up to 10, 15 or even 20 years. With their high level of certainty, FIT contracts give smaller-scale developers the ability to secure project financing more easily. An East Bay Community Choice program can create a feed-in-tariff program, as has been done by Marin Clean

Energy and a number of municipal utilities, including the Sacramento Municipal Utility District and the Los Angeles Department of Water and Power.

- ***Behind-the-Meter Resource Development:*** To the maximum extent possible, the Community Choice program would encourage homeowners and businesses within its service territory to install energy efficiency and generating resources behind the meter. These can include many technologies. For example, industrial and commercial properties might install combined heat and power facilities, and residential and commercial properties might install solar PV on rooftops and parking lots and even develop larger-scale facilities when the space is available.

To encourage customers to install as much behind-the-meter generating capacity as possible, an East Bay Community Choice program should have net-metering policies that would make it economically attractive to install excess capacity. PG&E, for example, pays a consumer about 4-5 cents/kWh, a price that rarely justifies installing such increased capacity. MCE, pays a competitive price – the retail rate, plus an additional penny per kilowatt hour – for excess generation.<sup>10</sup> This kind of net-metering policy encourages customers to size their behind-the-meter installations to provide electricity to other consumers on the grid.

- ***Unbundled Renewable Energy Certificates (RECs):*** Unbundled RECs are essentially purchases of the renewable attributes of solar or wind energy when that energy is sold and delivered elsewhere. Unbundled RECs are recognized and allowed under California's RPS, although the number of such RECs that can be used for compliance is limited (and declines over time). Unbundled RECs can be a strong cost-containment option, and their purchase gives flexibility to the Community Choice programs.<sup>11</sup> A newly emerging program might initially rely to some extent on unbundled RECs to ensure that its offering meets RPS requirements at reasonable costs to customers. However, it is not clear that RECS result in new renewable energy development and therefore they may have uncertain environmental value. A Community Choice agency will generally attempt to reach its renewable content commitments as soon as is feasible via power purchase agreements with local developers or

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<sup>10</sup> For example, MCE E7 customers would receive \$.38/kWh for excess peak generation during summer months. MCE also bills net-metering monthly so there is no annual true-up, which can incur a large annual charge on a customer's bill.

<sup>11</sup> For a more complete explanation, see *What the Heck is a REC?* (<http://www.localcleanenergy.org/files/What%20the%20Heck%20is%20a%20REC.pdf>)

through development of its own generation facilities located within its service area.

## **B. Rate Setting**

The Community Choice program would have the responsibility of setting the rates customers pay for electricity. The program would adopt an initial rate structure following the establishment of the first year's operating budget and prior to launch of the program. All future rates would be approved at a public meeting of the Board of Directors with adequate opportunity for customer and community input.

The rate structure would likely follow the experience of other Community Choice programs and include the following features:

- **Rate Sufficiency:** Rates must, at a minimum, meet the annual budgetary revenue requirement developed by the program. This would include recovery of all expenses and any reserves or coverage requirements set forth in bond covenants or other debt-service requirements.
- **Rate Stability and Competitiveness:** Rates would initially have a structure similar to PG&E's rate system. The program would aim to have lower rates and greater rate stability as the share of locally developed renewable resources increases – with no variable fuel cost issues such as gas generation. Starting with a similar rate structure to PG&E is designed to ensure the program rates are not drastically different from what they were previously. Competitive rates will be critical to attracting and retaining key customers. This is particularly true in the East Bay, which unlike Marin and Sonoma counties has a major industrial load and important consumers like the airport, UC Berkeley, community and state colleges, port facilities, stadiums, and BART. However, rate structures might track fairly differently as the program matures. For example, the Community Choice program might decide to introduce rates designed to encourage economic expansion or business retention within the service area.<sup>12</sup>

The program would as much as possible market its combination of price and value, where the value is a higher renewable energy content,

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<sup>12</sup> For example, the CCA may offer industrial customers with custom pricing options to help them gain greater control over their energy costs. An example could be rates based on an observable market index (e.g., CAISO prices) or fixed price contracts of various terms.

enhanced energy efficiency and demand reduction programs, community focus and investment, jobs, and local control.

- **100% Renewable Option:** The program could elect to offer customers a 100% renewable energy option at a premium price, based on the costs of a 100% renewable supply. This option has been attractive to Community Choice customers in Marin and Sonoma.
- **Power Charge Indifference Adjustment (PCIA):** The Community Choice program would aim to have initial rates lower than PG&E's average generation rate. However, the actual Community Choice rates might initially be slightly higher than PG&E due to the Power Charge Indifference Adjustment (PCIA). PG&E collects this CPUC-mandated fee from Community Choice customers to ensure costs incurred by PG&E on behalf of customers who transition to the Community Choice program are not shifted to the rest of the PG&E customer base. The PCIA is designed to decline and zero out over a period of several years.
- **CARE Rates:** Participating qualified low- or fixed-income households, such as those currently enrolled in the California Alternate Rates for Energy (CARE) program, would continue to receive the same monthly discounts on their electricity bills.

### C. New Program Development

One of the key functions of a Community Choice program is to develop new approaches to reducing energy demand and encouraging the building of new, local, renewable generating assets, all in a manner that provides the desired community benefits.

This could include new approaches to behind-the-meter development in which many small projects are aggregated into a bigger project to achieve economies of scale. For example, shared solar or shared renewables programs, allow customers to own shares in a generating facility that is treated as if each shareholder's portion were installed behind his/her individual meter. This program could encourage the development of collective or neighborhood-based approaches to energy development and help spawn local energy cooperatives. Also, programs can be designed to reduce financing barriers for energy efficiency or rooftop solar through Property Assessed Clean Energy (PACE) or on-bill repayment arrangements.

In other words, feed-in-tariff and improved net-metering programs, are only the tip of the iceberg of the new program development function of a Community Choice program.

#### **D. Regulatory Compliance**

Community Choice programs face much less regulation than investor-owned utilities, but as load-service entities, they must comply with various compliance filings related to resource plans, resource adequacy and California's Renewable Portfolio Standard. The program would have at least one staff person to ensure the organization maintains an active role at the CPUC, the California Energy Commission and, as necessary, the Federal Energy Regulatory Commission and the California legislature. Some of the main regulatory functions are the following:

- ***Certification of Implementation Plan:*** Any Community Choice program in California requires the submission of an Implementation Plan, which must be certified by the CPUC before operation commences.
- ***Capacity Requirement:*** The CPUC's resource adequacy standards require a demonstration one year in advance that the Community Choice program has secured physical capacity for 90 percent of its projected peak loads for each of the five months of May through September, plus a minimum 15 percent reserve margin. On a month-ahead basis, the program must demonstrate 100 percent of the peak load plus a minimum 15 percent reserve margin. In addition, some capacity requirements must be procured locally, from the Greater Bay area as defined by the California Independent System Operator (CAISO), and another portion must be procured locally or from local reliability areas outside the Greater Bay Area.
- ***Renewable Portfolio Standard (RPS):*** State law requires that Community Choice programs, like investor-owned and municipal utilities, provide a minimum amount of eligible renewable resources in their mix, according to the schedule presented in Table 2. The RPS also divides renewable energy supply into three categories. Category 1 entails the use of renewable energy from facilities located in the State of California or those outside the state that can meet strict scheduling procedures to ensure delivery into California. There is no limit to using Category 1 renewables for RPS compliance. The other two categories focus on renewable energy that might not be strictly delivered into the state as

well as purchase of unbundled RECs. These categories do have limits as to the percentage used for RPS compliance.

**Table 2: State Renewable Portfolio Standards and East Bay Community Choice Aggregation Scenario**

<b>Year</b>	<b>State RPS Requirement</b>	<b>East Bay CCA Scenario</b>
2015	23%	33.0%
2016	25%	35.6%
2017	27%	38.3%
2018	29%	41.3%
2019	31%	44.6%
2020	33%	48.0%
2021	33%	51.8%
2022	33%	55.8%
2023	33%	60.2%
2024	33%	64.9%

### **E. Public Relations and Customer Service**

Another key function of the Community Choice program would be to interact with its customers, informing the public, the media and stakeholders about the benefits of joining the program. The program must establish its “brand” in the minds of the public with the goal of retaining and attracting as many customers as possible. Communications would also be directed at key policymakers at the state and local level, as well as community, labor, business, and opinion leaders.

Equally as important is empowering community members to offer their views and suggestions through public meetings of the Board, the website, and other means.

According to state law, customers to be enrolled in the program must receive a minimum of four opt-out notices (two before being phased-in to the program and two after). Participating cities or the program staff itself can certainly do more frequent and creative outreach to the community, particularly to large customers. This will be especially important in the East Bay with so many large industries, the port, the airport, and other facilities that could be advocates for the Community Choice program. Having relatively few customers opt out will keep the program’s costs lower and help achieve the overall environmental and economic goals.

One of the challenges is to help customers understand their electricity bills. Community Choice customers brought into the program continue to receive a PG&E bill, but this bill includes a separate itemization for the Community Choice electricity charges, which are collected by PG&E and forwarded to the Community Choice program. The rest of the bill, including electricity transmission and distribution charges, continues to be paid to PG&E.

Engagement with the business community in the East Bay – both large consumers of electricity, commercial property owners, and businesses involved in renewable energy production – will be key in helping to launch the program. In Sonoma County, many in the business community, particularly in the wine-growing industry, have expressed their support, which has generated much needed political momentum.

The customer service function of a Community Choice program also encompasses management of customer data. The program would maintain a database of all customers in the program for the issuance of monthly bills through PG&E's billing process. The database would allow the electronic exchange of usage, billing, and payments data between the Community Choice program and PG&E, as well as track customer payments and accounts receivable, issuance of late payment notices, etc. Most of this work would probably be contracted out to a qualified third party, freeing limited staff resources from the complex task of implementing an entire customer information system.

## **V. Setting up a Community Choice Program**

Any local government and some special districts in California can form a Community Choice program by itself or with other jurisdictions. In Marin and Sonoma, the County governments took the lead – with the cities joining once the initiative was underway. To begin the process, the jurisdiction could pass an ordinance or resolution that states its intention to establish a Community Choice program to meet specified goals and then undertake a full feasibility study or business plan on that basis.

### **A. Conducting a Community Choice Business/Feasibility Study**

The Community Choice business/feasibility study is the basis upon which a government jurisdiction proceeds with the establishment of a Community Choice program. As in any other business, the study must be detailed enough to describe how the program is to meet its stated goals, while also demonstrating the economic feasibility of providing the benefits the program is to achieve.

The study would use PG&E load data and renewable resource assessments to identify potential projects. It would assess the potential size of the program in terms of number of customers and electricity sales, develop an initial financial and cash-flow model, predict the overall return on investment, quantify the jobs created under various procurement scenarios, and outline how the start-up costs would be financed.

Depending on the scope of the study, it would also address how local development projects would be financed, clearly outline the functions of the program, and determine staffing requirements. The plan would also examine the risks associated with establishing a Community Choice program and how those risks would be mitigated. As a point of reference, the feasibility study in Sonoma County cost about \$100,000. A fuller business plan – which identifies particular demand side and renewable resources for development – would cost more depending on the scope. In the case of Marin and Sonoma counties, those programs chose to identify these resources after creating their Community Choice agency.



## **B. Raising Initial Set-Up Costs**

Setting up a program requires up-front investments. In addition to the costs involved in developing the business/feasibility study referred to in the preceding section, there will also be legal fees associated with setting up the Joint Powers Authority (JPA) discussed in the following section. The cost for legal fees can be minimized somewhat relative to what Marin and Sonoma incurred because model JPA agreements now exist. In addition, some of the legal work can be shouldered by in-house lawyers in the cities and at the county level.

If a new administrative agency is also required, the initial staffing and creation of this agency could also cost about \$500,000. These costs can all be repaid quickly once the Community Choice program is launched, but typically they are borne initially by the initial set of government jurisdictions, angel investors, or short-term loans.

For example, funds for MCE's initial operations came primarily from two sources. The County of Marin loaned MCE a total of \$540,000 without interest. MCE also issued promissory notes to three individuals for loans totaling \$750,000, which it paid back within the first year of operations.

In the scenario presented in this study, it is estimated that the total set-up costs would be no more than \$1.5 million in legal, consulting, and other expenses associated with developing the business/feasibility study, establishing the JPA, and setting up a Community Choice administrative agency.

## **C. Forming a Joint Powers Authority (JPA)**

An East Bay Community Choice program would be established to implement the aforementioned business plan. The program would be organized under a Joint Powers Authority (JPA) that would register with the CPUC and be responsible for managing the program. As in Marin and Sonoma counties, Alameda County and/or city officials and local advocates would conduct an education campaign at the city level to educate the community and local leaders about the benefits of establishing a Community Choice program. The local jurisdictions would agree to become parties to a JPA, which would govern all of the procedures of the Community Choice program – from Board composition, to voting rights, to procedures should a city want to withdraw from the program. A model of a Community Choice JPA is available from the

Marin and Sonoma experience and can be adapted to the East Bay. It should be expected that creating a JPA would incur up-front legal fees that the jurisdictions would have to bear.

The program would be governed by a Board of Directors. For instance, if the JPA is formed at the county level, it would include the Board of Supervisors (or their representatives). As with Marin and Sonoma counties, cities could then join the JPA. If established by municipal authorities, the program would have representatives from the member city councils and other representatives as appropriate.

#### **D. Creating a Community Choice Agency**

An initial task of the Board of Directors would be to create a Community Choice agency under the direction of a Chief Executive Officer or Executive Director to be appointed by the Board, with legal and regulatory support provided by in-house legal counsel.

- **Board of Directors:** The Board of Directors would oversee and approve all important decisions, such as major power procurement contracts, raising capital for local energy development, and rate setting. The Board would provide overall policy direction to the Chief Executive Officer, who will have general responsibility for program operations. The Board could also establish sub-committees that focus on particular areas of interest. Sonoma Clean Power, for example, has created a ratepayer advisory sub-committee to review and approve all electricity rates since that is such a critical component. That sub-committee includes citizens who represent the view from the residential and commercial sectors. The Board would meet monthly to review all major developments and make all necessary decisions.
- **Management Staff:** The CEO will have management responsibilities over the following functional areas:
  - Energy Procurement and Longer-Term Resource Planning
  - Rate Setting
  - New Program Development, Including Net-Metering and Feed-In Tariffs
  - Regulatory Affairs
  - Public Relations and Customer Service

Staff would likely be hired to cover each of these areas while initially, some of this responsibility can be outsourced to third-party contractors.

## **E. Submitting an Implementation Plan**

The CPUC, which ultimately has to approve the Community Choice program, requires that the Community Choice entity submit an **Implementation Plan** that covers all aspects of the set-up and operation. However, the Implementation Plan need not describe the integrated resource plan, financial plan, or other aspects of the business plan.

AB117 and California code section 366.2 are clear about what needs to go into the Implementation Plan that would eventually be certified by the CPUC:

- Process and consequences of aggregation
- Organizational structure of the program, its operations, and funding
- Rate setting and other costs to participants
- Disclosure and due process in setting rates and allocating costs among participants
- Methods for entering and terminating agreements with other entities
- Participant rights and responsibilities
- Termination of the program
- Description of third-parties that will be supplying electricity under the program, including information about financial, technical, and operational capabilities

The first item in the above list involves a plan for phasing in customers to the program. The phase-in schedule will depend, of course, on which cities join at the outset, but in any case, not every customer in the county can or should be signed up at Day 1. How many customers should be included in Year 1, Year 2, and so forth will be specified in the business/feasibility study previously described. It is important to note that an East Bay program could be much larger than either Marin or Sonoma or even San Francisco, thus the phase-in schedule has to be carefully considered. The scenario presented in this study assumes a four-year phase-in period, starting with accounts that represent 10% of the total load in Year 1. Year 2 would incorporate 25% of the total load, followed by 50% in Year 3, and 100% by the end of Year 4.

The Implementation Plan must also include a statement of intent indicating that the program must provide universal access, reliability, and equitable treatment of all classes of customers, and to meet any other requirements

established by state law or by the CPUC.<sup>13</sup> Much of the information provided in this study covers these issues and can form the basis for the Implementation Plan.

## F. Rolling Out the Community Choice Program

Once all of the above steps are completed, the agency will need to undertake a series of start-up activities that will likely begin 6-12 months prior to the first power sales. These include the following activities:

- **Hire Staff:** The Community Choice Board of Directors, after appointing a CEO or Executive Director, will hire a mix of direct staff and contractors to undertake the activities necessary to launch the program effectively. Given the size of the East Bay, an initial staff of at least 10 people would likely be required, covering the following functions: regulatory affairs, media and community outreach, budget and finance, power procurement, energy forecasting, and local energy programs. Some of the more technical work – such as modeling demand and longer-range forecasting and developing the proposed rate structure – can be done with the help of consulting firms. Marin Clean Energy, which covers a much smaller population, currently has about 18 staff people.
- **Set Initial Renewable Portfolio Goals:** The Board of Directors will need to decide on a number of basic policy issues, chief among them how much renewable energy content should the program start with and how it would be procured. Sonoma County decided that it wanted to start with 33% renewable content – thus meeting the 2020 Renewable Portfolio Standard target seven years early – and building up to 50% renewable content within a few years. This would normally mean that the agency would contract with a third party to purchase the requisite energy from eligible renewable resources.
- **Set Local Portfolio Standard Goals:** The program will also set out overall goals for the percentage of energy that will be supplied from local renewable sources, through rooftop and parking lot solar PV, small-scale wind, and other generating facilities. The Local Portfolio Standard will

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<sup>13</sup> Section 366.2 of the Public Utilities Code specifies that to form a CCA, there must be a local ordinance approved by the entity proposing the CCA, followed by the preparation of an implementation plan, which must contain specific elements outlined in the statute. After the implementation plan is approved, the CCA registers with the CPUC and provides an executed copy of the services agreement between the CCA and the utility that covers the services to be provided by the utility (for example: billing).

have to define its geographic area, as there might be many excellent sites that are located just outside the program's immediate service territory.

- **Plan Market Procurement:** There will be a period of time between the initial start-up and the development of local renewable resources, which will require a bridge in the form of one or more third-party power providers that will procure the necessary amount of power on the open market. Again, this option is less desirable than locally developed resources, however, the Community Choice agency would need to start with some track record in order to finance these facilities. Third-party providers should guarantee to procure the required amount of electricity from eligible renewable resources (wind, solar, landfill gas, certain biomass, small hydro, tidal power, etc). One of the first tasks of an East Bay program would be to model the number of customers in the first phase of the program, calculate their demand, prepare a request for proposals, and solicit bids from third parties to meet that demand.
- **Plan the Local Build-Out (demand reduction and new generation):** The agency staff and its contractors would have the responsibility of developing a business plan (if one does not already exist) for building out local resources and implementing that plan. The staff could use the many renewable resource assessments available for the East Bay. For example, the US EPA maintains a national database of brownfield sites not suitable for traditional development, but which could be appropriate for renewables<sup>14</sup>. Included in this implementation planning would be creating the incentives, such as net-metering, that encourage consumers to build their own resources behind-the-meter. On the demand side, the program will have access to detailed PG&E load data and could identify the most promising energy efficiency projects. Such an analysis could translate into a large-scale, demand-side reduction plan.
- **Plan for the Phasing-in of Customers:** Based on the phase-in schedule specified in the business/feasibility study, the agency would contract with a data management company that would establish a database of all customers who would receive opt-out notices (see below). The database would include all billing-related activities and would handle all customer service requests, such as enrollments into and departures from the program, and issuance of monthly bills via PG&E's billing process. The system for tracking accounts receivable, issuance of late-payment notices,

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<sup>14</sup> See attached spreadsheet for potential sites located in Alameda and Contra Costa counties.

etc. will also need to be established. The agency would also set up a customer call center.

- **Satisfy Start-up Capital Requirements:** The start-up or rolling out of the program will incur costs in the six to twelve months prior to starting operations and generating revenue. In the case of other Community Choice programs, start-up costs were covered either through public funds or through short-term bank financing. These costs can be quickly recovered, however, once revenues to the program are generated.

One such start-up cost will be related to posting the Community Choice program bond. This is a CPUC requirement and is meant to cover the potential costs in case a program fails and the customers are returned to PG&E bundled service. The estimated bond for Sonoma was \$700,000, so it is reasonable to expect an East Bay bond to be higher (the methodology for calculating the amount of the bond has been somewhat in flux).

Also, working capital will be required to cover the costs – primarily buying power – that are incurred between the start of operation and the generation of revenues. Operating revenues from sales of electricity will be remitted to the Community Choice agency beginning approximately 60 days after the initial customer enrollments. This lag is due to the distribution utility’s standard meter reading cycle of 30 days and a 30-day payment/collections cycle. Potential funding sources for these costs include short-term bank financing (likely a credit line that can be drawn upon as needed to cover expenditures) or in-kind services provided by the third-party energy supplier (specifically a delay in the first payments). The program would recover the principal and interest costs associated with the start-up funding via retail sales.

In the case of Sonoma, the First Community Bank provided startup financing for Sonoma Clean Power’s operations in two separate tranches. The first tranche consisted of a \$2.5 million line of credit, which was guaranteed by Sonoma County. Subsequently, First Community Bank extended a \$7.5 million line of credit, for which it requires no guaranty from Sonoma Clean Power or its member jurisdictions.

- **Set Initial Rates:** Once the initial budget with the power procurement costs are determined, the agency staff would develop an initial rate structure designed (a) to cover the program’s costs; (b) be competitive with PG&E; and (c) offer the incentives designed to meet the program’s

goals, such as net-metering. This process will be assisted by contractors, as well as experience from the Marin and Sonoma programs.

- ***Perform Customer Outreach and Marketing:*** The Community Choice program will need a concrete communications and marketing plan for the first year and be a familiar presence at community events. Staff will need to meet proactively with business, labor, environmental, and other organizations to explain the program and its benefits. Staff will also need to meet regularly with elected and other local officials at the county and city level, briefing them as frequently as possible on the progress of the program. Marketing and promotional materials and brochures, as well as a website and social media will all need to be part of the plan.
- ***Inform Customers:*** Before any customers (residential, commercial, or industrial) are enrolled in the program, they will receive two written notices in the mail explaining the CCA's terms and conditions of service and how they can opt out of the program. All customers that do not opt out will be automatically enrolled. These notices will be sent at least three months prior to the commencement of service. After the first day of service, customers will receive an additional two notices (at least 30 days apart) allowing them the opportunity to opt out for no fee and return to PG&E service. After that point, customers will still have the opportunity to return to PG&E whenever they wish, but they might face a modest termination fee to cover the costs of switching the customer over.

## VI. Example Resource Development Scenario

This section describes one of several possible resource development scenarios for an East Bay Community Choice program. The scenario is meant to illustrate the potential of an ambitious program to deliver community investment, clean energy jobs, lower electricity bills, greenhouse gas reductions, and other benefits. Even if this scenario can only be achieved over a greater number of years, it will still deliver significant benefits to Alameda County stakeholders and to the environment.

The ten-year scenario makes a number of assumptions about program goals, start up dates, rollout, and availability of solar-friendly tariffs and regulations, and is not meant to be a rigorous projection of what would necessarily happen in an East Bay Community Choice program. The information gleaned from this scenario is meant to provide guidance as to what might be achieved, assuming a program were to start in the East Bay in 2015. A more rigorous analysis that considers a variety of development scenarios should be conducted by subject matter experts prior to the formal establishment of a Community Choice program.

### A. Scenario Description

The resource development scenario presented below makes the following assumptions about program rollout and goals:

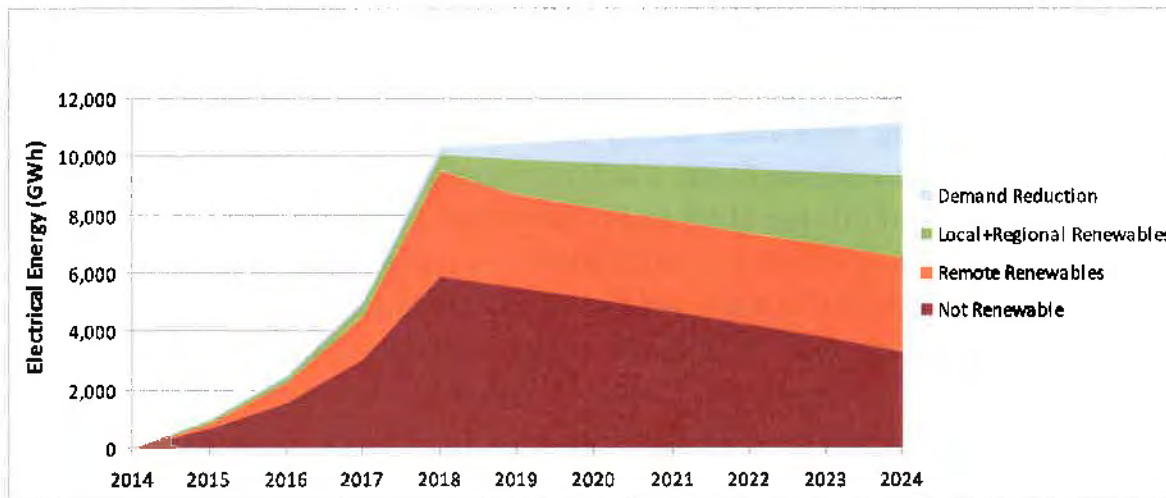
- The estimated electricity demand in 2015 for Alameda County as a whole would be about 11,609 GWh and increase at 1.5% per year, based on past trends.
- The program would phase in customers over four years: 10% of the customer base (of total demand) in Year 1, increasing to 25% in Year 2, increasing again to 50% in Year 3, and then reaching 100% by the end of Year 4.
- Customer retention in the program would be about 80%, similar to that of the Marin Clean Energy's Community Choice program.
- The program's renewable energy content would start at 33% – substantially higher than California's 23% RPS requirement for 2015 – and rise to 65% in ten years.



- The program would reduce electricity consumption by about 2.5% per year through energy efficiency, conservation, and demand response programs.
- The program would develop new local renewable electricity generation, with the goal of 30% of electricity being from local renewable sources within ten years.
- The program would develop or purchase 25 MW of regional geothermal capacity by 2017, and 150 MW of regional wind capacity by 2019.

Based on these assumptions, Figure 1 illustrates the resulting electricity resource development scenario (see Appendix B for details).

**Figure 1. Energy Content: 10-Year East Bay Community Choice Resource Development Scenario**



The chart shows the four-year phasing in of customers through 2018, followed by a steady increase in local resources (both demand reduction and local generation) until the target goals of 65% total renewable electricity and 30% local renewables is achieved in ten years.

## B. Scenario Results

Based on this scenario, the Community Choice program would achieve impressive results:<sup>15</sup>

<sup>15</sup> Details of this calculation are provided in Appendix B

- Total demand reduction through energy efficiency, conservation, and demand response over ten years would be 1,790 GWh or about 204 MW of combined baseload and peak capacity reductions, equivalent to a medium-sized power plant.
- Total production from local resource development (solar PV, wind, etc.) over ten years would be 10,000 GWh, reaching an equivalent of 1,150 MW in solar PV capacity (this does not include the impacts of regional geothermal energy or the assumed new regional wind farm).
- The building and installation of these energy resources over ten years would require about 24,000 job-years, equivalent to an average yearly employment of about 2,400 jobs. Accounting for indirect and induced employment, this would amount to about 58,500 job-years, equivalent to an average yearly East Bay employment of about 5,850 jobs.<sup>16</sup>
- The Community Choice program would cut 6.3 million tons of GHG emissions over ten years, surpassing the reductions targeted by the state's RPS. This result is based on the scenario's reduced demand and new, zero-emitting, renewable energy production. These resources would displace power from PG&E, which currently accounts for about 0.23 metric tons of CO<sub>2</sub> per MWh and is expected to diminish to 0.13 as RPS targets are achieved. Estimates show that under the proposed scenario, the Community Choice program's GHG emission reductions will be 5% better than PG&E's by 2025, and possibly better, depending on the impact of climate change on snow-pack and hydropower resources, how PG&E accounts for the possible failure of the Diablo Canyon nuclear power plant to be re-licensed, and the changing price of fossil-fuel (fracked natural gas) power.
- The program would stabilize electricity rates and, over a few short years, would result in average residential electricity bills lower than PG&E's (see Figure 2). This comparison assumes an average residential monthly usage of about 600 kWh and a PG&E projected rate increases of about 4.5% per year (representing the overall yearly residential electricity rate increase from 2004-2013<sup>17</sup>). The current

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<sup>16</sup> The methodology for these jobs calculations is described in *Jobs Estimates for CleanPowerSF* [<http://www.localcleanenergy.org/files/CleanPowerSFJobsEstimate.pdf>]. The estimates rely on a number of studies, and are therefore approximate: within a range of plus or minus 30%.

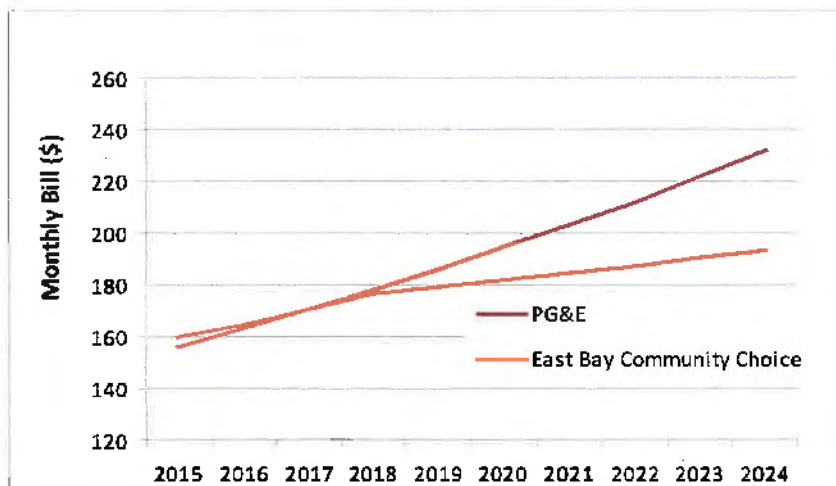
<sup>17</sup> Private communication from Marcell Howiger, The Utility Reform Network. Also see *PG&E Bundled Rates by Class 2000-2011*

PG&E three-year general electricity rate increase request averages about 8.5% per year.<sup>18</sup>

The graph shows the impact of reducing energy demand and phasing in renewable energy sources that don't have increasing yearly costs, even if they might now be more expensive than PG&E's traditional mix of electricity. In other words, a mix that more and more heavily depends on renewables (the cost of which continues to trend down) as well as efficiency (the cheapest resource on a kWh basis) should quickly reach price parity and eventually beat PG&E.<sup>19</sup>

In fact, the only reason that Community Choice electric bills could be higher than PG&E's in the first few years is due to the Power Charge Indifference Adjustment (PCIA) charge that is levied by PG&E on Community Choice customers. The PCIA charge, which starts at about \$0.006 to \$0.007 per kWh and decreases over time, is allowed by the CPUC to compensate PG&E for customers that leave its service territory.

Figure 2. Average Electricity Bill (East Bay Households)



[<ftp://ftp.cpuc.ca.gov/puc/energy/electric/rates+and+tariffs/Average%20Rates%20by%20Customer%20Class%20Years%202000-2011.ppt>]

<sup>18</sup> See *Comparison of PG&E Requests with Division of Ratepayer Advocates Recommendations* [<http://www.dra.ca.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2409&libID=2429>]

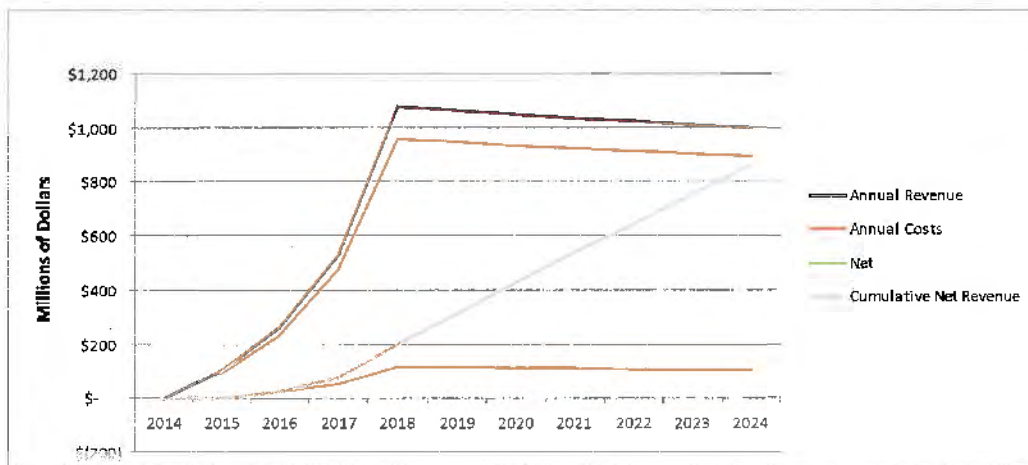
<sup>19</sup> Details of this calculation will be provided upon request.

## VII. Financial Planning

An East Bay Community Choice program would be designed to generate positive financial returns based on electricity sales, with no support needed from taxpayers, except for modest initial investments in start-up costs.

For example, using the resource development scenario illustrated in the previous section, it is possible to estimate net revenues over the ten-year period of that scenario. The results are shown in the graph below and detailed in Appendix C. Total net revenues over the ten-year period comes to about \$865 million.

**Figure 3. Financial Balance: 10-Year East Bay Community Choice Resource Development Scenario**



The analysis shown in Figure 3 has made a number of assumptions about the financial costs – from energy purchases, to marketing costs, to debt service, to staff time – based largely on previous experience (see Appendix C for details). It assumed, for example, a 14% or so margin on the difference between power purchased and power sold. The analysis shows that a Community Choice program can quickly be profitable, providing substantial surplus revenues that can be used to finance additional projects or be returned to customers through lower rates.

The analysis also has made assumptions regarding other costs the agency would face, including staff, PG&E service fees, data management, and other professional services. These estimates are based on other Community Choice feasibility studies but will have to be further vetted during the development

of a full business plan. Overall, power procurement is by far the largest line item in the budget compared to staffing and other costs.

Note that the falling expenses and revenues from 2018, when all customers have been phased in, are due to the reduction in demand achieved by the program. The financial analysis did not include the potential for the program to realize revenues from energy saving activities, in a way that is similar to private energy service provider companies.

## VIII. Risk Mitigation

Establishing a Community Choice program provides many benefits to the community although, like any venture, it is not completely without risk. Nevertheless, the most salient risks are known. Good management and experience can mitigate most of them, as the Marin Clean Energy program has demonstrated for the last three years.

Cities considering whether to take part in a Community Choice program often ask if they would be liable for the debts or other liabilities taken on by the Community Choice agency. These issues are typically outlined in the JPA, and the experience with other programs is that local governments are immunized against any contractual liabilities taken on by the Community Choice program itself. These JPAs have stated that the general funds of participating cities would not be at risk, which is typically a requirement for a city to join.

An East Bay program would have the following risk-mitigation techniques at its disposal:

- **Competitive Rates:** Perhaps the biggest question is whether or not the program can provide power with the desired renewables mix at a competitive price. Can demand reduction and local renewables be developed at an overall system cost that provides electricity prices competitive with the incumbent utility? Given that the current cost of renewables continues to trend downward, that renewables are not subject to volatile or rising fuel costs, and that a major emphasis of Community Choice is peak demand reduction, this risk does not seem to be a major one. But because price is so central to the success of the program, staff should continue to evaluate the overall trends of power prices in the market while working to assure rate stability through locally-sourced renewables or facilities directly contracted to, or owned by, the Community Choice program.
- **External Risks:** It is possible that third-party energy suppliers could default or for some reason not provide the renewable energy that was originally contracted for, forcing the Community Choice agency to enter the potentially expensive and volatile short-term market to meet customer needs. If prices increase when the program is going to the market for new contracts (or to replace old contracts), it could require

the Community Choice governing board to raise rates. Conversely, if the program locks in a number of long-term contracts and the overall price for power subsequently falls, it could be holding a higher-cost portfolio. Improperly hedging against electricity price volatility is certainly a possible risk, although all market participants face this issue to a certain extent. The risk can be mitigated through careful integration and scheduling of local renewable resources (demand reduction and new generation) with market purchases.

- ***Contracting for Power at the Right Levels:*** It is possible for the Community Choice program to buy too much or too little electricity, requiring either excess sales into the market or more spot-market purchases from the market. Both carry risks as the program might sell excess power for a loss or buy additional needed power at a premium. Detailed and exhaustive resource planning for several years out should reduce this risk because annual load growth has been relatively predictable. One unknown factor would be if more or fewer customers opt out of the program than expected. Marin's opt-out rate has hovered around 20%, so while this is a useful benchmark, what would actually happen in the East Bay is uncertain. The best mitigation against higher opt-out rates is a program that provides the local economic, job, and price benefits possible under Community Choice, along with an on-going public relations effort to highlight these benefits to the community.
- ***Unfavorable Regulatory Changes:*** It is always possible that the CPUC could institute policies that are unfavorable to an East Bay program. These could range from higher bonding or PCIA charge calculations to additional reporting requirements. The PCIA surcharge itself – an extra fee that Community Choice customers pay – could vary from year to year, and while it is expected to decline, regulatory action could change that.

While all of these risks can be mitigated, they cannot be eliminated completely. It will be imperative, therefore, for the Community Choice agency to have a professional staff with operational experience in offering retail electricity service, strong familiarity with the dynamics of California's power market, and expertise in integrating renewable resource development with market purchase. The program would have to initially contract with one or more capable, third-party providers who have significant operational

experience in the market. It should also be noted that many municipal utilities in California, including in the City of Alameda, have operated for decades and successfully managed commodity, credit and operational risks.



## Appendix A: Solar PV Potential at EPA Brownfield Sites

The following table shows information about the 42 contaminated sites with the largest solar PV potential in Alameda and Contra Costa counties.

Site Name	City	Acres	Distance to Substation (miles)	Max DNI Solar (kWh/m <sup>2</sup> /day)	Estimated Solar PV Capacity Potential (MW)
Lake Chabot Machine Gun Range (J09CA1017)	Lake Chabot	1,014.00	3.44	4.82	169.00
Oakland Naval Hospital - Suncal -- VCA	Oakland	183.00	2.85	4.73	30.50
Richmond Marina Marsh Site	Richmond	15.00	1.78	4.63	2.50
Livermore Rifle Range	Livermore	50.00	1.17	5.35	8.33
Ohlone College Newark Center	Newark	81.00	1.16	5.11	13.50
Point Isabel	Richmond	50.00	1.10	4.63	8.33
Marina Bay Project	Richmond	360.00	0.86	4.63	60.00
Coliseum Gardens	Oakland	9.00	0.83	4.73	1.50
Southern Pacific-West Oakland Rail Yard	Oakland	53.50	0.79	4.61	8.91
West Oakland Bart Station Site	Oakland	3.50	0.73	4.60	0.58
Oakland Municipal Airport	Oakland	1,168.00	0.66	4.62	194.66
Central Contra Costa Sanitary District	Martinez	22.00	0.65	5.11	3.66
625-659 Hegenberger Rd.	Oakland	12.37	0.57	4.73	2.06
Fulton Shipyard	Antioch	10.40	0.53	5.13	1.73
NAD Concord	Concord	650.00	0.47	4.95	108.33
PG&E/Shell - West Pittsburg	West Pittsburg	26.00	0.44	4.93	4.33
Amtrak Maint. Facility	Oakland	18.00	0.43	4.62	3.00
Pittsburg Marina Expansion Phase III	Pittsburg	80.00	0.41	5.13	13.33
Livermore Sewage Ponds	Livermore	12.17	0.39	5.35	2.02
AC Transit	Emeryville	8.96	0.36	4.60	1.49
Trans Bay Cable Converter Station	Pittsburg	5.00	0.36	5.13	0.83
Richmond Vehicle Facility - BNSF Railway (aka former BNSF Maintenance Shop and Siding)	Richmond	36.00	0.32	4.63	6.00

**East Bay Community Choice Energy**

<b>Site Name</b>	<b>City</b>	<b>Acres</b>	<b>Distance to Substation (miles)</b>	<b>Max DNI Solar (kWh/m2/day)</b>	<b>Estimated Solar PV Capacity Potential (MW)</b>
West Island	Sacramento County	155.82	0.32	5.05	25.97
Alameda Navy Supply Center (NSC) Annex	Alameda	145.59	0.29	4.62	24.26
Lawrence Livermore National Laboratory, Main Site (USDOE)	Livermore	640.00	0.03	5.52	106.66
USS Posco	Pittsburg	483.00	0.03	5.13	80.5
Tesla Motors Inc.	Fremont	380.00	0.00	5.35	63.00
Concord Naval Weapons Station	Concord	7,627.00	0.00	5.21	1271.16
Concord Naval Weapons Station	Concord	5,583.50	0.00	4.95	930.58
Chevron USA (former Chevron Chemical Co)	Richmond	5,200.00	0.00	4.73	866.66
Chevron USA Inc. Richmond Refinery	Richmond	2,900.00	0.00	4.73	483.33
Camp Stoneman IR-MMRP (J09CA0773)	Pittsburg	2,840.00	0.00	5.21	473.33
Tosco Corp Avon Ref	Martinez	2,100.00	0.00	4.95	350.00
Pittsburg Power Plant	Pittsburg	1,979.00	0.00	5.13	329.83
Parks Reserve Forces Training Area	Dublin	1,600.00	0.00	5.21	266.66
Parks Air Force Base (J09CA0083)	Pleasanton	1,187.00	0.00	5.21	197.83
ConocoPhillips Company, San Francisco Refinery	Rodeo	1,146.00	0.00	4.79	191.00
Shell Oil Products US, Martinez Refinery	Martinez	1,000.00	0.00	4.96	166.66
West County Landfill Inc.	Richmond	900.00	0.00	4.73	150.00
West Contra Costa LF	Richmond	160.00	0.00	4.63	26.66
Lawrence Berkeley National Laboratory	Berkeley	130.00	0.00	4.60	21.66
				<b>SUB TOTAL</b>	<b>6670.34</b>

*Note: This data is only preliminary, based on overall acreage of sites and solar radiation for the overall area. Further analysis is needed to screen each site for hills, buildings, site remediation plans, and other constraints to locating PV equipment. This study also does not examine issues like land ownership or access rights, which would have to be negotiated on a case-by-case basis.*

**Appendix B: Community Choice Resource Development Scenario**

The following table shows the spreadsheet calculation of a ten-year East Bay energy development scenario in which customers are phased in over the first four years, with the target of reaching an overall 65% renewable energy supply by 2025, achieved by reducing demand by 16% and developing 30% locally generated renewable energy supply.

**Table B-1: Energy Content (GWh)**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Totals
<b>CCA Demand</b>	928.73	2356.65	4,783.99	9,711.50	9,857.18	10,005.04	10,155.11	10,307.44	10,462.05	10,618.98	
Conservation/Demand Response	(4.64)	(4.80)	(12.16)	(24.74)	(50.40)	(49.65)	(49.03)	(48.45)	(47.89)	(47.37)	(339.14)
Energy Efficiency	(19.50)	(49.49)	(51.08)	(103.92)	(211.70)	(208.51)	(205.94)	(203.49)	(201.15)	(198.94)	(1,453.71)
(Cumulative) Demand Reduction	(24.15)	(78.44)	(141.68)	(270.34)	(532.44)	(790.60)	(1,045.57)	(1,297.51)	(1,546.55)	(1,792.86)	
Transmission Losses	56.26	154.02	306.14	639.77	604.42	592.11	580.24	568.79	557.76	547.12	
<b>NET Demand/CCA Load Requirement</b>	<b>960.84</b>	<b>2,432.23</b>	<b>4,948.45</b>	<b>10,080.94</b>	<b>9,929.16</b>	<b>9,806.55</b>	<b>9,689.78</b>	<b>9,578.72</b>	<b>9,473.25</b>	<b>9,373.25</b>	<b>76,273.17</b>

(continued on next page)

**East Bay Community Choice Energy**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Totals
<b>CCA Supply</b>											
Market-Purchased Remote Renewables	192	709	1,487	3,596	3,202	3,165	3,152	3,166	3,207	3,278	
(Cumulative) Local Generation (Solar)	125	156	236	397	726	1,049	1,369	1,685	1,997	2,306	<b>10,046</b>
Regional Generation (wind, geothermal, other)	-	-	175	175	497	497	497	497	497	497	<b>3,332</b>
Local+Regional Renewables	125	156	411	572	1,223	1,546	1,866	2,182	2,494	2,803	<b>13,378</b>
Conventional Power Purchases	644	1,567	3,051	5,913	5,504	5,095	4,672	4,231	3,772	3,292	
Percent Local+Regional Renewables	13.0%	6.4%	8.3%	5.7%	12.3%	15.8%	19.3%	22.8%	26.3%	29.9%	
<b>Total CCA Sales</b>	<b>960.84</b>	<b>2,432.23</b>	<b>4,948.45</b>	<b>10,080.94</b>	<b>9,929.16</b>	<b>9,806.55</b>	<b>9,689.78</b>	<b>9,578.72</b>	<b>9,473.25</b>	<b>9,373.25</b>	<b>76,273.17</b>
% Renewable	33%	35.6%	38.3%	41.3%	44.6%	48.0%	51.8%	55.8%	60.2%	64.9%	
Statewide RPS Requirement	23%	25%	27%	29%	31%	33%	33%	33%	33%	33%	
Estimated GHG Intensity of PG&E (t/GWH)	230	200	170	150	130	130	130	130	130	130	
Estimated GHG Reductions	<b>72,928</b>	<b>188,736</b>	<b>346,689</b>	<b>665,669</b>	<b>644,452</b>	<b>715,223</b>	<b>788,279</b>	<b>863,854</b>	<b>942,202</b>	<b>1,023,597</b>	<b>6,251,631</b>

**Table B-2: Scenario Assumptions**

Residential 2011 (GWh)	3,046.34
Commercial/Industrial 2011 (GWh)	7,891.57
2011 GWh Total	10,937.91
Annual demand growth	1.50%
Est. demand in 2015	11,609.10
Average res rate	\$0.15
Average C&I rate	\$0.09
Average CCA sales price (\$/GWh)	\$106,711
Average CCA buy price (\$/GWh)	\$91,771
Annual price increase	2.50%
% enrolled in 2015	10%
% enrolled in 2016	25%
% enrolled in 2017	50.0%
% enrolled in 2018	100%
Bill Uncollection Rate	0.08%
Participation Rate	80%
Est. total county demand in 2012	11,101.98

**Table B-3: Additional Scenario Assumptions**

PG&E fees (as % of revenues)	0.70%
Cumulative reduction in energy demand per year from Energy Efficiency	2.1%
Cumulative reduction in energy demand per year from conservation/demand response	0.5%
Increase per year in local generation	3.26%
Starting amount of local generation in Alameda County (GWh)	125
Yearly multiplier in renewable content to reach 65% in 2024 from 33% in 2015	107.8%
Power loss percentage	7.0%

**Appendix C: Financial Analysis of Resource Development Scenario**

The following table shows a financial analysis that corresponds to the resource development scenario presented in Appendix B.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Revenue from the Sale of Electricity</b>	\$102,532,108	\$259,544,841	\$528,052,680	\$1,075,743,943	\$1,059,547,455	\$1,046,463,791	\$1,034,003,395	\$1,022,152,440	\$1,010,897,545	\$1,000,225,764
Uncollected bills	\$(76,899)	\$(194,659)	\$(396,040)	\$(806,808)	\$(794,661)	\$(784,848)	\$(775,503)	\$(766,614)	\$(758,173)	\$(750,169)
<b>Total Revenue</b>	<b>\$102,455,209</b>	<b>\$259,350,182</b>	<b>\$527,656,640</b>	<b>\$1,074,937,135</b>	<b>\$1,058,752,795</b>	<b>\$1,045,678,943</b>	<b>\$1,033,227,893</b>	<b>\$1,021,385,826</b>	<b>\$1,010,139,372</b>	<b>\$999,475,595</b>
<b>Cost of Purchasing Electricity</b>	<b>\$88,177,613</b>	<b>\$223,208,563</b>	<b>\$454,125,305</b>	<b>\$925,139,791</b>	<b>\$911,210,812</b>	<b>\$899,958,860</b>	<b>\$889,242,920</b>	<b>\$879,051,099</b>	<b>\$869,371,888</b>	<b>\$860,194,157</b>
Start-up Costs	\$(1,500,000)									
<b>Operational Costs</b>										
Staffing and professional services	\$1,657,000	\$1,800,500	\$3,515,000	\$4,305,000	\$4,500,500	\$4,515,000	\$4,550,000	\$4,610,000	\$4,650,000	\$4,710,000
Admin and office space	\$350,000	\$475,000	\$1,100,000	\$1,200,000	\$1,250,000	\$1,300,000	\$1,375,000	\$1,425,000	\$1,476,000	\$1,501,000
PG&E Fees, such as billing	\$617,243	\$1,562,460	\$3,178,877	\$6,475,979	\$6,378,476	\$6,299,712	\$6,224,700	\$6,153,358	\$6,085,603	\$6,021,359
Data management services	\$1,575,000	\$3,050,000	\$6,500,000	\$9,350,000	\$9,400,000	\$9,500,000	\$9,750,000	\$10,000,000	\$10,000,000	\$10,000,000
Communications and marketing	\$500,000	\$500,000	\$750,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,500,000	\$1,500,000	\$1,500,000
Subtotal of costs	\$4,699,243	\$7,387,960	\$15,043,877	\$22,330,979	\$22,528,976	\$22,614,712	\$22,899,700	\$23,688,358	\$23,711,603	\$23,732,359
Debt Service***	\$1,000,000	\$2,000,000	\$5,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000
Other Costs										
<b>TOTAL COSTS</b>	<b>\$93,876,857</b>	<b>\$232,596,523</b>	<b>\$474,169,182</b>	<b>\$957,470,770</b>	<b>\$943,739,787</b>	<b>\$932,573,572</b>	<b>\$922,142,621</b>	<b>\$912,739,456</b>	<b>\$903,083,492</b>	<b>\$893,926,516</b>
Program Surplus/Deficit**	\$(1,500,000)	\$8,578,353	\$26,753,659	\$53,487,459	\$117,466,366	\$115,013,007	\$113,105,371	\$111,085,272	\$108,646,370	\$107,055,880
Cumulative Net Revenue	\$(1,500,000)	\$7,078,353	\$33,832,012	\$87,319,471	\$204,785,836	\$319,798,844	\$432,904,214	\$543,989,487	\$652,635,856	\$759,691,736

**\*\*Note:** Overall revenue declines by a small percentage in the later years due to the impact of energy efficiency, although this does not take into account the potential revenue sources from energy services provision.

**\*\*\*Assumption** on debt service is that debt level rises and then remains level after a certain level of investment in local renewables is reached.

**Assumptions Made in the Financial Analysis:**

- The margin between the power bought and the power sold to Community Choice customers is about 14%, a relatively standard margin. If the margin were assumed to be only 10%, then the net revenue goes from \$865 million to \$538 million.
- The average price of electricity in the residential sector is \$.15/kWh and \$.09/kWh for commercial/industrial customers. The split in consumption between residential and commercial/industrial is about 30-70.
- Costs listed in the financial analysis including expenses related to PG&E fees, data management services, staffing, and other administrative costs were based, in part on a feasibility study developed for Sonoma Clean Power; however, these costs were scaled up in proportion to the larger population in Alameda County. These costs can be further investigated in future analyses.
- The customer opt-out rate is about 20%, and all customers would be enrolled in this scenario within four years (starting with 10% in Year 1, 25% in Year 2, 50% in Year 3 and 100% in Year 4).
- Debt service was based on a rough estimate of what the interest rate and principal would be on the debt taken out to build new renewables and invest in other projects and programs. For example, at 5% interest over a 10-year loan period, \$80,000,000 in debt would equal about \$10 million in debt service. These estimates can be refined in future analyses.

