Notes regarding submitting comments on this Draft Work Product:

Comments are Due February 7, 2018.

Comments shall be no longer than 5 pages.

Comments should be submitted to LDBPcomments@ebce.org

Recommendations for EBCE Capacity Building

Outsourcing, Insourcing, and Wholesale Procurement Strategies

for

East Bay Community Energy

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OPTONY

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Introduction

As East Bay Community Energy (EBCE) works to facilitate a community choice program, decision-makers will have to consider their procurement strategies for both the acquisition of generation capacity and the internal capacity needed to oversee organizational operations and program implementation. This section aims to evaluate outsourcing versus insourcing these procurement needs as they pertain to the implementation of the Local Development Business Plan (LDBP).

The use of standard RFP procurement to solicit short and/or long-term power purchase agreements will be evaluated in the context of the outcomes of Task 1 – *Technical Potential and Feasibility of Grid-side Distributed Energy Resources*, and Task 2 – *Technical Potential and Feasibility of Customer-side Distributed Energy Resources, including Energy Efficiency*.

Throughout this document, insourcing versus outsourcing will be evaluated in the context of best achieving four general operational targets for the CCA:

1. Standard request for proposal (RFP) or request for offer (RFO) procurement to solicit short and/or long-term contracts such as power purchase agreements (PPA)
2. Development of an energy generation supply portfolio that balances cost certainty, environmental considerations, cost-effectiveness, and operational and contractual flexibility
3. Procurement or creation of locally-sourced generation projects and/or demand-side management (DSM) programs that provide opportunities for customers and stakeholders to access opportunities for local economic growth in a local energy market
4. The procurement of internal human capacity and essential organizational activities

To achieve its mission and provide clean, reliable, and competitively priced electricity to its customers while delivering social, economic, and environmental benefits to the community of Alameda County, this report recommends that EBCE:

1. Define energy needs and goals internal to the community that may go above State requirements, including portfolio standards, distributed energy programs, energy storage targets, demand reduction targets, transportation decarbonization targets, etc.
2. Develop a procurement strategy for PPAs that considers contract length, electricity source, costs, and environmental factors to meet demand forecast, mitigates risk exposure through terms and conditions (i.e., Material Change Clause), and makes use of available procurement mechanisms such as competitive Request for Offers, Proposals, or Bids (RFO/RFP/RFB) and auction-based processes, as well as standing offer approaches like Feed in Tariffs (FIT) and Net Energy Metering (NEM).

3. Integrate the Community Benefit Adder (CBA) mechanism promoted throughout the Local Development Business Plan into all procurement of energy supplies and services to incentivize local environmental, social and economic benefits.
4. Evaluate cost minimization in the procurement of key operational actives (marketing, finance, policy, data management, etc.) as internal or outsourced activities
5. Transition an increasing portion of energy and resource adequacy (RA) procurement away from wholesale market and towards local options through a combination of local demand side management (DSM), energy storage, and local generation programs
6. Integrate evaluation, measurement, and verification (EM&V) as well as advanced data analytics into the core operating practices and decision making processes for long-term planning and operation of CCA services

Many of the above-mentioned strategic approaches involve technical skillsets typically found in specialized software and program design consultancies. During each of stage of LDBP implementation, EBCE will face a choice to insource or outsource the capacity and expertise needed. This report recommends an outsourcing methodology that inclines toward a strong internal team at EBCE while balancing the other needs for capacity building through external resources. The summary table (see Table 1 below) highlights the key activities and functions of a CCA and provides a recommended timeline for insourcing or outsourcing those activities.

Summary of Key Recommendations

1. Year 1-2: Outsource data management, load and rate analysis, wholesale procurement, regulatory engagement
2. Years 1-3: Work collaboratively with existing organizations (East Bay Energy Watch, BayREN, StopWaste Energy Council) to provide energy efficiency and DSM programs
3. Year 2: Outsource design and testing of EBCE energy analytics and data management platform; this is needed for tracking local energy load, demand, generation, and performance metrics for other services (e.g., energy storage, energy-efficiency load shaping)
4. Year 2: Outsource planning for resource adequacy (RA) management using local contract-dispatched assets

5. Year 3: Transfer load and rate analysis to internal management; finalize energy trading and risk management (ETRM) practices prior to self-directed long-term energy purchase contracts
6. Years 3-5: Outsource pay-for-performance contracts to solicit DSM and load-shaping services
7. Year 4-5: Outsources management of pilot aggregation of distributed energy resource (DER) projects (e.g., energy storage, dispatchable electric vehicle charging, microgrids, smart appliances, etc.)
8. Year 5: Transfer wholesale procurement services to internal EBCE team, with minimal (ad-hoc) external support
9. Year 6: Transfer operation of pilot DER aggregation to internal EBCE team to manage as Virtual Power Plant (VPP)

Suggested Timelines for Insourcing and Outsourcing LDBP-related Functions

Activity	Primarily Insourced or Outsourced Activity	Activities	Internal Capacity Required *Full-Time Equivalent (FTE)*
Load and Rate Analysis	ST: Outsource MT: Mix LT: Insource	• Identify and track electric volume needs for the EBCE service area for short-term, mid-term, and long-term time horizons. • Assist in innovative and beneficial rate design to promote local DER deployment, stable competitive rates and fiscal health • Support Cost of Service analysis and cost-causation based program development • Manage policy risk and rate stabilization	ST: .5 MT: 1 LT: 2
Program Marketing and Outreach	ST: Outsource MT: Mix LT: Insource	• Market alternative power mix options such as “Local 100” and “Brilliant 100” programs • Prevent Opt-out risk through customer interaction and brand awareness • Program liaison to Key Account and Customer Service Representatives to support customer education and outreach activities and program promotion	ST: .5 MT: 1.5 LT: 2
Demand-side Management Programs	ST: Outsource MT: Mix LT: Mix	• Identify opportunity areas for savings • Design programs and projects that result in customer savings (EE, DR, Pilots) • Secure financing and capital investment for EE and DR deployment	ST: .5 MT: 1 LT: 3
Local Development (New Generation, EVs, Energy Storage)	ST: Outsource MT: Mix LT: Mix	• Site mapping for DER deployment • Managing local DER development portfolio • Collaboration with stakeholders, project developers, service providers, and community shared solar organizations • Incentivize local generation through program financing, FIT, NEM (and NEM Successor), Rate Design, Incentives, and Collaborative Procurement strategies	ST: .5 MT: 1.5 LT: 3
Program Evaluation, Measurement and Verification	ST: Outsource NT: Mix LT: Insource	• Develop Key Performance Indicators (KPI’s) for all local programs to track outcomes • Analyze, track and manage data for pay-for-performance contracting • Package data and analysis into stories that inform decision making	ST: 0 MT: 1 LT: 2

Table 1: Suggested timelines for Insourcing and Outsourcing critical processes for LDBP implementation

Energy Risk Management	ST: Outsource MT: Mix LT: Insource	• Track, report, and quantify or monetize risk factors such as market risk, policy risk, opt-out risk, and procurement risk • Define clear ETRM strategies for short-term and long-term energy contracts. • Identify climate, weather or systems risk and subsequent opportunities for mitigation that benefit community members and create resilience	ST: 0 MT: 1 LT: 2
Regulatory/Legislative Engagement	ST: Outsource MT: Mix LT: Mix	• Identify and hedge against regulatory & legal risk (i.e., PCIA and IRP proceedings) • Advocate for policy changes favorable to local DER development • Engage with statewide planning processes for EE, ES, DR, DG, EV, Procurement, Distribution, and Transmission • Collaborate with other CCA's, CalCCA, and Municipal Utilities, as well as IOU's/PG&E	ST: .5 MT: 1 LT: 2
Local Project Development Finance	ST: Outsource MT: Mix LT: Mix	• Develop/manage strategic financing plan for LDBP program implementation • Coordinate with EBCE CFO on budgeting and cash flow analyses • Fund projects and programs • Manage debt services • Track risk and return • Reporting and disclosure • Identify and track state/federal/foundation funding opportunities (grants)	ST: 0 MT: 1 LT: 2
Integrated Data Management and Analytics	ST: Mix NT: Mix LT: Insource	• Maintain and validate billing data and facilitate timely bill distribution • Invoice Validation and Settlement • Identify energy consumption trends and target high-cost energy use to support program development and targeting • Lead generation and customer acquisition • Customer relationship management (CRM) • Provide web-based customer access to a digital marketplace of programs • Support IT infrastructure, security management, EM&V, and reporting	ST: .5 MT: 1 LT: 2
FTE TOTALS: Short Term (ST) = 3 | Mid Term (MT) = 10 | Long Term (LT) = 20			
Notes: **- Short-term (ST) = Year 1, Mid-term (MT) = Year 2-4, Long-term (LT) = Year 5+** **- NEM: Net Energy Metering, TOU: Time of Use, ETRM: Energy Trading and Risk Management**			

Table 2 (continued): Suggested timelines for Insourcing and Outsourcing critical processes for LDBP implementation

I. Defining Energy Needs and Goals - Demand, Costs, and Load Characteristics

In order to meet customer energy demand requirements and achieve local renewable energy goals, EBCE must balance costs with environmental and social benefits. High rates or rate volatility have the potential to drive customers towards "opting out," thereby withdrawing their load and revenue from the CCA. In the first years of launch, EBCE faces the challenge of providing a 'better' service at a lower cost than alternative provider PG&E. However, successfully doing so will establish consistent revenue, including surpluses and reserves that can support investment in internal staff and resources and investment in local DER deployment and community programs, providing a foundation upon which additional services and program offerings can be built. Once implemented, these programs can further enhance the EBCE customer experience and improve customer retention.

Internal staff or expert consultants in Load Forecasting should work to:

1. Develop weather normalized forecast of customers and annual kWh sales for the primary customer classifications (residential, commercial, industrial, agricultural, municipal usage etc.). Effectively outline the demand needs to be matched with equally sized PPAs. The EBCE recently filed Implementation Plan (prepared by EES Consulting) includes a starting part for load forecasts. It is expected that the forecast will evolve and improve as EBCE navigates launch.
2. Define customer load profiles: monthly kWh and KW by class, hourly and sub-hourly kWh by class, hourly and sub-hourly kW by class. Load profiling is underway as part of the LDBP scope of work and is currently being managed by EcoShift and The Offset Project, and additional load profiling was completed during the Feasibility Study (MRW and Assoc.) and Implementation Plan development (RS2/EES Consulting).
3. Define economic requirements of operations including acceptable costs of energy procurement, local generation criteria, and funding needs. This work was initiated with EBCE's Implementation Plan and is being further supported by the fiscal and economic impact modeling and analysis in the LDBP.
4. Optimize the timing of RPS and GHG goals to balance maximum overall benefits with rate competitiveness when compared to PG&E rate forecasts.
5. Create financial impact analysis to highlight the costs and benefit and tradeoffs of different levels of local and/or wholesale renewable portfolio mix. EBCE's IRP will differentiate the costs and benefits between wholesale and local mix, supported by analysis in Task 6 of the LDBP.

It has been published that at least two EBCE jurisdictions are interested in exploring the option of opting for a 100% renewable default product.[1] If EBCE does decide to explore this option, it is recommended that extreme care should be taken to consider the impact of this decision on EBCE's retail rates and Alameda's diverse community of ratepayers, with special attention paid to low income and/or disadvantaged ratepayers. Alternatively, municipalities interested in pursuing 100% renewable default product options could also consider demonstrating that rate parody with PG&E is achievable by first opting up municipal accounts to 100% renewable content. Over time, the goals and key drivers of EBCE may change to a point where rate competition with PG&E may no longer be the best framework of comparison for EBCE's customers, which would open new options for rate structures and premium pricing.

Outsourcing		Insourcing	
Pro	Con	Pro	Con
-Gain access to technical expertise and a team with past CCA experience -Gain access to software or other rate forecasting tools and resources that reduce risk of information asymmetries and ensure optimal outcomes -Accelerated Timeline -Lower staff overhead costs in year 1 -Resulting formal reports will highlight key factors for later review by staff	-Higher costs than internal procurement of rate services -Limited ability to conduct ongoing or iterative rate analysis Staff time will be used to clearly define expectations and scope of work (SOW) -Data security, sharing sensitive customer data with 3rd parties. Can be mitigated by NDA -Loss of agility around rate design and rate sensitivity analysis, variability in analysis costs	-Create institutional expertise that can be applied to evaluate future rate assessment needs -Facilitates ongoing and iterative rate analysis as market conditions evolve and/or fluctuate -Agile rate design sensitivity analysis -Costs of analysis are more certain and fixed	-Need for expert 3rd party analysis and/or rate setting services may still be required on a semiannual or annual basis. -Fully insourcing these costs could contribute to high institutional overhead

Table 3: Outsourcing vs. Insourcing of Identification of Energy Needs, Demand, Costs, and Load Characteristics

[1] http://ebce.org/power-portfolio/

Integrated Data Management and Analytics

Next to its customers and staff, the CCA's data is its most valuable resource. Managing and mining data effectively is of critical importance to EBCE's Local Development Business Plan (LDBP). EBCE has the unique opportunity to build and leverage a robust, in-house integrated data platform that combines its current and historical load and customer-level energy usage data (i.e., AMI, EDI, and SQMD data,), power generation data, customer interaction data (i.e., customer service, call-center data, survey results, social media), County parcel and building data, real-time weather station data, geospatial data (i.e., municipal ArcGIS planning data, Household Travel Survey data, etc.), CCA financial and budget data, CAISO Locational Marginal Price (LMP) and Day Ahead (DA) energy market pricing and monthly invoice data, wholesale purchase deal/cost and scheduling data, PG&E substation data, and socioeconomic data (i.e., income, education, and CalEnviroScreen disadvantaged community data) to support the development, implementation, and measurement and validation of cost-effective local DER deployment programs and optimal rate design processes.

This approach would allow EBCE to develop and maintain granular, accurate, and dynamic load profiles and demand forecasts that help the organization optimize financial performance and target expensive loads for reduction through its DER programming. To demonstrate this concept, and to support the analysis that underpins EBCE's Local Development Business Plan, the LDBP Project Team has constructed an integrated data platform that combines all of these data streams to provide a solid and innovative foundation for DER planning, analysis, and program development and targeting. This effort has provided a working model, which EBCE can evaluate, build on and use to support the development of a permanent solution and future iterations of the LDBP.

As technology changes and more DER assets enter the mix, the ability for EBCE to use all of the data will enable EBCE customers, product or service vendors, and/or partner agencies to generate solutions and continue to drive LDBP goals. In order to accelerate the deployment of DER using the CCA mechanism, it is strongly recommended that EBCE develop and maintain a robust and integrated back-end data management system that is capable of the cost-effective implementation of best practices in local DER programming, including:

- Innovative Energy Efficiency programs (including pay-for-performance strategies)
- Special rate structures (i.e., TOU pilots), NEM or NEM successors (including Virtual NEM applications)
- On-bill Financing/Repayment (and other advanced billing capabilities)
- Community Shared Solar and Energy Storage programs
- Automated Demand Response programs
- Virtual Power Plant development

Procuring this sort of data warehousing/infrastructure design represents an innovation in the CCA space that will require establishing a web-based platform with multiple security levels, diverse data stream integration capabilities, API integration, data analytics and visualization tools, and/or other features that enable EBCE staff and partners to identify and target customer loads and classes in need of energy services, track program sales, monitor project implementation, and quantify project and program outcomes. Customer Relationship Management (CRM) systems (with secure employee, contractor and customer web portals), "internet of things" software and control technologies, and other smart features will ultimately be important tools that support the transition to a transactive energy market and allow for unprecedented customer interactions that spur further innovations in the CCA industry.

Implementing and maintaining this robust data warehousing and analytical capabilities will require working with an external vendor initially. Ideally, EBCE would establish its own data warehouse from the start, so that EBCE maintains its own secure back-up and is able to fully leverage its valuable data assets. There are suitable enterprise solutions and software-as-a-service (SaaS) vendors that provide all of these functions available in the marketplace today. While outsourcing is recommended during the start-up phase, once the system is in place the CCA would be able to develop the capacity necessary to operate and maintain the data platform internally in the long-term. Including comprehensive staff training and development within the related outsourcing RFP and contracted scope of work would provide an efficient means for contracted vendors to help EBCE build internal capacity to implement and manage as many functions and programs as possible with its owns staff and resources.

Recommendations for Insourcing Integrated Data Management and Analytics

The development of the recommended integrated, in-house data management and analytics platform in Year 1 of EBCE operations is an important pillar of the LDBP overall, as it constitutes critical infrastructure necessary for successful LDBP implementation, and will support efficient CCA operations and enhanced financial performance. More importantly (in the context of the EBCE LDBP), it will help reduce the overall need for standard wholesale procurement by enabling efficient and cost-effective local DER deployment.

Our team has identified 3 categories of data applications for accelerating DER deployment:

1. **Opportunity Identification**- Hot-spot analyses, granular load profiling, advanced load forecasting
2. **Client Acquisition and Interaction**- Identification of high-impact target account holders, Customer Relationship Management (CRM), Outreach/Engagement, Sales, Customer Participation
3. **Measurement and Verification**- Tracking customer participation, measuring and tracking outcomes, reporting functionalities

It is recommended that EBCE develop an RFP to procure these services separately from the standard, existing Data Management services in order to build these capabilities and resources in-house so that EBCE can reap the fullest possible benefits from all available data on behalf of the community and ratepayers it serves.

Primary Data Functionalities Needed to Support Accelerated DER Deployment:

- Offers a user-friendly, web-based platform with secure user login portals and role-based security that supports multiple levels of access and that is accessible to:
  - Internal Staff and EBCE Board Members
  - External Consultants/Contractors/Vendors/Community Groups/Labor Organizations
  - EBCE Customers
- Detailed energy usage data available to staff/consultants/contractors/customers down to the meter level.
- Capacity to integrate multiple structured and unstructured data streams (including AMI/Green Button, EDI and SQMD data, Parcel Data, Weather Data, SCADA and BEM, natural gas/fuel switching smart appliances (i.e., Zigbee, HAN, etc.), CAISO DA/LMP market pricing, CCA Accounting/Budgeting, Customer Interactions, etc.), and provides timely access to data and performance metrics.
- Platform provides analytical tools that support load research (hot-spot, load profiling/forecasting, rate making, etc.)
- Embedded Rate Design and Value-at-risk functionalities to support internal modeling and decision-making processes
- Integrated Customer Relationship Management (CRM) tools with workflow capabilities that can support staff and consultant customer engagement and sales, as well as customer-level program participation and outcome tracking
- Advanced, automated data cleaning, validation, account-level billing adjustment, and settlement functions
- Program-level key performance indicator (KPI) tracking
- Robust capacity for Application Programming Interface (API) integration to support third-party applications

Outsourcing of Load Analysis Services

During EBCE launch, it is recommended that the critical analysis of load forecasting, load characteristics, and the related procurement and rate setting processes be initially outsourced to a third party (i.e., EBCE's contracted Portfolio Manager). In year's 2-4, after an in-house integrated data platform has been established, EBCE can build off of the baselines created by external consultants to update annual or semiannual load requirements and cost factors, as well as provide analysis services on a more flexible basis. Ultimately, by year 5 EBCE should aim to

have developed the internal tools, resources, and staff capacity to assume the bulk of the load analysis and rate design functions. A smooth transition to internal analysis will be dependent upon a robust, integrated data platform that is easily accessible to internal staff, as well as adequate staff training and development to ensure fluency with the analytical framework and load profiling processes.

II. Building an Energy Supply Portfolio - Soliciting Power Supply and Resource Adequacy Contracts

Once EBCE's load requirements are well defined, the CCA will need to procure the energy to match their demand. While local generation is preferred in the long term, it is likely necessary that wholesale procurement will be required during the first years of program launch to achieve a supply portfolio that appropriately reflects the desired balance of cost certainty, environmental considerations, cost-effectiveness, and operational and contractual flexibility. Wholesale procurement and hedging strategies will play an important ongoing role in EBCE's power supply portfolio strategy, providing stability and a buffer to emergent market and/or regulatory risks. Over time EBCE's implementation of the LDBP can lead to a robust and diverse local supply of energy to support the community's electricity needs. This method can eventually be managed in-house by the CCA, but this report recommends hiring a portfolio manager to establish Energy Trading and Risk Management (ETRM) policies and manage the initial procurement processes.

Portfolio Managers such as SMUD, The Energy Authority (TEA), ACES, ZGlobal, etc. have valuable expertise relating to the impacts of contract lengths, policy factors, and other variables that impact the economics of CCA operations as well as show:

- Demonstrated direct experience within an understanding of the California energy market, including relevant legislation and regulations applicable to CCA and its major participant's investor-owned utilities, CA Independent System Operator, energy service providers and independent power producers, California Public Utilities Commission, and other key market players.
- Demonstrate an understanding of the CCA formation process in California including - Statutory and regulatory requirements, and best practices, including experience in customer data analysis.
- Demonstrated experience in resource planning and energy procurement.
- Demonstrated experience in rate setting /design and sensitivity analysis, including anticipated rate impacts related to varying levels of renewable energy procurement and local renewable project/program development as well as energy efficiency and demand reduction program implementation.
- Demonstrated experience in California energy compliance reporting as it relates to CCA.[2]

[2] Humboldt County Community Choice Energy Roadmap; see Appendix A

It is recommended that EBCE also work during this stage to define its regulatory engagement strategy as well as define risk management best practices. Establishing ETRM practices should precede and support the build out of EBCE's energy supply portfolio to identify and hedge against procurement risk. For example, the risks of PCIA price changes or other regulatory changes that affect the cost-effectiveness of CCA's should be carefully considered periodically in coordination with procurement and power purchasing processes. Under policy scenarios that impact rates (i.e., the expected adjustments to the PCIA, and related uncertainties about CCA costs), it becomes riskier to lock in long-term contracts, thereby putting pressure on CCA's to sign shorter-term contracts in early years. One recent innovation introduced to the CCA space by Humboldt County's CCA (Redwood Coast Energy Authority/RCEA) and their Portfolio Manager (TEA) was the inclusion of a "Material Change Clause,"[3] which provides substantial risk mitigation and allowed RCEA to launch with ~10% of its portfolio coming from local renewable suppliers. It also encourages a rolling hedge plan strategy, which keeps an open position that can be closed with short-term contracts periodically (including following the annual PCIA rate setting procedure, to mitigate risk).[4]

The role of programs such as Feed-in Tariff, moving beyond Net Energy Metering (NEM) towards Value of Renewable pricing through TOU pilots, and/or collaborative procurement strategies (i.e., SEED Fund) in incentivizing new local generation, should also be understood and implemented beginning in year one of EBCE operation. These programs are currently being designed and are recommended to be phased into EBCE operations ultimately to be transferred to internal staff management. It is likely that programs like a FIT will have an incremental cap, allowing the CCA to stabilize finances and avoid undue pressure from local program costs on the CCA budget and customer rates. Such strategies will allow EBCE to stimulate the local market for clean, dispatchable DER's cost-effectively in early years, without compromising rate competitiveness. Minimizing the opportunity costs involved with waiting until later years to focus on local development while including a planning process that considers macroeconomic impacts on the future cash flows of energy projects from changing regulatory policies (i.e., the expiration of the Investment and Production Tax Credits).

If designed appropriately, the programs can help provide the financing and/or incentives needed to cover the upfront costs of local generation capacity development and result in long-term access to valuable local energy procurement and dispatchability for EBCE. Local procurement from decentralized sources and/or dispatchable DER assets will effectively insulate EBCE from

[3] See Appendix A for complete Material Change Clause language negotiated by RCEA/TEA as part of a PPA for local renewable energy supplies

[4] Additional information on EBCE risk mitigation strategies and the impacts of PCIA and other fees can be found in section 6.5

market risk and wholesale market price variability while simultaneously advancing local economic development and new generation goals.

Option 1: Standard Approaches for Procurement of Wholesale Generation

In essence, EBCE has to make their demand requirements known to the community and energy providers and soliciting offers from qualified suppliers. This has most frequently been achieved through standard Request for Proposal/Bid/Offer (RFP/RFB/RFO) procurement strategies designed to solicit bids for large-scale energy supplies on the wholesale.

> *"(RFB) should be used to screen potential suppliers for qualifications and obtain price offers for the services required. A single RFB can be used for electric supply as well as the customer account services that are needed for operation of a CCA program. Developing the RFB requires forethought and good definition of the desired services, including parameters of how bids should be structured. The goal should be to obtain responsive bids that can be compared on an apples-to-apples basis. A good approach is to establish minimum bid requirements from bidders and allow for submission of creative alternatives in addition to the minimum requirements bids…There are several steps involved in developing an RFB for services needed by the CCA program".*[5]

To prepare an RFO ready for distribution, consultants and staff will need to:

a. Specify the desired length of contract terms and dates upon which service will commence and terminate. A mix of lengths will provide flexibility as load requirement or policy changes take effect.
b. Identify the specific services requested, such as full requirements for electricity, renewable energy, and customer account services (customer enrollment, bill calculations, payment tracking, and customer services). As well as identify alternative service models such as Portfolio Manager Approaches.
c. Determine whether prices should be fixed, indexed, or a combination of fixed and indexed prices, and whether price escalators are acceptable.
d. Determine the schedule for RFO release, bidders' conference, and responses due, evaluation, contract negotiation/due diligence, and contract execution.
e. Specify minimum bid requirements including, for example, the need to meet minimum renewable portfolio requirements and resource adequacy standards.
f. Develop a standard bidder's template and format for offers.
g. Consider whether alternative bid structures will be accepted.

5 http://www.energy.ca.gov/2009publications/CEC-500-2009-003/CEC-500-2009-003.PDF

h. Define requirements for qualification, including requiring financial statements, credit ratings, professional references, and eligible resource types (i.e., wind, solar, natural gas, biogas, biomass, energy efficiency, demand response, etc.)
i. Define terms and conditions for any resulting contracts or Power Purchase Agreements (i.e., Material Change Clause that provides ratepayer protection from extreme market conditions).
j. Determine evaluation criteria (i.e., Community Benefit Adders that incentivize measurable local benefits and prioritize projects that deliver high-value benefits to EBCE, its customers, and the local community at-large).
k. Determine recipients of RFO, e.g., public posting, pre-screened suppliers, and/or industry press.

While the standard RFO approach to procurement can often yield the lowest prices for energy on a per MWh basis, it most often does not provide adequate opportunities for small to medium size project development, support local project development, or provide optimal benefits to the local communities that CCA's were formed to serve. It is recommended that EBCE work closely with its Portfolio Manager to integrate local benefit criteria into all procurement processes, including standard RFO solicitations and integrate local resource development programs into the process.

It is recommended that EBCE integrated the Community Benefit Adder (CBA) mechanism promoted throughout the Local Development Business plan into all wholesale procurement processes to prioritize local energy supplies. Locally-focused programs like net energy metering, feed-in tariffs, and collaborative procurement strategies can be tailored to support the development of these types of projects locally, while ensuring and optimizing community benefits in the process.

Feed-In Tariff

During the initial startup period of EBCE operations, this report assumes that energy will be procured from the wholesale market and that procurement of new local generation capacity will begin to roll out in the second year of operations. The FIT may be launched within the first year to help facilitate the creation of new local generation while providing EBCE greater potential control over local workforce development (in comparison to NEM).

Additional information on FIT design, escalation rate, and implementation can be found in the FIT Design Recommendations document prepared by Clean Coalition. However, this report recommends the FIT design includes:

- Market-responsive pricing that includes incremental stages
- Adders for community benefit, dispatchability, built environment, & small projects

Net Energy Metering, Value of Renewable Pricing, and Virtual Power Plant Strategies

Currently, in California, Net Energy Metering (NEM) values renewable energy produced behind the meter at a flat rate to reimburse generation from decentralized assets. By moving towards Value of Renewable pricing and compensating decentralized renewable energy based on TOU factors, or load shaping/shaving if paired with energy storage, EBCE has the ability to create an incentive structure for the development of more local DER capacity. Integrating the CBA mechanism into EBCE's NEM program is recommended as an effective way to incentivize community benefits.

New structures for NEM that value social cost of carbon, congestion relief, avoided T&D costs, or other services provided by real-time management of load, will create the conditions needed for identifying opportunities for the full value of renewable compensation. In addition, any CCA must consider that there is currently no mechanism for recouping T&D costs or other grid service values given they aren't the Provider of Last Resort (POLR) and do not have cost-recovery mechanisms (i.e., non-bypassable charges). As a result, EBCE should consider compensation for the generation value of DER energy and identify new constructs for reimbursing local generators for the energy they produce.

One example of a program able to provide Value of Renewable Pricing includes Marin Clean Energy's Local Sol Program. The program offers voluntary participation for MCE customers to directly fund a local solar project, promote the growth of the local economy, and ensure that their ratepayer dollars stay in the community. Other service areas are also experimenting with value of renewable pricing through virtual power plant (VPP) pilots designed to create a market platform for distributed energy asset owners to sell or purchase renewable assets to or from other local asset owners. Under a virtual power plant model, the price of a local renewable kWh can be found through market exchange, rather than being tied to an underlying rate structure. Both startups and utilities are experimenting with the model including organizations like Olivine [6]and OhmConnect,[7] who both provide services in CAISO territory, as well as LO3 energy in New York, which deploys a blockchain ledger to track energy sales and purchases from the neighborhoods of Gowanus Canal and Park Slope.[8]

In New York, a pilot program is piloting evolutions of NEM under the Reforming the Energy Vision (REV) proceeding. "This REV demonstration project is designed to demonstrate how aggregated fleets of solar plus storage assets in hundreds of homes can collectively provide network benefits to the grid, resiliency services to customers, monetization value to Consolidated Edison Company

[6] http://olivineinc.com

[7] https://www.ohmconnect.com/

[8] https://www.reuters.com/article/us-energy-usa-blockchain/in-new-york-neighbors-trading-solar-energy-electrify-community-idUSKBN171003

of New York, Inc. ("Con Edison"), and results that will help inform rate design and development of distribution-level markets."[9] The REV and other TOU pilots stand to lay the foundation for using rate structures to incentivize residential and commercial participation in DER generation. If applied in EBCE territory these types of programs have the potential to help meet both renewable and storage mandates as well as lower the price of local resource adequacy by creating a potentially cheaper local option for power procurement during peak procurement hours than may be found from the wholesale market; a critical competitive advantage over PG&E.

Given enough scale a large virtual power plant can offset transmission and distribution requirements, decrease the need for wholesale peak power purchases, and minimize exposure to market volatility (i.e., Locational Marginal Price spikes, extreme weather events, etc.) and related risks (i.e., CAISO Imbalance fees), thereby lowering the average cost of energy across the service area. When combined with an energy storage development and ownership plan under which EBCE would build, own, and operate energy storage, additional revenue can be generated by selling stored energy from the DER network into the virtual market.

A relevant case study for how this sort of strategy could work for EBCE can be found in Sunverge's recent VPP pilot program, which is called PowerHouse[10]. "The pilot program enabled the deployment of 20 residential solar storage systems in homes within Alectra Utilities' service territory" The program worked to identify the financial and technological feasibility of equipping customers with energy storage and using their energy from solar + storage to supplement the grid and provide a range of utility and demand-side benefits.

Collaborative Procurement

In a decentralized and hyper-local energy model, the costs of outsourcing may present a barrier to new project development. Success has been found in building capital thresholds through collaborative procurement models that aggregate pools of like agencies or projects, which can be used to increase local energy resource adoption and deployment by customers and developers. Collaborative procurement can lead to lower prices, creating capital and labor efficiency, and result in better contracts and overall outcomes for participants. This method does not immediately lead to CCA-owned assets, but rather to cost-effective local power purchase agreements (often with buyout provisions that could allow the CCA to purchase the assets after a set period of time, typically 5-7 years). Lowering the PPA or direct capital cost of energy asset to the owners can lower overall cost of resources and the resulting energy supply. Which can result in a lower cost of local resources (energy, capacity, and grid services) from local non-CCA DER assets.

[9] http://www3.dps.ny.gov/W/PSCWeb.nsf/All/B2D9D834B0D307C685257F3F006FF1D9?OpenDocument
[10] https://www.powerstream.ca/attachments/POWER_HOUSE_Feasibility_Study.pdf

Establishing a revolving local development fund (i.e., using the SEED Fund model[11]) that is replenished from a portion of future project revenue (i.e., through PPA payments) can provide a sustainable financial resource for funding capital purchases or other project costs. Members of the LDBP Project Team have implemented SEED funds for pooled procurement throughout the greater Bay Area, which have yielded local energy supply at near wholesale market rates of between 6-8 cents/kWh. Under the SEED Fund model, facilities that get a PPA through a SEED Fund project pay for a kWh at a fixed price plus a small adder to replenish the development fund. Due to the lower costs per kWh realized through economies of scale and streamlined project management that reduces overall project costs, the Seed Fund approach can allow EBCE to procure locally produced clean energy at rates that are more favorable to the economics of the CCA than strategies that pay retail rates (i.e., Feed-in Tariff).

Examples of groupings include wastewater treatment facilities, landfills, government agency buildings, police and fire stations, k-12 schools, non-profits, churches, green tech/clean tech business, energy-intensive manufacturers, warehouses, hospitals/clinics, and public assets such as streetlights or outdoor lighting. EBCE could periodically organize RFPs by these groupings and build towards significant renewable development in the Alameda County Region.

Option 2: Wholesale Energy Auction Mechanisms

While standard competitive RFO/RFP/RFB and standing-offer procurement strategies have been effective for other CCAs, opportunities do exists to deviate from these models using methods using auction mechanisms that may deliver enhanced value and benefits to EBCE and the customers it serves. Historically, perspectives on the pros and cons of auction mechanisms have been divided, with buyers tending to value the downward pressure exerted on resulting energy prices. On the other hand, renewable energy project developers point to inherent inefficiencies and inequities that add cost and uncertainty to the process, lead to inordinate bid failure rates, and tend to favor the larger project development firms.

Generally speaking, it is recommended that EBCE not pursue auction mechanisms for contracting for supply generated by facilities smaller than 5 MW, because strategies such as the proposed Feed-in Tariff, Net Energy Metering, and Collaborative Procurement model are designed to stimulate this market segment more effectively and efficiently. Those types of projects also enjoy support through various incentive structures provided by the State, such as the California Solar Initiative (CSI)[12] and the Self-generation Incentive Program (SGIP).[13] However, for procurement of medium sized supply contracts (e.g., nameplate capacities ranging from 5 MW to 25 MW), well

[11] http://www.solarroadmap.com/regional-initiatives/seed/
[12] http://www.gosolarcalifornia.ca.gov/csi/index.php
[13] http://www.cpuc.ca.gov/sgip/

designed and implemented auction mechanisms are worth consideration by EBCE, as they may yield local renewable energy supplies at lower prices for EBCE, provide a host of local community benefits, and support the organizations goals of providing clean, locally produced energy at stable and competitive retail rates.

Single Clearing Price Auction Mechanism

A Single Clearing Price Auction (SCPA) mechanism is an appropriate tool for driving the development of renewable energy while mitigating many of the concerns and critiques that accompany more traditional auction mechanisms. The SCPA approach is something that could conceivably be managed internally by EBCE staff in time, and the infrastructure needed for that could be outsourced to EBCE consultants to get it all set up and working initially. The SCPA approach would support local renewable energy development by enabling more investment and participation in the renewable energy market, but would also work to drive lower procurement costs for EBCE through a transparent and competitive process. This sort of mechanism could effectively fill the gap for medium-scale project developers, and would create fair market competition for increased renewable energy generation that would overcome inefficiency in costs, pricing, energy generation and delivery that presently affects suppliers, developers, utilities, load-serving entities (LSE's, including CCA's like EBCE), and ultimately end-use customers. The SCPA mechanism can act as an effective hedge against rising energy prices for CCA's that utilize them, and as the price of renewable energy continues to decline and the auction price adjusts downward over time, the resulting return on investment for EBCE and its customers can also increase over time.

Under a Single Clearing Price Auction approach, strict criteria would be established that are designed to encourage a multi-tiered resource approach for determining costs and yet be sufficiently structured to prevent price manipulation, which would allow only qualified developers with eligible projects to enter a bid. Additional criteria that support achievement of CCA goals, such as local siting preferences, labor standards, and workforce requirements, etc., can also be integrated into the bid scoring parameters. Only bids that meet minimum requirements would be eligible for selection. Project bids for each auction round would be screened for eligibility by the buyer (EBCE, in this case) and their agents (i.e., EBCE's Portfolio Manager, or contracted independent auction evaluator). Eligible bids would be ranked in order of bid price (and other bid criteria).

Projects with the lowest price would be selected incrementally until the capacity for that auction round is fulfilled. Of the selected bids, the highest priced project would establish the market clearing price that each of the winning bids would receive (Note- this stands in contrast to the so-called "Pay-as-bid" pay rule, an alternative approach that would pay each of the winning bids the actual price that they bid, which has inherent drawbacks that create distortions and

suboptimal outcomes for buyers, sellers, and end-use customers alike[14]). That "single price" would then either apply only to all bids submitted for that specific auction round, or it could establish the standing price paid for a set period of time that could include subsequent rounds of procurement. Winning bidders would be awarded a standard Power Purchase Agreement (PPA), allowing for full transparency and uniformity of standardized contractual terms and conditions. This approach addresses longstanding critiques of auction mechanisms by both developers and buyers alike, and it creates incentives for bidders to bid low while still allowing for variation in pricing and deterring 'low-ball' bidding.

Live Open Auction Platform

Another possibility is through a Live Open Auction (aka- Reverse Auction) platform that differentiates itself as more price transparent to buyers and bidders when compared to a closed session procurement process (i.e., RFO/RFP/RFB). An Open Auction procurement process would require EBCE to contract with a live auction platform service provider (i.e., Enernoc[15], Premiere Energy Auctions[16], Energy Market Exchange[17], etc.). This is referred to as an "open" auction because the technology allows all participating bidders to see each other's bidding in real-time until the moment the auction is closed. This allows and encourages bidders to adjust their bid price downward over the course of the auction, which can range from just a matter of a few hours up to a period of days or even weeks (typically depending on the number of bidding suppliers, as well as the complexity of the overarching bid requirements and underlying contractual terms offered by the suppliers. In this scenario, EBCE would take advantage of a real-time, competitive bidding platform to invite competitive energy suppliers to submit bids in an open transparent auction setting staged exclusively to serve EBCE's procurement needs. All participating bidders would be able to bid and counter-bid in a transparent, real-time environment that shows everyone the current lowest bid price, leveraging market competition to drive down prices. This creates a fair and level playing field for developers while challenging bidders to offer competitive pricing.

Implementing an Open Auction procurement approach would a) allow for competitive market forces to push prices down, b) create options for soliciting full or partial energy supplies, and supporting services and subtasks, and c) create a dialog across bidders and inspire collaboration or joint proposals. Outsourced wholesale auction platforms are readily available that may fit EBCE's needs should an open bid platform be pursued. While this approach to wholesale procurement may create price efficiency benefits, EBCE would be required to understand and

[14] ftp://www.cramton.umd.edu/papers2005-2009/baldick-single-price-auction.pdf
[15] https://www.enernoc.com/products/energy-procurement
[16] http://www.myenergyauction.com/reverse-auctions/
[17] https://energymarketexchange.com/solutions/reverse-auction

express their supply needs clearly as well as consider the tradeoffs between qualification and price that may appear in an open market. Vetting qualified applicants and providing adequate funding to prevent underbidding will be essential to ensure that work gets executed in a high-quality manner, and would likely benefit from support from EBCE's external Portfolio Manager to ensure the most beneficial and cost-effective outcomes.

Option 3: Developing EBCE-owned Local Generation and Storage Facilities

Opportunities for EBCE to implement design, build, and own (DBO) strategies to develop its own generation assets may appear once the organization matures, establishes a credit rating, built a stable rate stabilization fund, and has mitigated political or market risks, which is likely to take place over the initial 5-year period of EBCE's operation. In later years, EBCE should begin to consider the opportunities for purchasing assets at market rate and begin developing larger generation infrastructure. There may be opportunities for EBCE to buyout assets from PPA's established in early years (i.e., through FIT or SEED Fund programs) to shift asset ownership to the CCA. Both lease to own or cash purchases of beneficial DER such as PV or Energy Storage equipment can also be used to create a portfolio of assets able to generate revenue and local energy supply.

Building new local generation presents a different set of procurement challenges than the ones encountered through both wholesale energy procurement and the procurement of EE services. It is likely that EBCE will need to take on responsibility for developing the market for local energy generation, distribution, and brokerage. Responsibilities expand from that of a procurer to that of a planner, and as such the CCA will have to engage in the process of identifying sites, assets, and opportunities/risks of installing new infrastructure. EBCE will also have to consider its ability to provide financial services and capital access for new equipment to be installed.

In a decentralized energy environment where assets are owned by many stakeholders' turnkey financing options that grant the access to capital needed to build new infrastructure or replace aging assets will be essential to realizing savings or generating new energy supply. Both EE and local generation programs have a long list of mechanisms that provide financial services including on-bill financing, commercial and residential PACE programs, inclusive financing (tariff based funding), debt or equity financing, and green bonds. Each has their own role to play in funding the clean energy transition and choosing which form of capital matches a project or program requires analysis able to master financial fundamentals as well as attract partners such as banks, financiers, philanthropies, or private donors able to foot the bill.

Consultants should be considered for this expertise selection considered for those willing to defer payment in favor of a Pay-for-performance model that securitizes savings or a portion of future revenues. Revolving funds also may provide a means of financing project costs as elaborated upon in "Agency as Developer".

Examples of program options for stimulating local generation available to EBCE are elaborated upon in the New Generation Deliverable but may include:

1. Community Shared Solar and Energy Storage- Providing pathways to customer and/or community ownership equity in
2. One Stop Local Solar Acquisition Platform – i.e., Energy Sage – market directly to residents
3. Standard Offer model – CCA would go out to RFP and get a standard pricing for solar on a facility and offered by single or multiple installers; promoted by CCA
4. Virtual Power Plant - Requirement that DER owners participate in an energy market facilitated by EBCE
5. Value of Distributed Energy Resource (VDER) -– Offer only a credit for VDER tariff that gets beyond net metering, ascribes a value to CCA for their production of locally generated energy. Eliminates concerns about TOU rates, and cost shifting
6. CCA as PV panel, DER component, storage distributor. Buy in bulk, take entire production line within advance purchase
7. Energy Storage deployment to meet AB2513, Skinner storage mandate, and save money on resource adequacy (RA)
8. Fuel switching and electrification to move to use less Nat gas more electricity. Also, encourage EV charging and increased load requirements
9. Long-term Buildup of scheduling coordinator 24/7 trading desk internal to CCA

Outsourcing		Insourcing (i.e., asset ownership)	
Pro	Con	Pro	Con
-Allows for accelerated launch of local procurement programs -Gain access to networks of consultants- diversified suppliers and generation sources -Leverage industry experience and market insights	-Need to clearly define budgets for both RFP strategies/platforms/services as well as energy procurement budgets	-Best deployed in later years of operation -EBCE will get the first review of bids -The value of ownership goes beyond the value of supply generated and includes energy price stability and dispatchability	-Ability to reach suppliers is confined to the organization's network. External partners likely needed to reach generators and ID best price -Exposure to market risk

Table 4: Outsourcing vs. Insourcing of Procurement of Wholesale Generation

Wholesale Procurement Services Recommendations

Solicitation of wholesale generation is managed by a third party during the first 1-3 years of operation and that consultants be tasked with building the framework through which internal staff can assume the responsibilities of matching demand to generation (procurement) and even power scheduling over time. The retention of the services of a portfolio manager may always add value to EBCE's wholesale procurement. However, EBCE should work to manage wholesale procurement activities internally as much as possible. Should alternative procurement platforms be developed, such as an auction platform approach, the CCA should consider the transfer of both the knowledge skills and abilities to use the platforms as well as considering licensing and use costs for any software used to manage vendor relationships.

III. Getting Ratepayers and Residents Involved

Once EBCE has secured its base energy needs through a wholesale procurement model, opportunities for local generation and energy efficiency should be phased in. Programs designed to incentivize local generation and ratepayer savings should also be rolled out to incrementally increase the supply of local generation capacity. It is also at this time that the activities of the CCA will begin to align with LDBP goals as soon as strategies for increasing the capacity of local generation and DSM programs are planned, funded, and implemented. Partnering with local asset owners, contractors, consultants, labor and workforce development organizations, manufacturers or other stakeholder groups will create economic development opportunities. Procurement strategies that consider social justice factors such as serving and/or employing underserved or vulnerable populations, as well as strategies that support environmental justice such as reducing local air pollution will also advance the goals of the LDBP.

One role of the CCA is as an intermediary that provides local generators of electricity access to the energy market. A CCA provides the service of aggregating load and matching its demand through contracts, MOU's, and purchase agreements. It is likely that as the costs of renewables decline, energy storage technologies mature, fuel switching occurs, EV market penetration and charging load increases, and smart features are deployed, a larger number of small assets and their owners will look to enter the market of energy sale and purchase. As the volume and forms of decentralized assets increase, the potential of the CCA as a service provider and market maker will also increase. As a result, EBCE will require more industry or technology specific expertise, each of which can be sourced internally or externally. If EBCE works to strategically design procurement processes to distribute risk to service providers opportunities for balance risk and return can be created.

At-Risk Contracting and Pay-for-Performance Strategies

Pay-for-performance contract and at-risk consulting services should be closely considered as best practices for managing an increase in the quality of data services, customer care, and IT implementation required to implement an efficient and decentralized local energy market. Thus, the CCA need not be an expert in specific technologies but rather expert only at understanding their own costs of service and identifying their customer needs. This will create the baseline for facilitating a formal contractual process to a market that best delivers cost-effective and low-risk solutions to those needs.

Pay-for-performance contracting allows for EBCE to access energy services at little to no upfront cost and rather offer payment on a differed basis sometimes referred to as "at risk consulting." Under this model of procurement, EBCE would design an RFP that outlines specific organizational and project outcomes that EBCE is looking to create through a partnership with energy service providers and outside contractors that bring in their own financing, program design, and implementation services. Rather than offer a payment for a scope of work through a defined bid process, the CCA ties payment to performance metrics such as peak demand reduction (kWh), meeting local capacity requirements (kW), etc., which can come from a wide range of technologies including: renewable energy production, energy storage, energy efficiency, or demand response. With this approach, EBCE can ensure cost-effective outcomes from LDBP programs by eliminating waste and only paying for the services and outcomes that EBCE needs.

This report recommends that pay-for-performance and at-risk contracts should always be accompanied by a post-project measurement and verification process designed to verify that energy savings, sales other revenues and project costs have been actually implemented and achieved prior to any payment is issued. AMI data will be a necessary input for analysis of the performance of at-risk contracts. Contracting terms around payment conditions should be clearly defined with the support of EBCE's legal team prior to any RFP issuance.

The steps required for issuance of a Pay-for-performance RFP include:

1. Clear quantifiable definition of desired outcomes including energy savings or new generation capacity/volume.
2. Development of an outreach list to circulate and share an RFP and location for public online release.
3. Development of payment terms and conditions with the support of an internal legal team. For example, lump sum payment after semi-annual M&V true-up, or monthly pay-as-you-go payments.
4. Clear definition of which properties are open for project proposal.

5. Provide vendor access to EBCE customer energy data and usage history including Trailing Twelve Month and 15 Min interval data for target facilities or assets (Note- Non-Disclosure Agreement required).
6. Provide vendor access to information regarding existing planning and/or projects ongoing at target facilities or assets.
7. Definition of response deadlines and content requirements.
8. Creation of internal scoring and/or ranking protocol or return thresholds for determining winning bid, as well as a process for resolving ties or vendor challenges.
9. Assignment of internal EBCE staff or as needed consultants for review of RFP responses.
10. Engagement with any stakeholders affected by procurement process or implemented process to inform them of a coming RFP accompanied with a feedback period for directly affected stakeholders who will experience financial, environmental or planning impacts from the implementation of the project.

Outsourcing Energy Efficiency Services

CCAs like MCE Clean Energy have opted to begin providing energy efficiency (EE) services[18] in addition to their normal procurement operations. When implemented energy efficiency programs can boost a CCA's progress towards renewable targets by reducing the need to fill demand through fossil fuel based generation assets like natural gas, and increasing the proportional contribution of renewables in the CCA's energy portfolio. Providing EE services will also promote ratepayer retention in a competitive environment where opt-out might occur should efficiency programs, rebates or incentives attract customers to PG&E. Energy efficiency programs also reduce the risk of rate volatility by identifying and acting to reduce consumption areas that are expensive or otherwise out of phase.

It is also important to note that because the basic business model for CCA's is selling electricity (kWh), reducing some loads will provide greater benefit to the CCA and its customers than other loads. CCA's need to understand their cost-of-service and customer load profiles at a very granular level and care must be taken by CCA's conducting energy efficiency programs to focus on reducing loads that are expensive to serve. Otherwise, the cost-effectiveness of implementing energy efficiency programs can suffer and unintended consequences may lead to increased costs for the CCA and some of its customers. For these reasons, EBCE staff must have access to a robust and integrated data platform with advanced analytical capabilities that allows granular load analysis and targeted energy efficiency programming.

EBCE is likely to be most successful in leveraging the existing energy efficiency programs made available by organizations like BayREN and East Bay Energy Watch in the early years. In the mid-

[18] https://www.mcecleanenergy.org/energy-savings/

term, the agency is advised to develop in-house expertise in energy analytics and energy efficiency program development and implementation. Ultimately the EBCE organization expects an evolution from passive participation in existing energy efficiency programs to the role of market maker and EE program implementer. Pay-for-performance contracting should also be considered for EE programs, as they minimize the risk of program implementation and investment while ensuring beneficial returns for EBCE.

Similar to the procurement of generation energy efficiency programming can be solicited through a public bid process. It is recommended that EBCE use a Request for Qualifications (RFQ)[19] solicitation strategy to build a stable of qualified, pre-vetted vendors and contractors for Energy Efficiency (and other demand-side management initiatives, including demand response).

Outsourcing will require project managers to:

1. Specify the desired length of contract terms and dates upon which service will commence and terminate.
2. Identify the specific services requested, such as technical expertise, retrofit matching, and financial analysis.
3. Determine a budget for specific energy efficiency programs. Or alternatively, operate through a pay for service model.
4. Determine the schedule for RFB release, bidders' conference, and responses due, evaluation, contract negotiation/due diligence, and contract execution.
5. Specify minimum bid requirements including, for example, the need to meet minimum renewable portfolio requirements and resource adequacy standards.
6. Develop a standard bidder's template and format for offers.
7. Consider whether alternative bid structures will be accepted.
8. Define requirements for qualification, including requiring financial statements, credit ratings, and references.
9. Determine whether specific resource types are desired (renewable types, natural gas-fired, etc.).
10. Determine evaluation criteria.
11. Determine recipients of RFB, e.g., public posting, pre-screened suppliers, and/or industry press.
12. Provide vendor access to EBCE customer energy data and usage history including Trailing Twelve Month and 15 Min interval data for target facilities or assets (Note-Non-Disclosure Agreement required).

[19] See Sonoma Clean Power example of an RFQ strategy: https://sonomacleanpower.org/wp-content/uploads/2016/03/RFQ-Fuel-Shifting_01-4-17_Final.pdf

Energy Efficiency (EE) programs teams that deliver market making and data tracking services to customers will benefit EBCE by creating rate stabilization opportunities due to a reduced requirement for wholesale procurement. The success of EE programs can be measured by their impact on rates via reduced market purchase volatility; as well as cooperation with the customer to hedge against Locational Margin Price (LMP) risk exposure.

Potential partnerships or outsourced EE program teams may include temporary insourcing of human capacity through organizations like BayREN, East Bay Energy Watch, Civic Spark fellowships, EDF Climate Corps, Bay Area Climate Corps, or outsourcing of work to a 3rd party for management of fellows as needed.

As soon as EBCE EE programs are planned, internal staff with experience in managing energy efficiency projects or programs will be critical to an effective partnership with third parties. The role of such staff can take on many forms but will act as a buffer for energy use data analysis, cost causation based project planning, and act as a bridge between outside service providers and ratepayers. In addition, internal staff will provide the supervision of fellows or temporary employees working on a per-project basis.

EBCE can also outsource consulting for specific programs and funding strategies including through application for public grants and funding from philanthropic foundations, targeted pursuit of Public Purpose Program (PPP) Surcharge Funds, or implementation of Self-Funding Programs. EBCE can measure the impact of outside consulting through the impact they have on lowering rates and increasing the capability of the CCA to exemplify leadership in technology and community support pilots and programs. This report recommends that for most programs EBCE plan to take over programs designed by outside consultants and transfer responsibilities to internal management within a 3 to 5-year timeline.

Outsourcing Virtual Power Plant Services

It is recommended that EBCE develop and release an RFP that solicits a qualified DER Provider (DERP) to aggregate any/all dispatchable DER's that EBCE has deployed into a Virtual Power Plant that would give EBCE the means to respond to dynamic market conditions in near real-time to mitigate risk exposure, optimize financial performance, maintain cost-competitiveness, and enhance reliability and long-term stability. Doing so will establish enough control over storage and solar assets that EBCE can engage them as a virtual peaker plant designed to further offset the duck curve and provide local resource adequacy at a lower cost than can be secured on the wholesale market. This approach would also support the transition to a transactive energy grid that would empower true time and locational valued pricing (eg., optimized TOU rate structures) and full customer energy arbitrage potential, opening new opportunities for EBCE incentivize participation in innovative DER programming from both commercial and residential sectors,

ultimately helping move the service region towards meeting its long-term renewable energy and greenhouse gas emission reduction goals.

It is recommended that EBCE start with a small pilot aggregation of suitable DER's in year 3-4, with the intention of developing a functional, large-scale Virtual Power Plant by year 6. It is important to note here that an accessible and robust integrated data management platform that combines granular local usage and generation data (i.e., AMI, EDI, and SQMD data) with real-time weather data, CAISO market DA and LMP pricing data, and the CCA's budget and cash flow data is an essential requirement to enable this sort of Virtual Power Plant strategy.

Outsourcing		Insourcing	
Pro	Con	Pro	Con
-Less upfront capital required to create program and projects -Opportunity for lease to own of Resource Adequacy contracts	-Requires managing RFPs to identify and contract with service providers -No live-controls of dispatch ability if asset not directly owned- Requires sound legal contracts to ensure performance	-Direct control of DER assets, able to use for Demand Response -Easier to tie programs to internal data and performance records -Ownership	-Higher Capital costs -Higher risk -Requires larger staff with more extensive skillsets and resources

Table 5: Outsourcing VS. Insourcing DER services (EE, VPP, & Community Programs)

Conclusions

At some point, as EBCE works to deploy DER's and build out local capacity it will face weighing the pros and cons between ownership and leasing (or standard PPA's). While some procurement choices will be made strictly based on cost metrics, care must also be given to prioritizing programs and services that benefit, and community benefits must be part of the equation. Ultimately, should program or project implementation not meet customer needs the loss of revenue from opt outs has the potential to undermine years of financial planning and program strategy. As a result, one of the most important and effective ways to hedge against opt-out risk is to implement an aggressive internal capacity building strategy, because the staff and contractors who EBCE hires to manage upstream energy contracts and downstream customer programs and services will ultimately define the customer experience.

The strategies contained in this report—such as: at-risk and pay-for-performance contracting, power purchase agreements that contain buy out clauses, community shared solar, and virtual power plant aggregation—not only allow EBCE to build a diverse portfolio of energy assets that provide resource adequacy at stable and competitive rates, but also enable for the organization to phase into local asset ownership over time. As a credit rating is being established in the early years of EBCE's operation, this approach will provide a pragmatic, cost-effective balance between providing reliable, low-cost energy and the move towards a more progressive, sustainable, and beneficial energy system that serves the needs of the East Bay community.

As EBCE works to establish the resources and develop the internal capacity to successfully implement the Local Development Business Plan during its first 1-2 years of operation, it is recommended that EBCE provide a relatively small core staff of 3-6 employees supported by a range of outsourced vendors, consultants and service contractors. It is recommended that those outsourced services become primarily internal activities staffed by EBCE employees by the end of year five, and that EBCE develop a staffing plan that supports the growth of the LDBP-dedicated staff to 20 to sustain ongoing success with LDBP implementation in the long-term. Given the lean nature of the team in years one through three, outsourcing (contracting and purchasing) will be a major component of EBCE's activities. As a result, we further recommend that as power purchases or capacity contracts are evaluated by EBCE in these early years, they are considered carefully within a longer term five year purchasing strategy that weighs the risks and benefits of energy trading with the need for local development and energy goals.

Appendix A

From CCE Roadmap Humboldt County (Redwood Coast Energy Authority/RCEA)

The Table below outlines at a high-level the anticipated roles and duties of the RCEA Board, RCEA staff, and the third-party contractor(s). RCEA anticipated a heavy reliance on contracted companies in the initial 5 years, with the potential to shift certain operational activities to RCEA staff if deemed viable and cost-effective.

Function	Start-Up	Near-Term (2 to 5 Years)	Long-Term
Program Governance	Authority Board	Authority Board	Authority Board
Program Management	Authority staff (Third Party support)	Authority staff	Authority staff
Outreach	Authority staff	Authority staff	Authority staff
Customer Service	Authority staff (Third Party support)	Authority staff (Third Party support)	Authority staff (Third Party support)
Key Account Management	Authority staff	Authority staff	Authority staff
Regulatory	Third Party (Authority staff support)	Authority staff (Third Party support)	Authority staff
Legal	Authority staff (third Party support)	Authority staff (Third Party support)	Authority staff
Finance	Third Party (Authority staff support)	Authority staff (Third Party support)	Authority staff
Rates: Approve Rates: Develop	Authority Board Third Party (Authority staff support)	Authority Board Authority staff (third Party support)	Authority Board Authority staff
Resource Planning	Third Party (Authority staff support)	Third Party (Authority staff support)	Third Party (potentially Authority staff)
Energy Efficiency	Authority staff	Authority staff	Authority staff
Resource Development	Authority staff (Third Party support)	Authority staff (Third Party support)	Authority staff (Third Party support)
Portfolio Operations	Third Party	Third Party (Authority staff support)	Third Party (Authority staff support)
Scheduling Coordinator	Third Party	Third Party	Third Party
Data Management	Third Party	Third Party	Third Party

Material Change Clause from RCEA's Power Purchase Agreement for Local Renewable Energy

2.6 Material Change.

(a) A "Material Change" means any of the following:

(i) Buyer forecasts for the upcoming year that it is unable to meet both of the following program objectives:

(A) Offer competitive generation rates at least 3% lower than PG&E's, including adjustment for Non-Bypassable Charges, as filed in the first week of January each calendar year; and

(B) Achieve a forecasted community choice energy program reserve accumulation of $2 million per year;

(I) The forecasted reserve accumulation calculation for any year will assume Buyer offers generation rates that are: (1) 3% lower than PG&E's after adjustments for Non-Bypassable Charges, and (2) are based on a portfolio that meets the minimum applicable federal, state, and local requirements, including the California Renewables Portfolio Standard and the requirements of California Public Utilities Code § 454.52. For avoidance of doubt, the forecasted reserve accumulation calculation for any year will not include new RCEA discretionary spending commitments for above-market procurement of energy products beyond what is necessary to meet the applicable minimum federal, state, and local requirements. For purposes of this Section 2.6, the individual year procurement requirement of resources meeting the requirements of California Public Utilities Code § 399.16(b)(1) for the California Renewables Portfolio Standard shall be equal to RCEA's annual retail sales for the applicable year multiplied by the percentages specified in the following table:

Delivery Year	Renewable Portfolio Standard
2018	29%
2019	31%
2020	33%
2021	34.8%
2022	36.5%

(ii) Buyer experiences either of the following:

(A) cumulative opt-out exceeding 20% from program launch;

(B) incremental opt-out exceeding 10% for a calendar year beginning in 2018; Opt-out will be measured on the basis of enrolled customer accounts vs. a baseline year of 2016. The opt-out calculation will use as a baseline the number of accounts that existed as of December 31, 2016, and will not include any Direct Access accounts.

(b) If a Material Change occurs, Buyer may provide notice to Seller and describe proposed terms and conditions for an amendment to this Agreement that would preserve or restore Buyer's ability to achieve the program objectives described in Section 2.6(a)(i) and (a)(ii) above. Within thirty (30) days of Buyer's notice, or such other time mutually agreed upon by the Parties, the Parties shall meet and attempt in good faith to negotiate such amendment. If the Parties are unable to agree upon such amendment within a reasonable period of time, as determined in good faith by Buyer, Buyer shall have the right to terminate this Agreement without further liability except with respect to payment of amounts accrued prior to termination. For avoidance of doubt, if Buyer terminates this Agreement pursuant to this Section 2.6, such termination shall not be an Event of Default and Buyer shall not be required to pay any Termination Payment.

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