



Staff Report Item 10

TO: East Bay Community Energy Board of Directors

FROM: Nick Chaset, Chief Executive Officer

SUBJECT: CEO Report (Informational Item)

DATE: April 18, 2018

RECOMMENDATION

Accept Chief Executive Officer (CEO) report on update items below.

EXECUTIVE COMMITTEE MEETING

On March 30, 2018, the Executive Committee of the East Bay Community Energy Board met for its first meeting. The agenda for the Executive Committee meeting covered the general scope of work for the Executive Committee, an overview of the next three Executive Committee agendas, and presentations on Regulatory and Legislative issues, Marketing and Outreach activities, and Procurement planning. The presentations given to the Executive Committee are attached.

LOCAL DEVELOPMENT BUSINESS PLAN

On March 26, 2018, the Local Development Business Plan (LDBP) team held its symposium that covered nine of the new work products and the methodologies for evaluating community benefits. Attached for your reference are the slides that were presented throughout the day at the symposium. Public comments on these nine work products will be submitted to EBCE by April 20, 2018.

EBCE has executed a contract extension with ALH Economics, the prime contractor on the LDBP project, as their contract with Alameda County expired on March 29, 2018. As part of this contract extension, EBCE and ALH developed a final schedule for the remaining work products and the development of the final Local Development Business Plan which is included below.

Local Development Business Plan (LDBP) Schedule	
Task/Description	Target for Completion
Task 1 - 6:	
Finalize Drafts (to address feedback received)	Monday, April 30, 2018
Task 7:	
Finalize Drafts (to address feedback received)	Monday, April 30, 2018
Complete Initial Scenario Analysis and Summary Reports	Friday, April 20, 2018
Complete Jobs, Labor Income, and Financial Impact Report	Friday, April 20, 2018
Final Analysis of Recommended Scenario	Monday, April 30, 2018
Submit Draft LDBP Document	Monday, May 7, 2018
Final LDBP:	
EBCE posts Draft LDBP for public comment (due May 25)	Week of May 7-11, '18
EBCE holds community meetings to review LDBP	Weeks of May 14-18/21-25, '18
Review and Discussion of Final LDBP Document at Executive Committee	Friday, May 25, 2018
Final LDBP Issued	Friday, June 8, 2018
LDBP brought to the Board for a vote	Wednesday, June 20, 2018

ATTACHMENTS

1. Executive Committee Presentations
2. LDBP Symposium Presentation



Regulatory Update

PRESENTED BY: Melissa Brandt

DATE: 3/30/18



Regulatory Deep Dive

- EBCE interfaces with multiple regulatory bodies in various forums to ensure that the way regulations and state policies are shaped and implemented enables us to achieve our goals.
- California Agencies:
 - Pursuant to California's Administrative Procedures Act, open rulemakings or conduct other regulatory proceedings with Administrative Law Judges such as review of applications
 - Decisions or Regulations must be approved by the agency's Commission or Board
 - After Commission/Board approval, regulations are submitted to the Office of Administrative Law for final approval

Regulatory Deep Dive

- California Public Utilities Commission (CPUC)
 - Based in SF; 5 Commissioners appointed by the Governor
 - Regulates investor-owned utilities
 - Regulates CCA compliance with:
 - CA Renewable Portfolio Standard (RPS; CA's renewables law)
 - CPUC Resource Adequacy requirements (RA; ensuring enough capacity, i.e. availability of resources on the grid at all times)
 - Integrated Resources Plan (IRP; each load-serving entity (LSE) plan will cover how its procurement will contribute to achieving state greenhouse gas emissions reductions goals)

Regulatory Deep Dive

- California Energy Commission (CEC or Energy Commission)
 - Based in Sacramento; 5 Commissioners appointed by the Governor
 - Regulates municipal utilities' compliance with RPS and RA
 - Focused on facilitating transition to low-carbon economy through electrification, energy efficiency including building standards, distributing grants for energy innovation

Regulatory Deep Dive

- California Air Resources Board (CARB or ARB)
 - Based in Sacramento; 16 Board members (12 appointed by the Governor, 4 appointed by the Senate and Assembly)
 - Designed CA's cap-and-trade system for greenhouse gases
 - Designs air quality policy and regulates economy-wide greenhouse gas emissions; sets GHG reduction targets for each sector
 - Runs Low Carbon Fuel Standard (LCFS) program including credits/rebates for clean fuel use

Regulatory Deep Dive

- California Independent System Operator (CAISO or ISO)
 - Based in Folsom; 5 ISO Governors appointed by the Governor
 - Nonprofit public benefit corporation created by AB 1890
 - Manages the flow of electricity across the high-voltage, long-distance power lines that make up most of California's grid
 - Promulgates tariffs (rules) subject to FERC approval
 - Interfaces with CCAs on grid reliability
- Federal Energy Regulatory Commission (FERC)
 - Based in Washington, D.C.; 5 Commissioners appointed by the President
 - Independent agency that regulates the interstate transmission of natural gas, oil, and electricity
 - Affects CCAs indirectly; primarily through CAISO tariffs

Regulatory Proceedings

- EBCE is actively engaged with CalCCA to support a variety of regulatory proceedings where CCA interests align or where the outcome could affect EBCE
- CPUC – EBCE is a party to at least 5 proceedings:
 - **Power Choice Indifference Amount (PCIA) Rulemaking**
 - **Resource Adequacy (RA) Rulemaking**
 - Integrated Resources Plan (IRP) Rulemaking
 - PG&E Rate Design Window (RDW) Application
 - PG&E Application for Energy Storage Cost Recovery
 - *CCA Bond Rulemaking* (request for party status pending)

Regulatory Proceedings

- CEC – EBCE is engaged in one proceeding:
 - AB 1110 Power Source Disclosure Regulation amendments**
- CARB – EBCE is engaged in two proceedings:
 - SB 350 GHG target-setting
 - Low Carbon Fuel Standard amendments
- CAISO – EBCE is engaged in one stakeholder initiative:
 - Backstop Capacity Resource-Must-Run / Capacity Procurement Mechanism Initiatives and Contracts

Key Legislative Issue

- Regionalization (Holden, AB 813)
 - Informational Hearing was held on 3/14
 - Key issue: Governance
 - Benefit: Renewables Procurement



Executive Committee Marketing Update

PRESENTED BY: Annie Henderson

DATE: 3/30/18



CUSTOMER NOTIFICATION

- First Notice printing this week
- First batch delivered to customers week of 4/9

INTRODUCING EAST BAY COMMUNITY ENERGY - YOUR AFFORDABLE, GREENER, LOCAL ELECTRICITY PROVIDER.

Dear Alameda County Business,
Alameda County businesses and residents will soon have a new, greener choice in electricity providers. East Bay Community Energy (EBCE) is a local power supply program that will work in partnership with PG&E to bring you electricity from renewable sources at affordable prices.

The County and 11 of its cities have voted to form East Bay Community Energy—a not-for-profit agency—to manage the program. Net revenues will stay in our communities, providing benefits that include:

- More renewable energy at competitive rates
- Lower greenhouse gas emissions
- Innovative services
- Community involvement
- Local projects, jobs, and economic benefits

How it Works
EBCE will purchase electricity on your behalf, including more renewable power than PG&E currently provides. PG&E will act in partnership with us to deliver, maintain, and service your electricity as it always has—so there's no risk to you. **You'll be enrolled automatically, so you don't need to do a thing.** And billing will be simple—you'll still get a single monthly bill that includes EBCE's charge for electricity generation and PG&E's charges for their other services.

As a customer in Alameda County, you will be automatically transitioned to EBCE service starting in June. The transition will be completely seamless to you and your service will continue uninterrupted. We will provide you **more renewable energy at lower rates** compared to PG&E. EBCE service can help fuel your bottom line, while retaining local involvement in energy choices, creating jobs, and providing economic benefits to our communities.

You don't need to do a thing to take advantage of our standard service, **Bright Choice**, which is 85% carbon-free at a 1.5% discount to your PG&E rate. But you can always opt up from Bright Choice to **Brilliant 100** (our 100% carbon-free service) for the same cost as your current PG&E rate—or opt out if you choose. Call to verify us at 1-833-699-EBCE (3223) or visit ebce.org.

HOW WE'LL DO IT

- SOURCE EBCE**
buys and builds their energy
- PG&E**
delivers energy to your local service customer
- CUSTOMER YOU**
benefits from lower energy bills (net of)

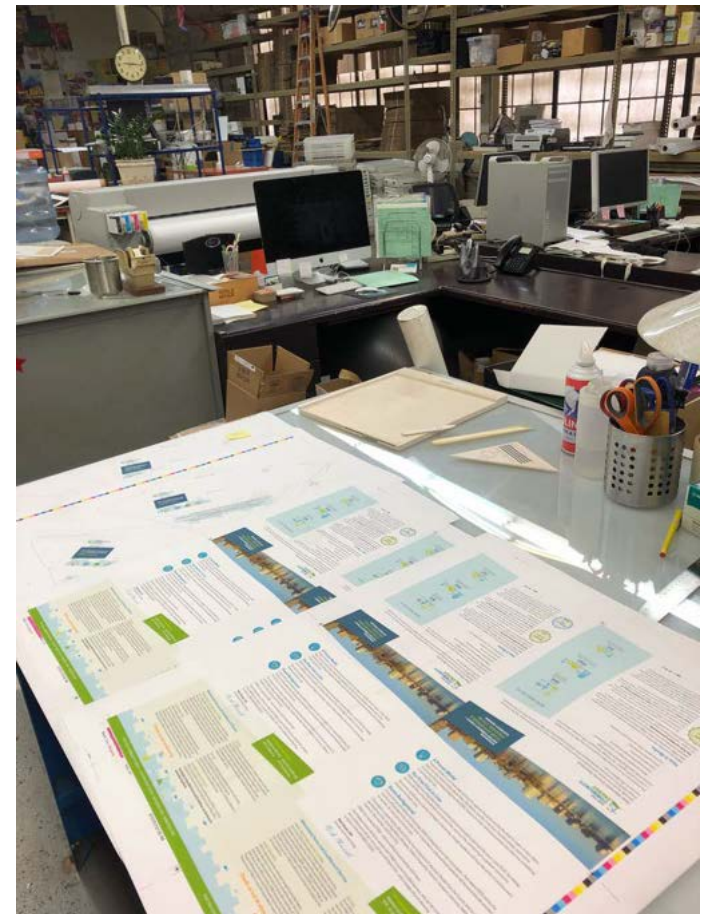
Line of Service
As a provider serving PG&E service areas, we'll work with PG&E to deliver electricity to you. PG&E will continue to charge for gas services, transmission, distribution, public goods programs, and other non-generation charges at the same as the charges customers who do not receive EBCE service.

OPT OUT
You revert to PG&E's electricity generation service at any time by calling 1-833-699-EBCE (3223) or by completing the opt-out form at ebce.org. There is no fee to opt out before enrollment or in the first 30 days of receiving EBCE service.

CUSTOMER CONFIDENTIALITY
EBCE is committed to protecting customer privacy. EBCE's customer confidentiality policy can be found at www.ebce.org/Confidentiality. Full details of the EBCE Terms and Conditions can be found at www.ebce.org/terms.

CONTACT US
English: www.ebce.org | 1-833-699-EBCE (3223)
Español: es.ebce.org | Teléfono: www.ebce.org
中文: ch.ebce.org | 電話: www.ebce.org

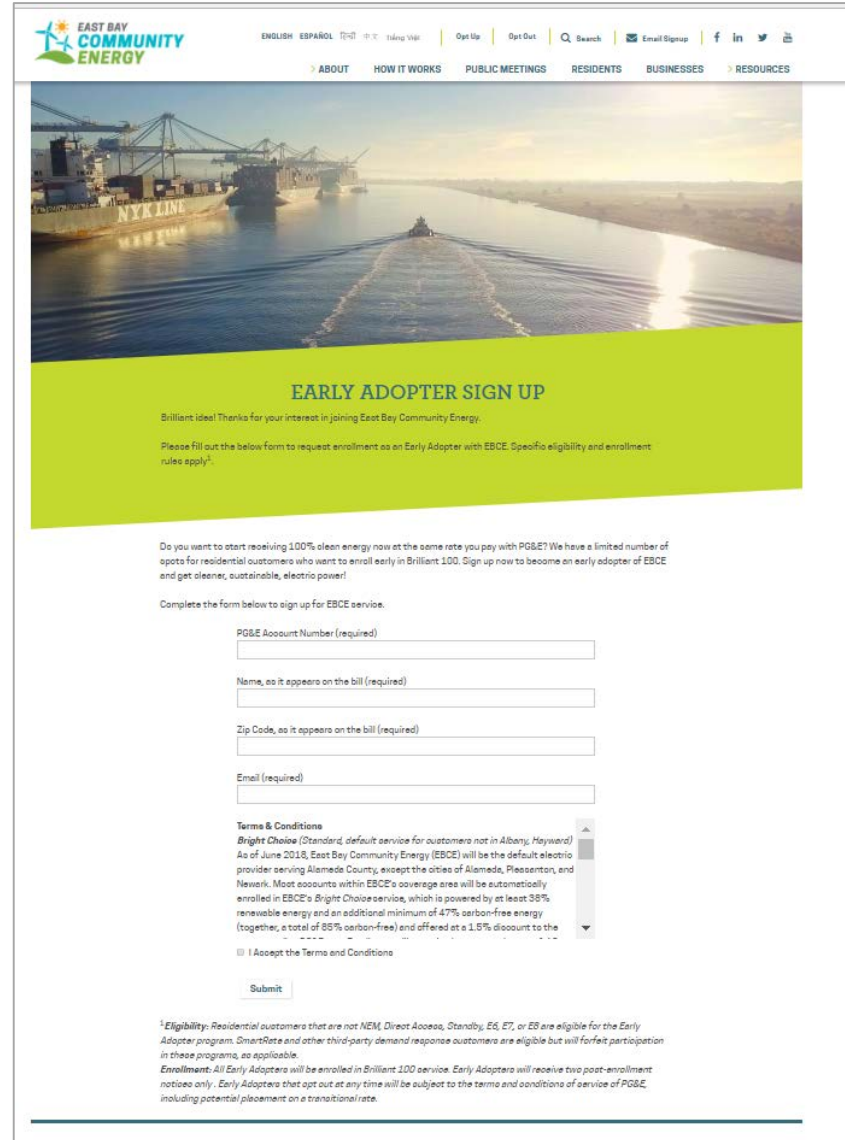
EAST BAY COMMUNITY ENERGY • 1-833-699-EBCE (3223) • INFO@EBCE.ORG • WWW.EBCE.ORG



Your electricity service is about to get greener. Find out how: ebce.org
Su servicio de electricidad está por volverse más verde. Averigüe cómo: es.ebce.org
你的電力服務即將變得更環保。請查詢詳情: ch.ebce.org
Dịch vụ điện của quý vị sẽ trở nên thân thiện với môi trường hơn. Tìm hiểu như thế nào: vn.ebce.org
आपकी वजिरी सेवा अभी हरी होने का रसी है। पता कः hn.ebce.org

EARLY ADOPTERS

- Request form available Monday, 4/2
- Only 100 spots
- Must receive Brilliant 100 service
- Will receive two post-enrollment customer notifications
- Per regulatory code, Early Adopters do not receive a 60-day grace period after enrollment



The screenshot shows the East Bay Community Energy website. At the top, there is a navigation bar with the company logo, language options (English, Español), and utility status (Outage Map, Opt In, Opt Out). Below the navigation bar is a menu with links for About, How It Works, Public Meetings, Residents, Businesses, and Resources. The main content area features a large image of a ship in a bay, with a green banner overlay that reads "EARLY ADOPTER SIGN UP". Below the banner, there is a section titled "Brilliant ideal" with a thank-you message and a request to fill out a form. A paragraph explains the limited number of spots and the benefits of signing up early. Below this is a form with five input fields: PG&E Account Number (required), Name, as it appears on the bill (required), Zip Code, as it appears on the bill (required), and Email (required). A "Terms & Conditions" section follows, with a scrollable area containing text about the "Bright Choice" service. At the bottom of the form, there is a checkbox for "I Accept the Terms and Conditions" and a "Submit" button. A footer section contains two footnotes: one regarding eligibility for the program and another regarding enrollment details.

EARLY ADOPTER SIGN UP

Brilliant ideal Thanks for your interest in joining East Bay Community Energy.

Please fill out the below form to request enrollment as an Early Adopter with EBCE. Specific eligibility and enrollment rules apply¹.

Do you want to start receiving 100% clean energy now at the same rate you pay with PG&E? We have a limited number of spots for residential customers who want to enroll early in Brilliant 100. Sign up now to become an early adopter of EBCE and get cleaner, sustainable, electric power!

Complete the form below to sign up for EBCE service.

PG&E Account Number (required)

Name, as it appears on the bill (required)

Zip Code, as it appears on the bill (required)

Email (required)

Terms & Conditions

Bright Choice (Standard, default service for customers not in Albany, Hayward)

As of June 2018, East Bay Community Energy (EBCE) will be the default electric provider serving Alameda County, except the cities of Alameda, Pleasanton, and Newark. Most accounts within EBCE's coverage area will be automatically enrolled in EBCE's Bright Choice service, which is powered by at least 38% renewable energy and an additional minimum of 47% carbon-free energy (together, a total of 85% carbon-free) and offered at a 1.5% discount to the

I Accept the Terms and Conditions

Submit

¹ **Eligibility:** Residential customers that are not NEM, Direct Access, Standby, EG, ET, or ES are eligible for the Early Adopter program. SmartRate and other third-party demand response customers are eligible but will forfeit participation in these programs, as applicable.

Enrollment: All Early Adopters will be enrolled in Brilliant 100 service. Early Adopters will receive two post-enrollment notices only. Early Adopters that opt out at any time will be subject to the terms and conditions of service of PG&E, including potential placement on a transitional rate.

EBCE VIDEOS

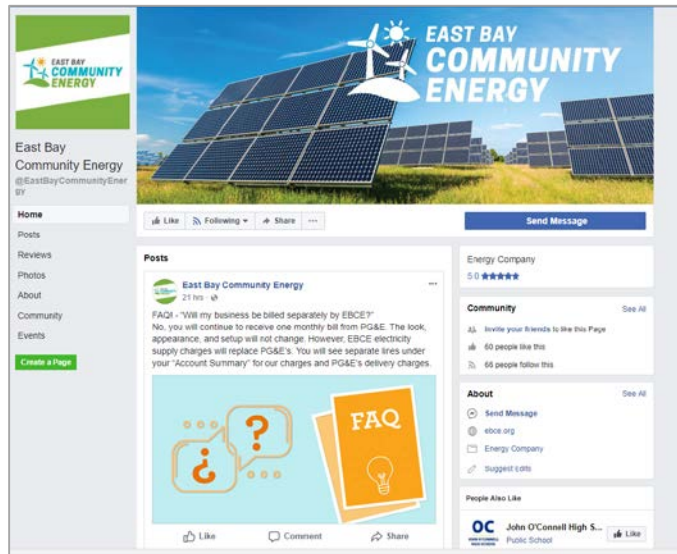
- 30-second video focused on commercial customers
 - Facebook, EBCE website, Digital ads

- 3-minute animated video for general audience
 - Still in final production



EBCE OUTREACH

- Facebook and Twitter postings
- Local newsletters
- Municipal communications
- Pre-launch press release (April/May)
- Launch Event (early June)



WEB UPDATES

- “Soft Launch” Updates
 - New pages for Rates, Solar Customers, Power Mix, Team Bios, and Communities
 - Call Center number: 1-833-699-EBCE (3223)
 - Web enrollment forms
 - Early Adopter form

COMMUNITY STORIES


In Alameda County, we know powerful and lasting change comes from the ground up. That's why we're showcasing leaders in our community that are passionate about cleaner energy and choose to support EBCE as the county's community choice energy provider. The opportunity for change has never been brighter and it starts with us.

NICOLE G., BERKELEY

“ I understand the essential role clean energy plays in ensuring a healthy planet for future generations. EBCE prioritizes providing the type of energy that its community wants, and that benefits its community most. ”



BRILLIANT BUSINESS



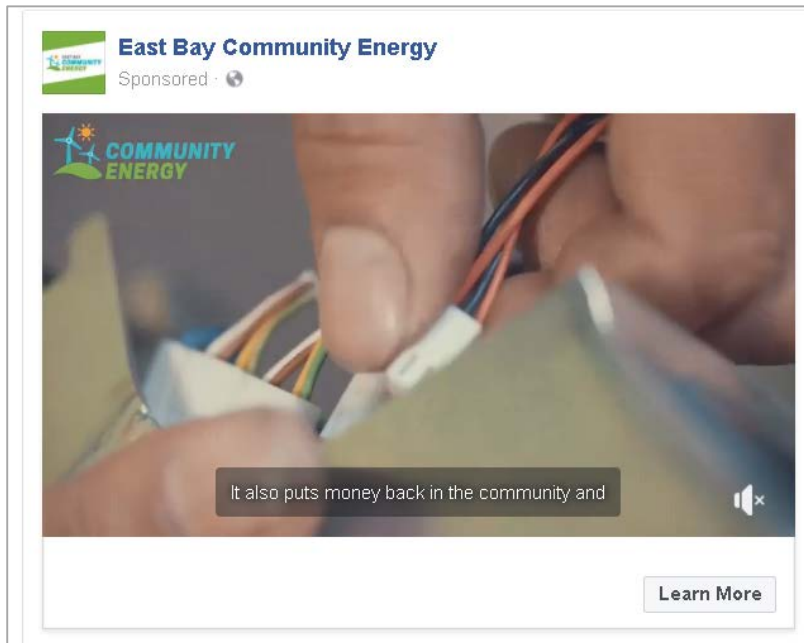
RANA LEHMER-CHANGE
FOUNDER, HOUSE KOMBUCHA, SAN LEANDRO

“ We love being part of the rich tapestry of diverse communities and businesses here in Alameda County, and have a strong customer base in the East Bay. We fully support the economic transition to clean, locally generated energy, and look forward to new opportunities with East Bay Community Energy to


House Kombucha is a family-run, community business dedicated to bringing the ancient tradition of fermenting living, probiotic teas into modern light. Founded by Rana Lehmer-Chang in 2009, it's become an integral part of the San Francisco Bay Area's thriving food economy.

ADVERTISING

- Social Media Ads
- Print Ad in Oakland Tribune, Hayward Daily News, and Fremont Argus on 5/4
- Bay Area News Group Digital Ads



East Bay Community Energy
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 COMMUNITY ENERGY

It also puts money back in the community and

[Learn More](#)





**Cleaner Energy.
Lower Rates.**

EBCE is brilliant for business.

FIND OUT MORE ABOUT YOUR NEW ELECTRICITY PROVIDER AT
EBCE.org

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Your New
Electricity Provider

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PG&E COMMUNICATIONS

- PG&E CCA web page
- PG&E Bill messaging
- Joint Rate Mailer

RESIDENTIAL BUSINESS

EMERGENCIES SAFETY CONTACT PG&E ENGLISH

SEARCH SIGN IN

YOUR ACCOUNT CUSTOMER SERVICE OUTAGES RATE PLANS SAVE ENERGY & MONEY SOLAR & VEHICLES IN YOUR COMMUNITY

ALTERNATIVE ENERGY PROVIDERS (ENERGY CHOICE) COMMUNITY CHOICE AGGREGATION

Electric services

Learn what Community Choice Aggregation is

Community Choice Aggregation (CCA) is a program that allows cities and counties to buy and/or generate electricity for residents and businesses within their areas.

How does it work?
PG&E continues to partner with the CCA to deliver the electricity through its transmission and distribution system. PG&E also provides meter-reading, billing, maintenance and outage response services.

Identify where CCA programs are available
CCAs continue to grow. The list below includes active CCAs operating within the PG&E service territory in California. Note that CCAs provide electric service only; they don't provide gas service. If you receive gas service from a Core Transport Agent (CTA), visit our [CTA resources](#) page.

CLEANPOWERSF (CPSF) ▾

MARIN CLEAN ENERGY (MCE) ▾

PG&E and CCA rate comparisons

We partner with CCAs to compare typical electric rates, average monthly charges and generation portfolio data. Download any of the following files for more information.

MCE comparisons

DOWNLOAD PG&E - MCE JOINT RATE COMPARISONS (PDF, 427 KB) >

DOWNLOAD MCE - ELECTRIC POWER MIX (PDF, 183 KB) >

SCP comparisons

DOWNLOAD PG&E - SCP JOINT RATE COMPARISONS (PDF, 456 KB) >

DOWNLOAD SCP - ELECTRIC POWER MIX (PDF, 192 KB) >

CleanPowerSF comparisons

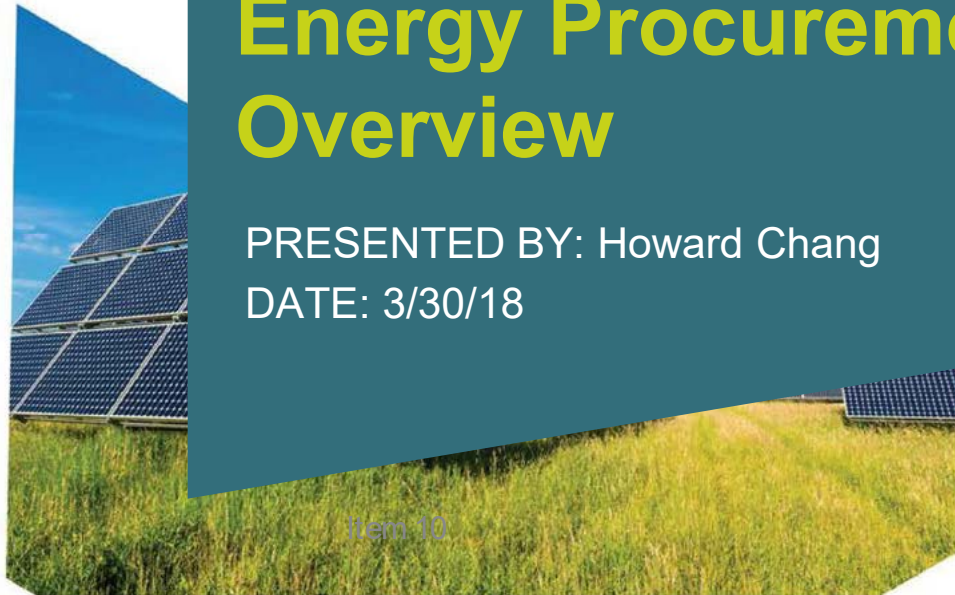
DOWNLOAD PG&E - CPSF JOINT RATE COMPARISONS (PDF, 437 KB) >



Energy Procurement Overview

PRESENTED BY: Howard Chang

DATE: 3/30/18



2018 Procurement Planning

Procurement Category	Initiate	Complete	March		April			May				June				July				August				November				December								
			19-25	26-1	2-8	9-15	16-22	23-29	30-6	7-13	14-20	21-27	28-3	4-10	11-17	18-24	25-1	2-8	9-15	16-22	23-29	30-5	6-12	13-19	20-26	27-2	5-11	12-18	19-25	26-2	3-9	10-16	17-23	24-30		
Energy - 2018	20-Mar	29-Mar																																		
Resource Adequacy - 2018	22-Mar	3-Apr																																		
Carbon-free - 2018	9-Apr	25-Apr																																		
Renewables - 2018	9-Apr	25-Apr																																		
Energy - 2019	Exact timing TBD																																			
Resource Adequacy - 2019	23-Apr	3-May																																		
Carbon-free - 2019	7-May	23-May																																		
Renewables - 2019	7-May	23-May																																		
IRP	23-Mar	1-Aug																																		
Oakland Clean Energy Initiative	13-Apr	EOY 2018																																		
Alameda/CA RFP	20-May	EOY 2018																																		
Local RE Phase 1	1-Aug	EOY 2018																																		

- **Energy:** EBCE’s energy procurement is primarily for 1-2 year blocks of energy
- **RA:** EBCE’s RA procurement is focused on fulfilling the CPUC obligation that every energy provider (CCA or IOU) procure a defined quantity of capacity to ensure that there are enough resources when usage spikes or there is an event that stresses the system
- **CO-2-free:** EBCE’s CO-2-free energy procurement is primarily for 1-2 year quantities of CO-2-free energy like hydro power
- **Renewables:** EBCE’s Renewables procurement is primarily for 1-2 year quantities of CA RPS eligible renewable energy
- **OCEI:** EBCE’s OCEI procurement, which in partnership with PG&E, will seek to procure 20-40 MWs of solar and energy storage to support to closing of an old peaker power plant
- **Alameda/CA RFP:** EBCE’s Alameda/CA RFP will seek proposals from large scale renewable energy projects in both Alameda County and across CA to meet EBCE’s long term renewable energy goals
- **Local RE Phase 1:** EBCE’s Local RE Phase 1 will be the first phase of EBCE’s efforts to spur the development of local renewable energy programs and projects that are part of the Local Development Business Plan



East Bay Community Energy Local Development Business Plan

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



Clean Coalition
Making Clean Local Energy Accessible Now



OPTONY

Special Advisors:
Betony Jones & Gary Calderon

Community Engagement Symposium

March 26, 2018

General Housekeeping

- ▶ Restrooms and Emergency Exits
- ▶ Notes on Format:
 - ▶ There will be opportunities for Questions & Interactions on each topic throughout the day.
 - ▶ Please use either the Microphones or the Note Cards
 - ▶ Two Scheduled 15-min Breaks + Lunch Break
 - ▶ Slides will be made available on the EBCE LDBP web page (<https://ebce.org/local-development-business-plan/>)

Agenda

- 9am-10am: **Opening Remarks**
- 10am-11am: **New Work Products w/Q&A- Part I**
- 11-11:15am: **Break**
- 11:15am-12:15pm: **New Work Products w/Q&A- Part II**
- 12:15-1pm: **Lunch**
- 1-2pm: **New Work Products w/Q&A- Part III**
- 2-3:15pm: **Workshop #1: Development & Implementation Strategies**
- 3:15-3:30: **Break**
- 3:30-4:45pm: **Workshop #2: Community Benefit & Planning Tools**
- 4:45-5pm: **Closing Remarks**

Opening Remarks

- ▶ **Nick Chaset-** *CEO of East Bay Community Energy*
- ▶ **Anne Olivia Eldred-** *Chair of EBCE Community Advisory Committee*
- ▶ **Chris Sentieri-** *The Offset Project/Project Manager, LDBP Project*

A Few Words of Appreciation

- ▶ To the EBCE Community, the EBCE Community Advisory Committee, & Engaged EBCE Stakeholders
- ▶ To the EBCE Member Jurisdictions, esp. Alameda County
- ▶ To the EBCE Board of Directors & EBCE CEO/Staff
- ▶ To the Local Development Business Plan Project Team

EBCE LDBP Project Team

ALH Urban & Regional Economics

Prime Contractor & Chief Economist
Amy L. Herman, Principal
aherman@alhecon.com

The Offset Project

Project Management & Stakeholder Outreach
Chris Sentieri, Senior Project Manager
chris@theoffsetproject.org

Clean Coalition

Solar Site Mapping & Tariff Design
Craig Lewis, Executive Director
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EcoShift Consulting

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Optony Inc.

Integrated Resource Assessment & Planning
Jonathan Whelan, Director of Operations
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Betony Jones

Labor & Workforce Advisor
betony.jones@gmail.com

Gary Calderon

Energy Storage & Demand Response Advisor
gcalderon1@comcast.net

EBCE LDBP Development Tasks

Task # Description

- 1 **Grid-side DER Assessment:** Solar/Wind Siting Surveys & Large-scale DER Potential
- 2 **Customer-side DER Assessment:** Hot-spot Analysis, Heat Maps, EE & DR Potential
- 3 **Development Models and Strategies:** Feed-in Tariff Design, NEM, OBF, Agency as Developer
- 4 **EBCE Development Issues:** Labor/WFD Policies, Financing, Ownership Models
- 5 **Implementation and Policy Issues:** Contracting, Permitting, Equity, Citizen Participation
- 6 **Integrated Resource Planning:** Integrating Local Resources w/Long-term Planning
- 7 **Preliminary Plan Scenarios:** Scenario Modeling, Fiscal/Economic Impacts, Final LDBP

Current Draft LDBP Work Products

1. **LCOE for Behind-the-meter Resources** *(from Tasks 2)*
2. **Recommendations for Clear and Transparent Reporting** *(from Task 5)*
3. **Considerations for Local Approvals** *(from Task 5)*
4. **Recommendations for Enhancing Long-term Stability and Reliability** *(from Task 5)*
5. **Integrated Resource Plan Methodologies** *(from Task 6)*
6. **Integrating LDBP Goals with IRP** *(from Task 6)*
7. **Analysis of Risks and Mitigations** *(from Task 6)*
8. **Integration of DER Development with Procurement & Scheduling** *(from Task 6)*
9. **New Generation** *(from Task 6)*

**Important Note- All of the Draft LDBP Work Products can be accessed here:*

<https://ebce.org/local-development-business-plan/>

Remaining LDBP Work Products- *April 2018*

- ▶ **Rate Design as Incentive Recommendations**
- ▶ **On-bill Financing/Repayment Recommendations**
- ▶ **Opportunities for Fuel Switching** *(Natural Gas & Transportation)*
- ▶ **Scenario Analysis Reports:** *Recommended Scenario, and Analysis of Jobs, Labor Income, and Financial Impacts*
- ▶ **Draft Local Development Business Plan**

EBCE Goals and Priorities

- ▶ EBCE's relationship with its customers is the highest priority
- ▶ Prioritizing the development and utilization of local clean energy resources in ways that maximize local benefits is highly important to the EBCE community
- ▶ Maintaining stable and competitive rates is essential
- ▶ Supporting the local economy & workforce through “*new energy programs and local energy investments*” is a core value
- ▶ The Local Development Business Plan is an important tool that will support EBCE's ongoing efforts to deliver on each of these core goals and priorities

Overarching Principles of the LDBP

- ▶ **Develop a roadmap and framework for accelerating local DER deployment and maximizing community benefits**
- ▶ **Innovative program designs can overcome market failures & incentivize meaningful community & organizational benefits**
- ▶ **Development of clean, dispatchable, and distributed energy resources supports EBCE's core values and goals**
- ▶ **EBCE can support a vibrant local economy and workforce, and protect its most vulnerable customers through targeted local energy programming**
- ▶ **A diversified portfolio of local programs coupled with retail rate savings can deliver greater benefit than rate savings alone**

Recurring LDBP Concepts & Mechanisms

- ▶ Effective delivery of LDBP Programs depends on a robust, integrated data platform & advanced data management
- ▶ A phased-in approach is necessary, & supports successful implementation of the LDBP
- ▶ Community Benefit Adders (CBA's) can be an effective tool to ensure & enhance beneficial local outcomes
- ▶ Market responsive pricing (MRP) can maximize impacts, constrain costs, & minimize risks associated w/LDBP implementation
- ▶ Contractual relationships with EBCE customers & stakeholders can create lasting, mutually beneficial partnerships



East Bay Community Energy Local Development Business Plan

Overview of New Draft Work Products Part I

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



Clean Coalition
Making Clean Local Energy Accessible Now



OPTONY

Special Advisors:
Betony Jones & Gary Calderon

Community Engagement Symposium

March 26, 2018

New Draft LDBP Work Products*- Part I

- ▶ **Levelized Cost of Energy for Behind-the-meter Resources*-**
*Chris Sentieri, The Offset Project (*Optony Work Product)*
- ▶ **Recommendations for Clear and Transparent Reporting-**
Zoe Elizabeth, EcoShift Consulting

**Important Note- All of the Draft LDBP Work Products can be accessed here:
<https://ebce.org/local-development-business-plan/>*

BTM LCOE Analysis - Overview

Purpose

- ▶ Show current costs for likely behind-the-meter DER/DSM Resources in Alameda
- ▶ Provide basis for comparing one resource type to another resource type

Format and Content

- ▶ Costs expressed in levelized cost of energy (“LCOE”)
 - ▶ LCOE is the *net present value* of all energy supplies/reductions from a resource over a fixed period of time
- ▶ LCOE tool is an excel spreadsheet
 - ▶ User has ability to adjust resource mix and see affect on overall portfolio LCOE
 - ▶ User can also adjust inputs to derive new LCOE analyses

BTM LCOE Analysis - Approach

Methodology

▶ Cost

- ▶ For solar, since data is widely available, cost estimates derived ground-up using known pricing for individual components
- ▶ For other technologies, cost estimates derived from industry reports and supplemented with vendor quotes and empirical data
- ▶ Cost broken down by initial capital cost, annual fixed costs, and annual variable costs

▶ LCOE

- ▶ LCOE is a simple summation once cost and energy output numbers are known
- ▶ The LCOE calculation is done on a separate tab of the spreadsheet. NREL's online LCOE calculator was used to validate.

Key Source for Energy Efficiency Costs

Table 1. Savings-weighted average total cost of saved electricity at the national level by market sector

Sector	Total Cost of Saved Electricity (2012\$/kWh)*	Program Administrator Cost of Saved Electricity (2012\$/kWh)	Participant Cost of Saved Electricity (2012\$/kWh)
All Sectors	\$0.046	\$0.023	\$0.022
Residential	\$0.033	\$0.019	\$0.014
Commercial, Industrial, and Agricultural	\$0.055	\$0.025	\$0.030
Low Income	\$0.142	\$0.134	\$0.008


**Note: Totals may differ from sum of component values due to rounding.*

“The Total Cost of Saving Electricity through Utility Customer-Funded Energy Efficiency Programs” - Lawrence Berkeley National Labs, 2015

[by Hoffman, Rybka, Leventis, Goldman, Schwartz, Billingsley, and Schiller]

Retrieved here: <https://emp.lbl.gov/sites/all/files/total-cost-of-saved-energy.pdf>

BTM LCOE Tool - Main Table

Resource		Energy			Cost			LCOE	
Toggle resources on/off here 		Capacity	Capacity	Conversion	Annual	Capital Cost	Annual	Annual	20 Year LCOE
Resource Type	Capacity (MW)	Factor (%)	Losses (%)	Production (MWh/yr)	(\$/W)	Fixed Cost (\$/kW-yr)	Variable Cost (\$/kWh)	(\$/kWh)	
Generation									
Solar PV - 5 kW Roof - Oakland	25	16.4%	0%	35,900	\$ 3.09	\$ 15.00	\$ -	\$ 0.198	
Solar PV - 5 kW Roof - Livermore	25	17.2%	0%	37,600	\$ 3.09	\$ 15.00	\$ -	\$ 0.189	
Solar PV - 250 kW Roof - Oakland	25	16.4%	0%	35,825	\$ 1.82	\$ 15.00	\$ -	\$ 0.121	
Solar PV - 250 kW Roof - Livermore	25	17.2%	0%	37,775	\$ 1.82	\$ 15.00	\$ -	\$ 0.115	
Fuel Cell	2	95%	0%	16,644	\$ 5.50	\$ -	\$ 0.065	\$ 0.123	
Storage									
Batteries - Lithium Ion - Residential	5	11.4%	7%	4,650	\$ 4.00	\$ 50.00	\$ -	\$ 0.429	
Batteries - Lithium Ion - Commerical/Industrial	10	11.4%	7%	9,300	\$ 3.00	\$ 50.00	\$ -	\$ 0.335	
Thermal - Ice-based technologies	2	12.3%	5%	2,052	\$ 0.59	\$ 23.00	\$ -	\$ 0.073	
Demand Response									
Demand Response - Base Interruptible Program	1	2.1%	0%	180	\$ -	\$ 102.00	\$ -	\$ 0.567	
Demand Response - Capacity Bidding Program	1	2.1%	0%	180	\$ -	\$ 59.39	\$ 0.045	\$ 0.375	
Demand Response - Scheduled Load Reduction Program	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	\$ 0.100	
Energy Efficiency									
Energy Efficiency - Residential	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	\$ 0.033	
Energy Efficiency - Commercial/Industrial	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	\$ 0.055	
Energy Efficiency - Low Income	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	\$ 0.142	
TOTALS & WEIGHTED AVERAGES (Visible Rows Only)	121	1,488		180,106	\$ 2.54	\$ 20.31	\$ 0.00	\$ 0.169	
GRAND TOTALS & WEIGHTED AVERAGES	121	1,488		180,106	\$ 2.54	\$ 20.31	\$ 0.00	\$ 0.169	

Totals in this row update to reflect selected resource mix

LCOE of total portfolio \$0.169/kWh over 20 years

BTM LCOE Tool - Calculator Tab

INPUTS		Year	Delivered Energy (kWh)	Capital Cost (\$)	Annual Cost (\$)
Resource:	Thermal - Ice-based technologies	0	0	\$ 1,180,000	\$ -
Capacity (MW):	2	1	1,935,849	\$ -	\$ 43,396
Capacity Factor:	12%	2	1,826,273	\$ -	\$ 40,940
Conversion Losses:	5.0%	3	1,722,899	\$ -	\$ 38,622
Capital Cost (\$/W):	0.59	4	1,625,376	\$ -	\$ 36,436
Annual Fixed Cost (\$/kW-yr):	23	5	1,533,374	\$ -	\$ 34,374
Annual Variable Cost (\$/kWh):	0	6	1,446,579	\$ -	\$ 32,428
		7	1,364,697	\$ -	\$ 30,593
Analysis Period (years):	20	8	1,287,450	\$ -	\$ 28,861
Discount Rate:	6%	9	1,214,576	\$ -	\$ 27,227
		10	1,145,826	\$ -	\$ 25,686
LCOE:	\$ 0.073	11	1,080,968	\$ -	\$ 24,232
		12	1,019,781	\$ -	\$ 22,861
		13	962,058	\$ -	\$ 21,567
		14	907,602	\$ -	\$ 20,346
		15	856,228	\$ -	\$ 19,194
		16	807,762	\$ -	\$ 18,108
		17	762,040	\$ -	\$ 17,083
		18	718,905	\$ -	\$ 16,116
		19	678,213	\$ -	\$ 15,204
		20	639,823	\$ -	\$ 14,343

Allows the user to select a DER/DSM technology type from a dropdown list (yellow cells) and adjust any of the input associated with that technology (grey cells) to see the effect on LCOE. User can also adjust the analysis period or discount rate.

BTM LCOE Analysis - Results

Overview of Findings

- ▶ **BTM Solar LCOEs** range from \$0.115/kWh to \$0.198/kWh
- ▶ **Energy Efficiency** has a low overall LCOE, ranging from \$0.033/kWh to \$0.142/kWh
 - ▶ Energy Efficiency is less predictable and dispatchable than other DER/DSM resources like Energy Storage or Demand Response
- ▶ **Demand Response** has the highest costs, ranging from \$0.1/kWh to \$0.567/kWh
 - ▶ Higher costs of Demand Response are offset by the higher value associated with dispatchability during high-cost peak load periods
- ▶ **BTM Energy Storage** had a wide range, the range is from \$0.073/kWh to \$0.429/kWh
 - ▶ Ice-based Cold Thermal technology had a notably low LCOE of \$0.073



Clear and Transparent Reporting

Zoe Elizabeth

Principal, EcoShift Consulting, LLC



PRESENTATION OVERVIEW

- 1. Mandatory reporting**
 - Power content label
 - GHG Intensity
 - (Integrated resource planning)
- 2. Voluntary GHG reporting**
 - GHG intensity
- 3. Voluntary performance metrics**
- 4. Reporting standards and quality**



POWER CONTENT LABEL

CALIFORNIA THANKS YOU!

In 2016, MCE customers like you added more renewable energy to the grid.

2016 POWER CONTENT LABEL

ENERGY RESOURCES	2016 MCE LIGHT GREEN POWER MIX	2016 MCE DEEP GREEN POWER MIX	2016 CA POWER MIX** (for comparison)
Eligible Renewable	55%	100%	25%
Biomass & biowaste	5%	25%	2%
Geothermal	0%	0%	4%
Small hydroelectric	7%	0%	2%
Solar	9%	25%	8%
Wind	34%	50%	9%
Coal	0%	0%	4%
Large Hydroelectric	13%	0%	10%
Natural Gas	12%	0%	37%
Nuclear	0%	0%	9%
Other	0%	0%	0%
Unspecified sources of power*	19%	0%	15%
TOTAL	100%	100%	100%

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

** Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the identified year.



GHG INTENSITY


AB 1110

- *GHG Emissions Intensity Reporting: Retail Electricity Suppliers* (Ting, 2016).
- Requires all retail electricity suppliers to report on the GHG intensity of their retail products beginning in 2020 (later for EBCE and other new CCA's).
- Rulemaking led by CEC is still in process.
- Final rule will lay out methodology for calculating GHG intensity
 - Draft proposal suggests that unbundled renewable energy credits (RECs) will be considered to have the GHG intensity of "unspecified power."
 - CCA's with significant unbundled RECs in their portfolio could exceed RPS standards, but report relatively high GHG intensity.



VOLUNTARY GHG REPORTING

Developing a third-party verified emissions factor through The Climate Registry, would allow EBCE customers to calculate their own carbon footprint using EBCE specific GHG intensity.

 HOME BILLING & RATES OPTIONS & PROGRAMS NEWS 			
Greenhouse Gas Emissions			
2014 Emission Rates	Utility	Emissions Factor (lbs/CO2/MWh)	PG&E
	Sonoma Clean Power (CleanStart)	224.38	434.92 <small>(PG&E Average)</small>
	Sonoma Clean Power (EverGreen)	51.00	
2015 Emission Rates	Utility	Emissions Factor (lbs/CO2/MWh)	PG&E
	Sonoma Clean Power (CleanStart)	217.57	404.51 <small>(PG&E Average)</small>
	Sonoma Clean Power (EverGreen)	57.00	



VOLUNTARY PERFORMANCE METRICS

The following performance metrics will provide more information, context and transparency:

- Total direct jobs created through EBCE power procurement, energy efficiency, demand response and energy storage programs
- Dollars invested in community programs (and a description of those programs)
- Direct jobs created through EBCE community investments
- MWh's of new renewable generation created through EBCE procurement and programs
- MWh's electricity reduced through demand response and EE programs



REPORTING STANDARDS

How information is reported is as important as what information is reported.

- Be clear, direct, concise.
- Display all metrics in one place on the website.
- Include methods used for calculations.
- Develop annual report as an addendum to web-reporting.
- Report all metrics annually.
- Develop additional metrics when new programs are developed.





Thank You!

Zoe Elizabeth
EcoShift Consulting, LLC

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Discussion

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



Clean Coalition
Making Clean Local Energy Accessible Now



OPTONY

Special Advisors:
Betony Jones & Gary Calderon

Community Engagement Symposium

March 26, 2018



East Bay Community Energy Local Development Business Plan

Overview of New Draft Work Products Part II

LDBP Project Team:

Community Engagement Symposium

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New Draft LDBP Work Products*- Part II

- ▶ **Considerations for Local Approvals-** *Jonathan Whelan, Optony*
- ▶ **New Generation-** *Jonathan Whelan, Optony*

**Important Note- All of the Draft LDBP Work Products can be accessed here:
<https://ebce.org/local-development-business-plan/>*



Optony focuses on enabling government and commercial organizations to bridge the gap between clean energy goals and real-world results.

Optony's core services offer a systematic approach to planning, implementing, and managing commercial and utility-grade renewable power systems, while simultaneously navigating the dramatic and rapid changes in the energy industry; from emerging technologies and system designs to government incentives and private/public financing options.



Jonathan Whelan
Director of Operations
Optony

Overview- Considerations for Local Approvals

Purpose of this LDBP Report

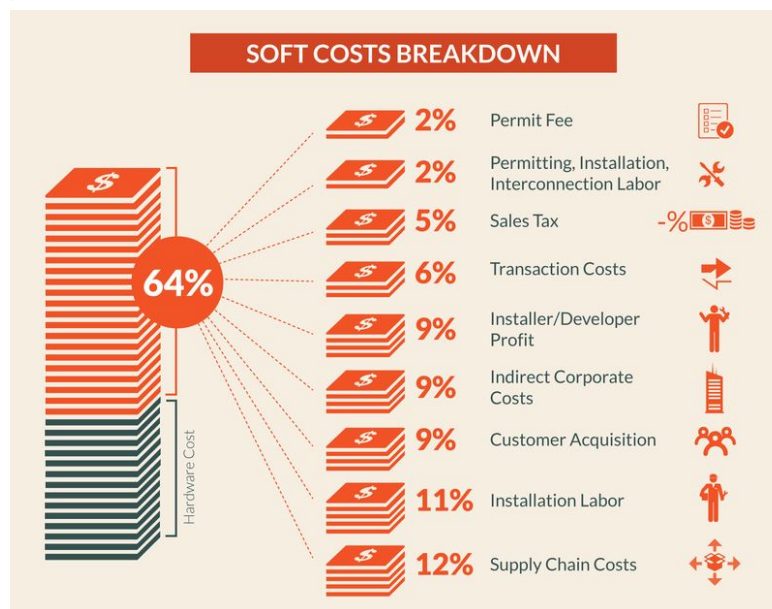
- ▶ Assess local jurisdictional approval processes that affect solar development in the County
 - ▶ Building permits
 - ▶ Zoning ordinances
 - ▶ CEQA
- ▶ Make recommendations for improvements to streamline development and guide development to best benefit EBCE and distribution grid
 - ▶ How can we reduce administrative burden on developers?
 - ▶ How can we make sure building and planning staff have all the tools available to efficiently make determinations (without jeopardizing their responsibilities to ensure the safety of these systems and to maintain the integrity of public land)?

Note: This report is focused on solar PV, since it is the predominant DER technology being deployed in the County in terms of quantity of approvals. The recommendations are applicable to review/approval of solar projects, though there is some overlap with approvals for other DER technologies.

Background

Importance of “Soft Costs”

- ▶ Rapid declines in solar hardware costs in recent years have left “soft costs” as the main cost driver
 - ▶ Soft costs are anything that is not physical hardware
 - ▶ According to the DOE, soft costs account for 64% of the cost of a residential solar PV installation, on average
 - ▶ This report focuses on the soft cost areas that local jurisdictions can impact (mostly the top 2 items in the stack at the right)
 - ▶ Proportionately higher for small residential solar systems—smaller capacity over which to spread costs



Graphic from DOE EERE Soft Costs 101 Webpage
<https://www.energy.gov/eere/articles/soft-costs-101-key-achieving-cheaper-solar-energy>

Local Permitting: Background

Local permitting adds expense to residential solar projects

- ▶ \$2,516 per residential project, on average, according to a 2011 SunRun installer study
- ▶ Permit fee is a relatively small portion; bigger contributor is preparing application and multi-touch waiting for approvals

Some previous work has been done to address speed in the County

- ▶ East Bay Green Corridor worked to streamline permitting in 2011
- ▶ 2014 AB 2188

Solar Permit Fees for Typical Project Sizes

		Residential (5 kW)	Small Commercial (100 kW)	Large Commercial (1 MW)	Utility (10 MW)
a	Alameda County	\$ 280	\$ 2,078	\$ 18,363	\$ 77,563
g,a	Alameda	\$ 250	\$ 1,813	\$ 1,813	\$ 1,813
g,a	Albany	\$ 232	\$ 2,107	\$ 10,857	\$ 88,357
g,a	Berkeley ²	\$ 26	\$ 12,014	\$ 94,194	\$ 822,074
a	Dublin	\$ 250	\$ 1,432	\$ 5,415	\$ 46,149
g,a	Emeryville	\$ 250	\$ 1,350	\$ 6,150	\$ 51,150
a	Fremont	\$ 237	\$ 90/hr	\$ 90/hr	\$ 90/hr
g,a	Hayward	\$ 300	\$ 1,350	\$ 6,150	\$ 51,150
a	Livermore	\$ 361	\$ 1,418	\$ 6,218	\$ 51,218
	Newark	\$ 360	\$ 2,327	\$ 12,502	\$ 98,527
g,a	Oakland	\$ 546	\$ 677	\$ 939	\$ 939
a	Piedmont	\$ 300	\$ 300	\$ 300	\$ 300
a	Pleasanton	\$ 250	\$ 1,350	\$ 5,850	\$ 50,850
g,a	San Leandro	\$ 267	\$ 973	\$ 5,773	\$ 50,773
a	Union City	\$ 431	\$ 2,109	\$ 5,669	\$ 21,832

Legend: g = East Bay Green Corridor participant, a = Adopted AB 2188 ordinance

Note: City of Berkeley fees derived using a fee calculator on City's website, may not be accurate

Local Permitting: Recommendations

Push for adoption of AB 2188 Toolkit

- ▶ AB 2188 (2014), the *Expedited Solar Permitting Act*, required all jurisdictions in the state to pass an ordinance creating an expedited solar permit process for small systems
- ▶ There is a Toolkit of standardized documents to use for this purpose
 - ▶ Adoption of all toolkit documents by all County jurisdictions would create a standard permit process for residential rooftop systems, reducing installer overhead and lowering system costs
 - ▶ A working group with reps from each jurisdiction and from industry could implement this in under 1 year

Modify permit fee structure for larger systems

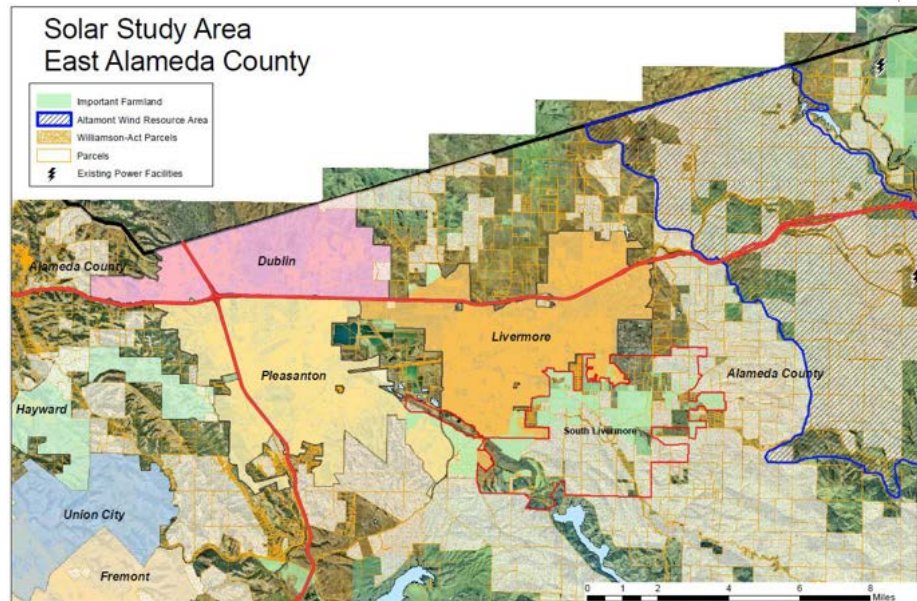
- ▶ Valuation-based permit fees result in high costs for larger systems that are out of sync with actual cost to administer permit
- ▶ Base the fee on cost recovery, or put in ceilings on valuation-based fees
- ▶ Example: Piedmont has a fixed cost for all solar permits

County Zoning: Background

Land-Use Considerations in Alameda County

- ▶ Larger PV arrays, which are a part of the LDBP strategy, are likely to be located on open land administered by the County
- ▶ There are many competing interests and land-use constraints that must be considered
 - ▶ Farmland
 - ▶ Williamson Act parcels
 - ▶ Wind development priority zones

Map of major land use constraints in East Alameda County, from Community Development Agency staff



County Zoning: Recommendations

Develop Amendment to East County Area Plan

- ▶ County investigated this topic in 2011
 - ▶ Planning Department laid out a series of new policies for large solar arrays, with a goal of amending the County General Plan
 - ▶ Process was suspended indefinitely before completion

Goals

- ▶ Formalize where solar arrays are permitted and/or conditional uses
- ▶ Formalize the review and approval process for solar applications
- ▶ Establish “renewable energy zones” hotspot map where development of renewable facilities is prioritized
 - ▶ EBCE involvement could ensure that hotspot consideration includes electrical high congestion and load pocket areas

CEQA: Background

About CEQA (California Environmental Quality Act)

- ▶ Requires state and local public agencies to analyze environmental impacts of physical development projects
- ▶ No state level enforcement, each public agency entrusted with upholding

CEQA for Solar

- ▶ Applicability
 - ▶ Rooftop systems statutorily exempt from CEQA review
 - ▶ Carport systems also exempt if over existing lots (some restrictions)
 - ▶ Some categorical exemptions can apply
- ▶ Lead agency conducts Initial Study which leads to either:
 - ▶ Negative Declaration (no impacts)
 - ▶ Mitigated Negative Declaration (potential impacts, but mitigations can alleviate impact)
 - ▶ Environmental Impact Report (impacts beyond mitigation, further study needed)

CEQA: Recommendations

Implications for Large Solar Arrays

- ▶ Larger (multi-MW) arrays will often require an Environmental Impact Review (EIR)
 - ▶ Lengthy and time-consuming (often >1 year)
 - ▶ Must solicit public comments
- ▶ Many construction-phase mitigations to be followed
 - ▶ Dust control measures, limiting idle time of diesel equipment, flagging work area boundaries, periodic wildlife inspections by biologist, fire risk management plans, etc

Recommendations

- ▶ Direct projects to favorable Neg Dec or MND “renewable energy zones”
- ▶ Maintain list of typical mitigation measures, so developers can include this in initial plan and lessen likelihood of triggering EIR requirement
- ▶ Plan for lengthy approval processes when considering large scale solar as a component of EBCE’s IRP



East Bay Community Energy Local Development Business Plan:

New Generation

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



Clean Coalition
Making Clean Local Energy Accessible Now



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Overview

Purpose of this LDBP Report

- ▶ Support the development of EBCE's Integrated Resource Plan (IRP) with projections and considerations of new energy sources in the service territory, specifically those associated with proposed LDBP initiatives
 - ▶ IRP needs to plan for long-term power and energy procurement, while integrating new generation sources
 - ▶ IRP can limit more-expensive short-term energy procurements by offsetting needs with publicly- or privately-procured dispatchable distributed energy resource (DER) assets
- ▶ Make recommendations for program implementation parameters and timing to best benefit EBCE, distribution grid, and community
 - ▶ Recommendations and projections will change based on timing, budget, and effectiveness of LDBP (and other) program implementation, which should be subject to regular review
 - ▶ See other LDBP sections, including EcoShift scenario-modeling tool, for more detail and modeling ability around proposed programs

Background

Importance of integration into IRP

- ▶ Impact of expected new generation on contracted energy needs
- ▶ Timing of new generation
 - ▶ Phasing plan for implementation
 - ▶ Time-of-day generation: intermittent or dispatchable
- ▶ Ultimate goal of EBCE/CCE:
 - ▶ Service territory meets all energy needs through local DER, with CCE responsible for managing dispatch of stored energy to meet those needs at the right time and place
 - ▶ Realistic?
 - ▶ Creates appropriate framing of DER deployment onto grid
 - ▶ Focus is on integrating new DER with energy storage and capability to remotely control discharge scheduling
 - ▶ Creates framework for future Virtual Power Plant (VPP)

Initial Projections

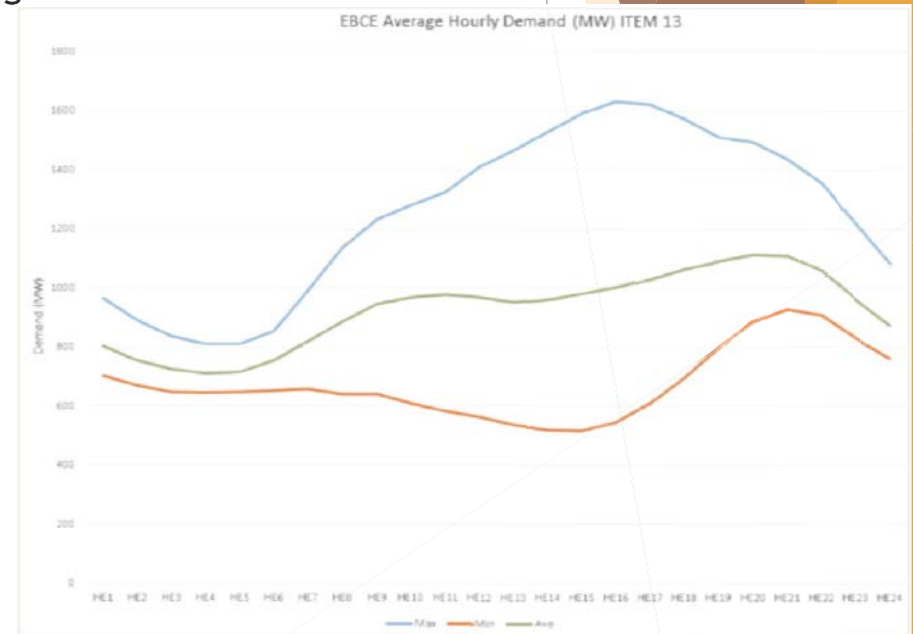
- ▶ Estimated, based on draft LDBP sections
- ▶ Will change based on final program details, implementation, budgets, macro-economic forces
- ▶ Incentive levels should be regularly measured and adjusted to quantify uptake and determine if changes are necessary or desired

Technology	Total Potential Generation Capacity	Planned Generation Capacity through LDBP Programs in 5-Year Planning Window (estimated)	LCOE (\$/kW) ¹
Solar	650 MW (sites > 1000 kW-AC)	144 MW	\$0.10-\$0.156
Wind	110 MW	12 MW	\$0.10-\$0.24
Biofuels	11 MW ²	0 MW	\$0.092-\$0.119
TOTAL	771 MW	156 MW	

Graphic from draft LDBP section: New Generation

Initial Projections - Solar

- ▶ Solar Siting Survey identified 650 MW of potential, just on 1 MW+ sites
 - ▶ Much more potential on small sites
 - ▶ Includes limitations based on electrical feeder sizing
- ▶ 144 MW of new solar projected over 5-yr planning horizon
 - ▶ Includes both proposed Net Energy Metering (NEM) and Feed-In Tariff (FIT) programs
 - ▶ Existing PG&E NEM has led to ~30 MW new solar per year, for last 3 years
- ▶ Average service territory demand
 - ▶ 500-1700 MW (could meet 25-30% min avg. day-time load)
 - ▶ More in summer, less in winter
 - ▶ Needs energy storage and dispatchability to avoid potential curtailment, utilize (and monetize) ancillary grid benefits, smooth load curve



Graphic from draft LDBP section: New Generation

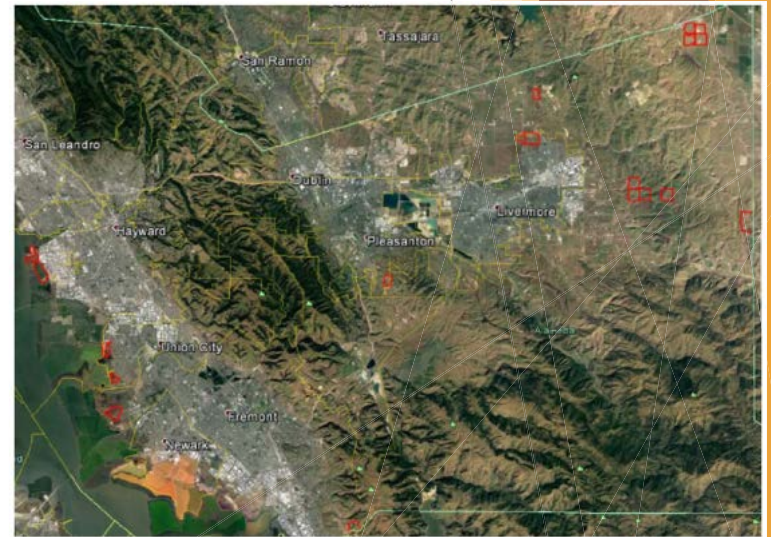
Initial Projections - Solar

- ▶ Considerations about potential for 144 MW new local solar:
 - ▶ In short-term, solar demand is unlikely to be significantly reduced
 - ▶ Tariffs will be largely offset by price reductions
 - ▶ NEM value will continue to exist
 - ▶ After NEM, successor tariff (like Value of Distributed Energy Resources (VDER)) will still encourage distributed solar installations
 - ▶ NEM customers are important to EBCE
 - ▶ Either NEM or migration away from EBCE leads to CCE load reduction
 - ▶ Support EBCE goal of maintaining and engaging DER customers:
 - ▶ Incent use of integrated storage and telemetry
 - ▶ Get highest EBCE value out of new DER
 - ▶ Use program parameters to enable CCE dispatchability and associated benefits and opportunities

Initial Projections - Wind/Biofuels

- ▶ Focus on draft report was on new, distributed single-turbine development
 - ▶ Opportunity exists to re-purpose existing Altamont wind turbines or locations—increase generation from wind sources
- ▶ Biofuel studied by local StopWaste Project
 - ▶ Not extensive opportunities locally
 - ▶ Local preference to use for local waste-hauling fleets

Technology	Total Potential Generation Capacity	Planned Generation Capacity through LDBP Programs in 5-Year Planning Window (estimated)	LCOE (\$/kW) ¹
Solar	650 MW (sites > 1000 kW-AC)	144 MW	\$0.10-\$0.156
Wind	110 MW	12 MW	\$0.10-\$0.24
Biofuels	11 MW ²	0 MW	\$0.092-\$0.119
TOTAL	771 MW	156 MW	



Graphic from draft LDBP section: Wind Siting Survey

Phased New Generation

- ▶ Timing of the deployment of planned new generation and yield estimate to enable planning on energy (MWh/kWh) basis
- ▶ Projections subject to change based on actual deployment
 - ▶ Key takeaway: EBCE procurement plan has to be ready for small but significant local new generation
- ▶ At ~12 MWh per utility customer: 240,000 MWh from DER within 5 years is equivalent to providing all energy needs to 20,000 of the ~560,000 current planned EBCE customers, or 3-4% of total expected annual energy usage

	Solar (MWh)	Wind (MWh)	Annual Total (MWh)	Cumulative Total (MWh)
Year 1	7,500	0	7,500	7,500
Year 2	36,000	2,000	38,000	45,500
Year 3	72,000	8,000	80,000	125,500
Year 4	70,500	10,000	80,500	206,000
Year 5	30,000	4,000	34,000	240,000

Graphic from draft LDBP section: New Generation

Incentives and Adjustments

- ▶ LDBP incentives and adders: Provide value to local DER, with particular focus on projects with features that meet EBCE financial and community goals
 - ▶ Include low-income adders for social equity; municipal agencies who are ineligible for federal tax benefits; workforce adders to support livable wages; and supply-shift adders that incent west-facing solar, energy storage, and wind
- ▶ Re-visit program effectiveness/ineffectiveness regularly
 - ▶ Make adjustments to incentives on clear, transparent, and gradual timelines
 - ▶ Development community and customers need to understand dates certain, grandfathering of incentives, and length of terms of incentives

Framework for Future Planning

- ▶ Plan NEM successor tariff
 - ▶ Consider model of New York VDER tariff, which includes value of environmental and locational benefits with energy value
- ▶ Prepare for eventual Virtual Power Plant approach
 - ▶ Build energy storage and dispatchability capabilities into new generation
- ▶ CCE 2.0
 - ▶ EBCE can be a leader in the development of a VDER tariff that can set an important precedent as we prepare for the possibility of a post-NEM energy valuation structure
 - ▶ VPP capabilities open the door for microgrid grants and opportunities
 - ▶ Focus on community benefits with new commitment

Recommendations

▶ PPAs

- ▶ Focus on local generation, using 1-3 MW FIT projects and larger 3-30 MW projects on land in the service territory
- ▶ Support integration of energy storage and capability for remote dispatchability
- ▶ Include buyout clauses for future local control of resources
- ▶ Prepare for a VPP reality by working with the distribution system operator (PG&E) to determine ideal siting opportunities to meet load and congestion needs and opportunities

▶ Credit rating and credit enhancement

- ▶ Utilize public-partnerships, including through PPAs, to leverage tax benefits, spur local investment, and meet community goals, all before EBCE has fully developed its own credit rating
- ▶ For example, the Oakland Clean Energy Initiative is working to replace a local jet fuel-powered peaker plant, with local DER plus storage
 - ▶ Represents rare opportunity to specifically address local pollution reduction and to provide associated local health benefits

Recommendations (continued)

- ▶ Pay for Performance contracting
 - ▶ Leverage private funds with pay-for-performance contracting for services that might include energy efficiency, demand response, load-shaping or shifting, and fuel-switching
 - ▶ Address EBCE requirements and opportunities while minimizing risk and capital investment
 - ▶ Could include innovative pilots around blockchain or microgrids that may interest EBCE, while potentially too risky for EBCE to desire to spend its own funds
- ▶ Market Responsive Pricing (MRP)
 - ▶ Evaluate and adjust incentive and payment levels based upon market uptake and the meeting of EBCE financial and community goals
 - ▶ Again--need to be clear, transparent, and gradual in making adjustments in order to enable the development community to effectively model project benefits for prospective customers

Graphic from draft LDBP section: Wind Siting Survey

Recommendations (continued)

▶ Community Solar

- ▶ With local public agency partners, develop larger DER systems with subscription opportunities for all customers in the load service territory
 - ▶ Low-income / low-credit customers, or those without suitable roof or other solar installation location
- ▶ Structure 1: Enhanced Market Access
 - ▶ Green energy premium price: MCE Clean Energy Local Sol, SMUD Solar Shares
 - ▶ Roof lease: LADWP LAANE Program
- ▶ Structure 2: Community Ownership
 - ▶ Community *Shared* Solar model that links actual system production and value to customer subscriber bills
 - ▶ After tax benefits have been monetized, a buyout could enable ownership flip to EBCE or community organizations who could provide credits and some level of system ownership to subscribers
 - ▶ On-bill financing, low-income carve-out, storage integration
 - ▶ Example: Proposed East Bay Community Shared Solar Collaborative

Recommendations (continued)

- ▶ VPP aggregation and regulatory compliance
 - ▶ Plan for near-term or mid-term potential of utilizing and directing dispatchable local DER
 - ▶ The technology exists and is being used, including in at least one city-wide roll-out in Australia
- ▶ Dispatchable DER can meet energy storage mandates, resource adequacy requirements, power demand needs, RPS and Local Portfolio Standards goals, job creation goals, while also opening opportunities for EBCE to seek revenues from congestion revenue rights, energy sales to neighboring load-service entities, and planned ancillary grid benefits that can be monetized

Graphic from draft LDBP section: Wind Siting Survey

Conclusion

- ▶ Work closely with developers of IRP and procurement team to understand current and planned energy generation and needs
- ▶ Offer enhanced NEM and FIT with adders that incent designs and construction that support EBCE, PG&E, and community goals
- ▶ As often as possible, incent and plan for energy storage and dispatchability with all programs and procurements, through PPAs and future VPP planning
- ▶ Partner with public and private collaborators to enhance credit, reduce investment and risk, including through pay-for-performance models
- ▶ Explore community solar programs to spur local development and expand accessibility to renewable, local energy sources to all community residents
- ▶ Plan for measurement and verification of program effectiveness, and adjust program parameters appropriately, including through Market Responsive Pricing
- ▶ Adjust parameters clearly and gradually for industry and consumers to be able to plan

Graphic from draft LDBP section: Wind Siting Survey



Discussion

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



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Betony Jones & Gary Calderon

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East Bay Community Energy Local Development Business Plan

Overview of New Draft Work Products Part III

LDBP Project Team:

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New Draft LDBP Work Products*- Part III

- ▶ **Integrating LDBP with Integrated Resource Planning (Task 6)-**
Samuel Irvine, Optony

**Important Note- All of the Draft LDBP Work Products can be accessed here:*
<https://ebce.org/local-development-business-plan/>



Optony focuses on enabling government and commercial organizations to bridge the gap between clean energy goals and real-world results.

Optony's core services offer a systematic approach to planning, implementing, and managing commercial and utility-grade renewable power systems, while simultaneously navigating the dramatic and rapid changes in the energy industry; from emerging technologies and system designs to government incentives and private/public financing options.



Sam Irvine, MBA/MPA
Senior Program Manager
Optony

Integrated Resource Planning In Task 6

1. **What is an IRP?**
2. **Three legged stool of an IRP**
3. **Policy Requirements under SB350**
4. **IRP Methodologies**
5. **Integrating IRP with the LDBP**
6. **Procurement and Scheduling**
7. **Risks and Mitigation**
8. **Stability and Reliability**

What's an IRP?

IRP is a planning document that defines a Utility's:

- Policy Goals (energy mix)
- Operational Constraints
- Energy priorities and resource choices
- Includes Customer-side resources

*The LDBP is **not** the IRP

But it does recommend local resources for the IRP

Three Legged Stool of IRPs

Forecasts Demand

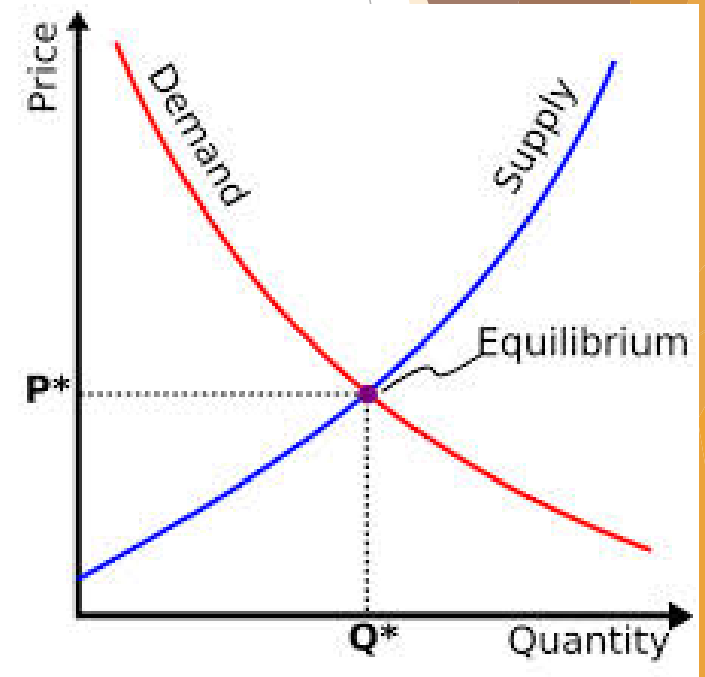
- First step in an IRP
- Evaluates energy demand needs in the service area
- Forecast energy prices on the wholesale market
- All at different time horizons



Three Legged Stool of IRPs

Supply

- Forecasted Demand + Supply = Power needs
- Allows utility to keep lights on, at a low rate in compliance with policy



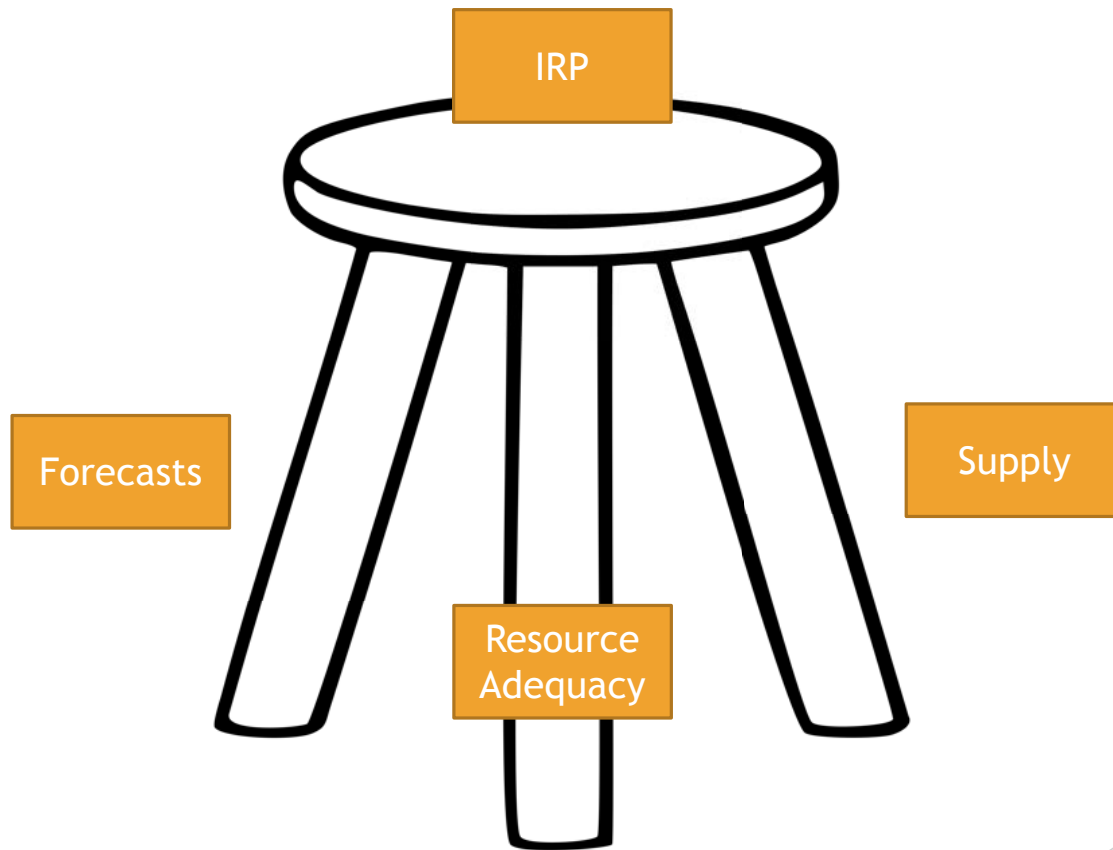
Three Legged Stool of IRPs

Resource Adequacy

- Fill forecasted needs with energy resources to 115% of total peak load
- Traditionally done at wholesale market where cost is low due to scale
- Energy mix and carbon footprint procurement alongside costs



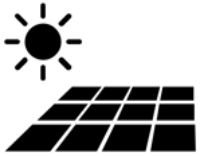
Three Legged Stool of IRPs



SB350 uses IRPs to ensure utilities meet renewable and EE goals



Doubling EE savings in the electricity and natural gas sectors 2030



50% renewable electricity procurement goal by 2030



Goal to reduce GHG emissions 40% below 1990 levels by 2030.

CEC reviews IRP for LSE's with a load > 700 GWh/yr to ensure this is happening.

IRP goals under SB350

- Serves customers energy needs reasonable rates
- Ensures system and local reliability
- Strengthens the diversity, sustainability, and resilience of the grid
- Enhances distribution systems and demand-side energy management and resource options
- Minimizes localized pollution and emissions with early priority on disadvantaged communities

LDBP goals align with IRP goals

LDBP Goals

- ▶ Select energy resources that result in economic development and local jobs while meeting RA and supply
- ▶ Reduce carbon intensity through customer programs (DSM)
- ▶ Meet or exceed RPS standards
- ▶ Prevent economic leakage (keeping money local)
- ▶ Engagement of community, & offering programs for disadvantaged communities
- ▶ Low competitive rates

With goals in mind, a main LDBP question becomes how can supply and demand requirements be met through local energy resources?

- ▶ Supply and Demand Recommendations
 - ▶ Incentives/Adders including under NEM or FIT
 - ▶ Provide New Generation Local Solar and Wind
- ▶ Resource Adequacy & Load Management
 - ▶ Energy Efficiency
 - ▶ Demand Response
 - ▶ Energy Storage

Supply and Demand Recommendations

- ▶ Include FIT, NEM, DR programs
Incentives and adders designed address market failures while providing flexible local capacity
 - ▶ Supply and Demand Management (dispatchability)
 - ▶ Projects in DAC/Low Income &
 - ▶ Municipal/Non Profit customers
 - ▶ Workforce development



Resource Adequacy Management

- ▶ Dispatchability is essential for DERs interacting with procurement
- ▶ Local RE Capacity is not enough... Just as important are renewables at the right time and place
- ▶ GHG reductions depend on timing the energy market, or else renewables risk replacing other renewables, and emissions are not reduced
- ▶ RA traditionally comes from Peaker Plants
- ▶ Dispatchable assets include:



Energy Storage



Demand Response



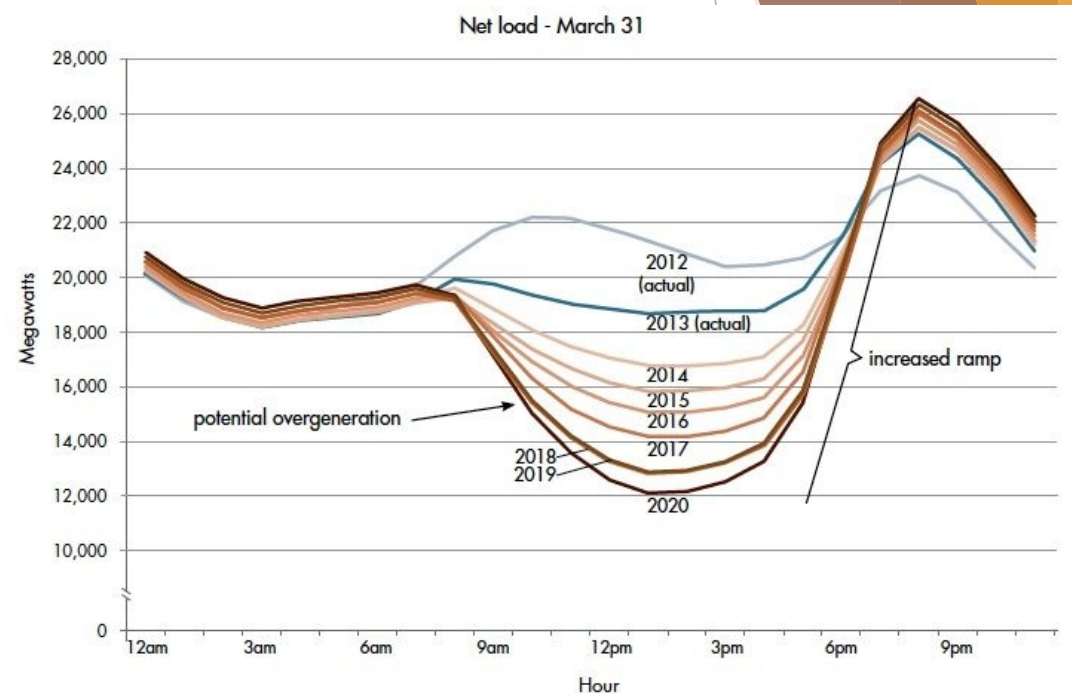
Energy Efficiency

Recommended Mechanisms to unlock local DERs as supply or RA tools

1. Tariff Design & Price Signals
2. Control Clauses in PPAs and Energy Contracts
3. Integrated Data Platform
4. Virtual Power Plant (VPP) Aggregation

1. Tariff Design

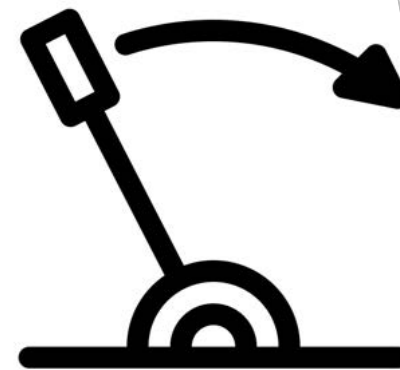
- ▶ Tariffs can change energy consumption behavior incentivizes (TOU)
- ▶ Move towards rates that rewards RE for its time and place (VDER)
- ▶ Requires sophisticated scheduling coordination
- ▶ Can displace Peaker Plant use with renewables, reducing emissions



Source: CAISO

2. Control Clauses

- ▶ Built in as language of PPAs, or incentive contracts
- ▶ EBCE to send automated price signals to customer to incent dispatchable power or load shaping or shifting services
- ▶ Customer can opt-out of price signals
- ▶ CARE small storage, 20% state of charge



3. Integrated Data Platform

- ▶ database of energy data:
 - ▶ weather, market prices, forecast, orange button etc.
- ▶ Allows data exchanges between EBCE, Customers, and Portfolio Managers
- ▶ Automated or Manual signals to customers or energy traders



Integrated Data Platform

Energy Data, Forecasts, Risk, Total Available local capacity...

Simplified Traditional Power Procurement



Price and Energy
Forecasts

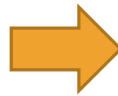


Risk Policies

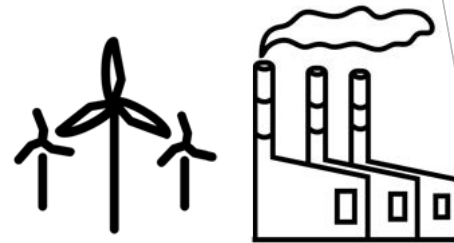


Portfolio Manager &
Scheduling Coordinator

Energy Purchases



Wholesale Market



Procurement & Scheduling with a VPP



Integrated Data platform

Energy Data, Forecasts, Risk, Total available capacity...

Local Market - Virtual Power Plant



Energy Storage



Demand Response



Energy Efficiency

Procurement with Virtual Powerplant



Integrated Data platform

Energy Data, Forecasts, Risk, Total available capacity...

Price Signal



Local Market - Virtual Power Plant



Energy Storage



Demand Response



Energy Efficiency

Procurement with Virtual Powerplant



Integrated Data platform

Energy Data, Forecasts, Risk, Total available capacity...

Price Signal



Energy Dispatch

Local Market - Virtual Power Plant



Energy Storage



Demand Response



Energy Efficiency

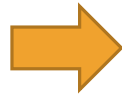
Procurement with Virtual Powerplant



Integrated Data platform

Energy Data, Forecasts, Risk, Total available capacity...

Local Capacity Report



Price Signal



Energy Dispatch

Local Market - Virtual Power Plant



Energy Storage



Demand Response



Energy Efficiency

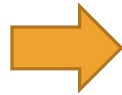
Procurement & Scheduling with a VPP



Integrated Data platform

Energy Data, Forecasts, Risk, Total available capacity...

Local Capacity Report



Portfolio Manager & Scheduling Coordinator

Price Signal



Energy Dispatch

Local Market - Virtual Power Plant



Energy Storage

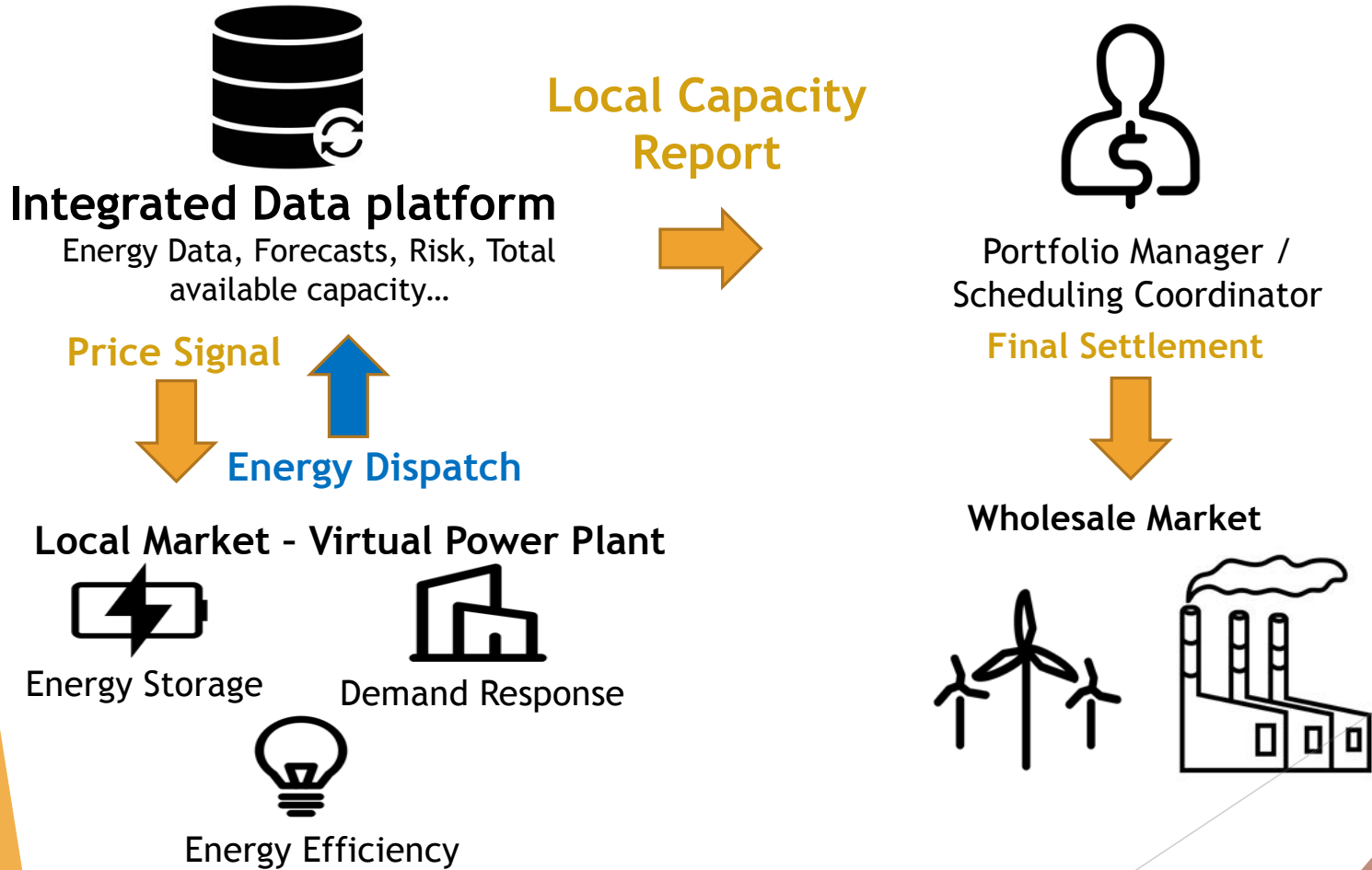


Demand Response



Energy Efficiency

Procurement & Scheduling with a VPP



Risks and Mitigations

- EBCE is setting best practice by:
- Contracting a portfolio manager & creating ERM prior to entering the wholesale market
- ERM is comprehensive and will protect EBCE from risk
- LDBP Risk supplements with mitigation from local resources.

Risks and Mitigations

Risk	Mitigations
Volumetric	Dispatchable assets, fuel switching
Supplier	Pay for Performance
Model	External checks, checks in back/mid/front office
Operational	Training, HR practices
Market	Reserve Accounts
Regulatory	Collaborations with other CCAs for advocacy purposes
Financial	Credit enhancement, collaborative procurement
Reputation	Competitive rates, Env & Social program impacts

Stability and Reliability

- ▶ Grid and operational stability
- ▶ Stable rates, reliable service
- ▶ View PG&E as a transmission and distribution partner critical to moving power to and through the service area
- ▶ Oakland Clean Energy Initiative at Jack London square

Task 6 In summary:

LDBP recommends the use of local resources to supplement wholesale power procurement. The phase in of local DERs with dispatchable features can align environmental and economic requirements of the IRP with local economic development outcomes.



Discussion

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



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Special Advisors:
Betony Jones & Gary Calderon

Community Engagement Symposium

March 26, 2018



East Bay Community Energy Local Development Business Plan

Workshop #1: Development & Implementation Strategies

LDBP Project Team:

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East Bay Community Energy Local Development Business Plan:

Net Energy Metering (NEM) Strategy

LDBP Project Team:

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Why offer NEM?

- Without NEM, opt-out risk increases
- Expectation of offering; some CCEs offer enhancements to support development
- Support local generation and job-creation
- Local demand curve can accept more DER in the short-term
- Use NEM structure to incent storage and other solutions to help manage the neck and tail of the duck curve

EBCE Enhanced NEM Adders

Other CCAs: MCE, PCE, SCP offer \$0.01/kWh for export; SVCE \$0.008/kWh if subscribing to Green Prime premium product

EBCE:

Export Adder \$0.005/kWh

For all existing and new NEM customers (prevent opt-out)

Community Benefit Adder: \$0.005/kWh

Additional incentive to income-qualified residential customers and local tax-exempt entities who may otherwise not be able to access solar installations

Workforce Adder: \$0.005/kWh

Addresses the pressing desire in the EBCE community to incent projects that use skilled local labor paid at livable wages

Supply-Shift Adder: \$0.005/kWh

Incentivizes west-facing solar, small wind, energy storage—with capacity-sharing

**Qualified projects only get one adder per category
Room for more adders overtime*

Additional NEM Program Parameters

- Transition existing customers after true-up date
- True-up on a monthly billing basis, rather than on annual basis
- Pay-out credits in late Spring
- Clear term of NEM adder eligibility
- Plan for NEM successor tariff (Value of Distributed Energy Resources - VDER)

Initial NEM as Approved by Board

EXPORT AND SURPLUS CREDIT

NEM Customer	EXPORT Credit	SURPLUS Credit	Compared to PG&E
Existing at Enrollment	Retail based on product selected	Match PG&E NSC offer (\$0.026-\$0.035/kWh)	Same
New after Enrollment	Retail	Retail capped at \$2.5k or NSC without a cap	Better
Low Income (New only)	Retail + \$0.01/kWh	Retail + \$0.01/kWh	Better
Municipal (New only)	Retail + \$0.01/kWh	Retail + \$0.01/kWh	Better
Workforce (New only)	Implementation considerations under review		Better
Supply-Shift (New only)	Implementation considerations under review		Better

- Limited resources should be focused on
 - New** installations
 - Hard-to-reach communities** where the market has failed to deliver significant penetration
 - Municipal customers where savings is immediately reinvested into **community services**, like schools
 - Supporting **local workforce**

Item 13

- Adders on export credit:

Adder	Amount / kWh	Eligibility	Proposed Initial NEM Policy
Standard	\$0.005	All NEM customers	No adder, but improve surplus credit
Community <ul style="list-style-type: none"> Income-qualified Non-profit/gov't 	\$0.005	New NEM customers	\$0.010
Workforce <ul style="list-style-type: none"> Livable wage 	\$0.005	New NEM customers	TBD but noted in initial policy
Supply-Shift <ul style="list-style-type: none"> West-facing solar Small wind Energy storage 	\$0.005	New NEM customers	TBD but noted in initial policy

- Monthly billing with annual cash-out in Spring
- Enrollment per True-Up date

In Discussion, Based on Public Comments

- Higher value for NEM+Storage adder (or link to kW capacity, instead of export energy)
- New/better valuation mechanism for storage exports
- Forego EBCE control of NEM+Storage—instead offer monetary incentives (price signals) for desired CCE utilization
- Storage-friendly rate design
- Workforce adder (keep as “carrot”, not “stick”)
- Clarification on adder terms and grandfathering
- More discussion around proposed transition to VDER tariff
- Virtual Net Energy Metering (VNEM)
- Net Energy Metering Aggregation (NEM-A)
- Premium value for Net Surplus Compensation (NSC)



East Bay Community Energy Local Development Business Plan:

Agency as Developer- Collaborative Procurement

LDBP Project Team:

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Special Advisors:
Betony Jones & Gary Calderon

Introduction

- What does “Agency as Developer” mean?
 - Now: “Collaborative Procurement”
- Context
- Program Goals:
 - Offer low-cost means of stimulating local energy development
 - Create standardized procurement approach for meeting EBCE needs and goals through local collaboration
- Method: Pooled Procurement
 - Pool procurement between like sites and assets
 - Coordinate with Joint Powers Authority member agencies to find opportunities
 - Take advantage of economies of scale in procurement and transactions

Small Cities Climate Action Partnership (ScCAP)

Albany, Piedmont, El
Cerrito, San Pablo

- Lower costs
- Save staff time
- Utilize economies of scale and purchasing power
- Open door for procurement for small cities and sites that would otherwise not gain industry interest

Silicon Valley Renewable Energy Procurement (SV-REP)

45 sites, 9 agencies, 1 RFP
12 MW Constructed

- Outcomes -

- 12-14% lower cost than one-off similar projects
- 50-75% lower admin + legal costs
- Better negotiated contract terms and conditions
- Best Practices Guide for Collaborative Solar Procurement

Regional Renewable Energy Procurement (R-REP)

186 sites,
31 MW, including in
EBCE territory

- 13 MW built to-date with more in construction/dev.
- ALCO, Oakland, Fremont, Cal, Berkeley, etc.
- Replicated by Fed Gov, also in NY and new areas



SEED Fund

- ▶ Removes barrier to entry, enables self-sustaining program
- ▶ Covers the cost of feasibility analysis and procurement
- ▶ Third party covers the upfront cost, in this case CSI
- ▶ **Only if** projects happen would money be reimbursed to the “seed” revolving fund
- ▶ No financial risk for Agencies

SEED FUND LOCATION:	NORTH SF BAY	MONTEREY BAY	SIERRA MOUNTAINS
LEAD AGENCY	City of San Rafael	County of Santa Cruz	County of Amador (proposed)
CONVENER	Marin Clean Energy Practitioners	Association of Monterey Bay Area Governments	Sierra Business Council
FUNDING BY	California Solar Initiative	SEED Fund North Bay	SEED Fund Monterey Bay, US Department of Energy
# OF RFP PARTICIPANTS	13	8	6-10 (target)
# OF SITES (BUNDLED)	29	28	20-25 (target)
# OF MW IN RFP	~ 4.3 MW	~ 7.0 MW	3-5 (target)
# OF MW CONTRACTED	~ 3.1 MW	~ 2.3 MW +	TBD
# OF MW BUILT	~ 1.3 MW +	TBD	TBD



Benefits of SEED to EBCE

- ▶ Support member agencies in reaching long-time sustainability goals
- ▶ Provide local energy at or near wholesale rate -> energy bill savings
- ▶ Reduce EBCE wholesale procurement needs
- ▶ Operate with a small staff and one-time budget expenditure
- ▶ Stimulate local economic development
- ▶ Build goodwill within community w/ high-visibility co-branded projects
- ▶ Competitive advantage in building strong relationship w/ member agencies
- ▶ Control procurement processes and locations; understand costs
- ▶ Pursues ideal end-goal: local clean energy to meet all demand at all times
- ▶ Leaves room for innovation...
 - ▶ Target groups, collaborate w/ utility, VPP/EV capability, EBCE procurement



Example: Oakland Clean Energy Initiative

- ▶ **Innovative Collaborative Procurement with PG&E,** *as recommended in LDBP ES Contracting Strategy and Agency as Developer sections.*
- ▶ **Joint PG&E/EBCE RFO to procure 20-45 MW's of energy, capacity, and reliability products**
- ▶ **Will replace an aging, jet-fuel powered peaker plant in Oakland's Jack London Square**
- ▶ **Directly supports EBCE's JPA and LDBP goals, and Energy Storage procurement mandate**



Solar Siting Survey and Feed-In Tariff

Recommendations for East Bay Community Energy (EBCE)

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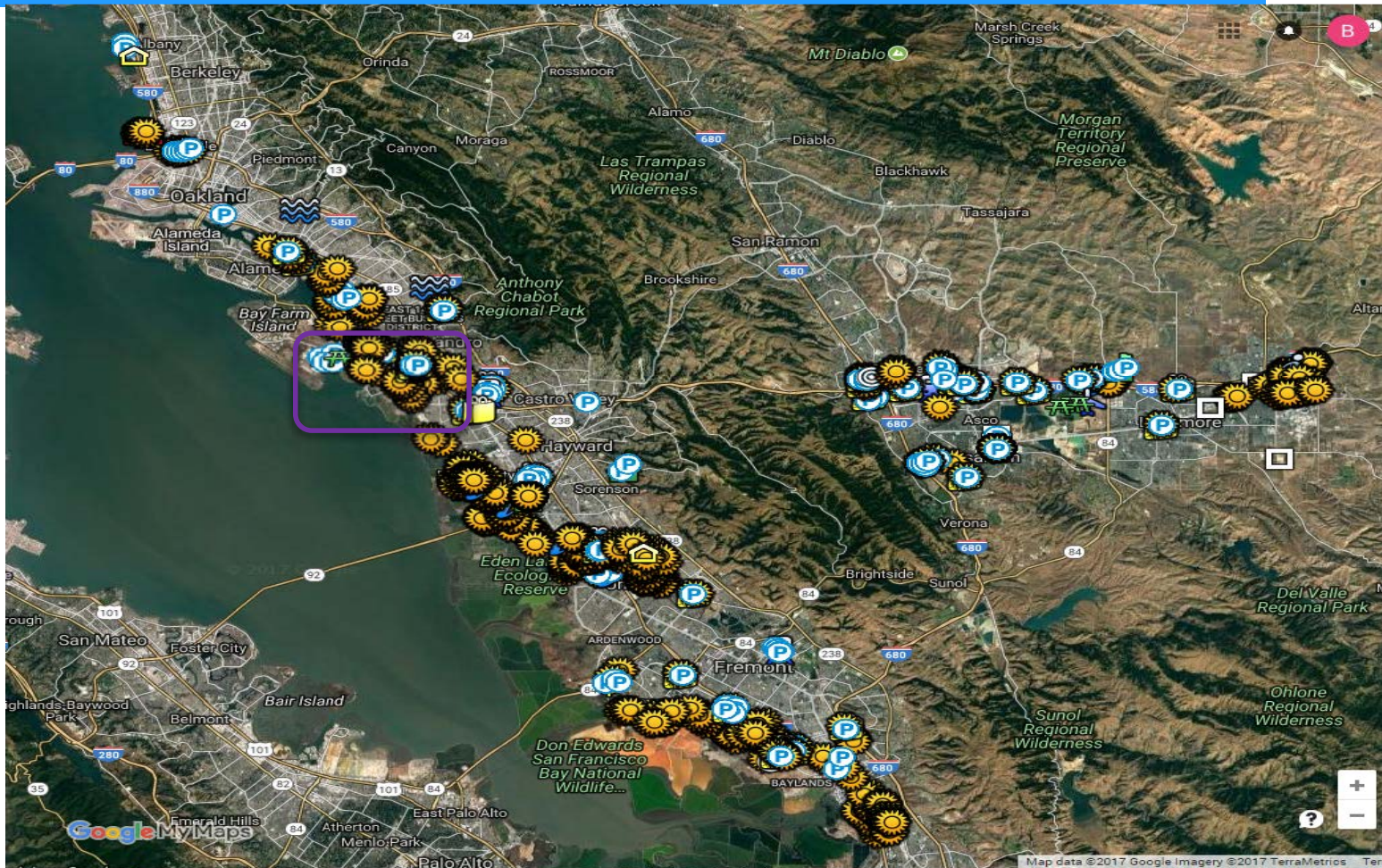
- ▶ Searchable spreadsheet including detailed results and linking to the interactive maps
- ▶ Interactive maps in the form of Google Earth .kml files with icons marking structures and aggregations with details available in pop-up windows
 - ▶ Google Map versions are also made available
- ▶ Summary report of key findings and methodology

Summary of EBCE Solar Siting Survey findings

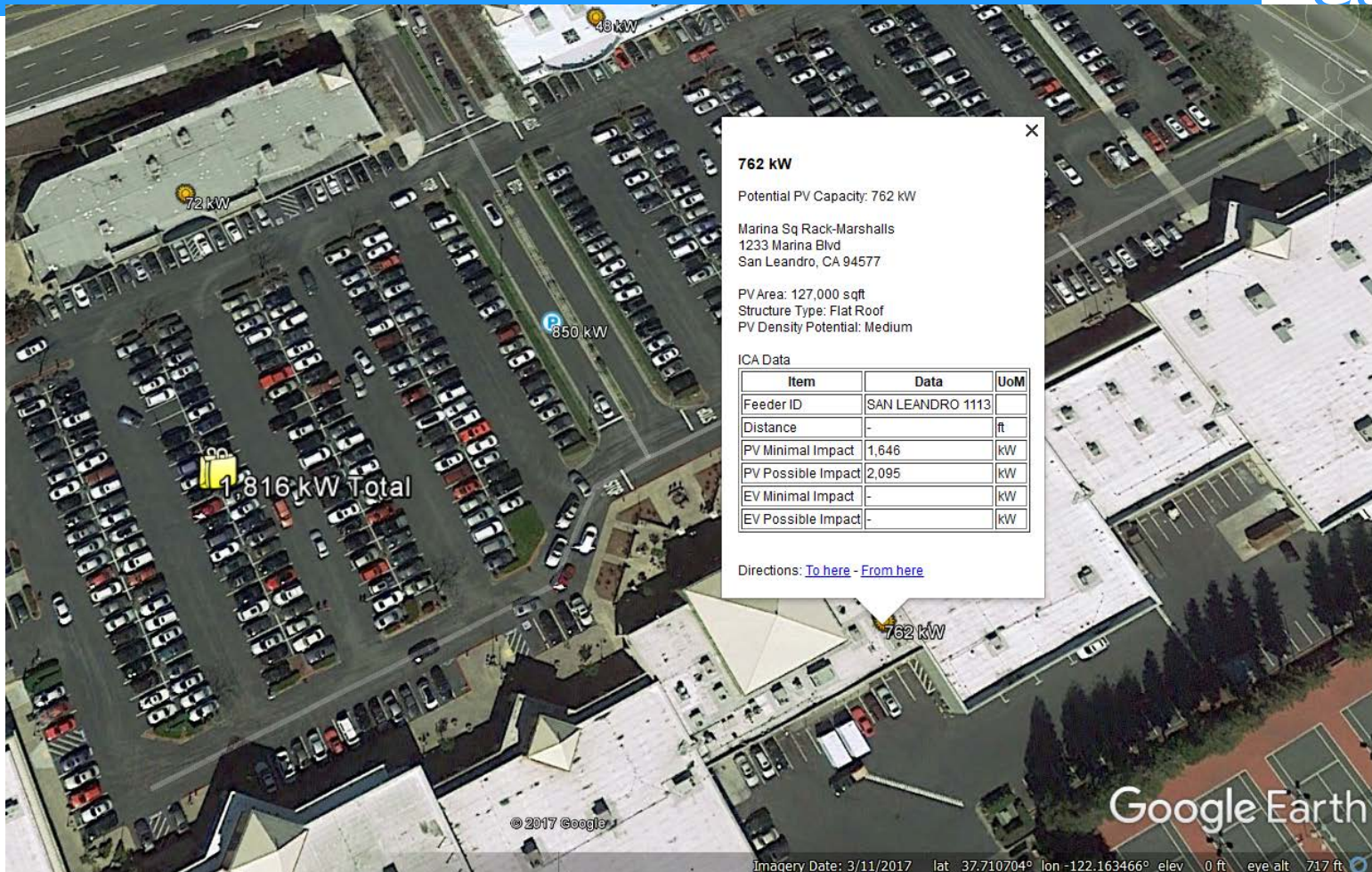


- Over 650 MW of technical solar siting potential was found on built environments in the projected EBCE service territory that can support at least 1 MW sized projects
 - Note that the technical solar siting potential will be reduced by constraints that were not considered like structures that cannot support extra weight without significant upgrade and grid bottlenecks that would result in excessive solar curtailment (or require time-shifting dispatchability via energy storage)
- 30% of the total comes from parking lots/garages
- Extrapolations to lower minimum project sizes:
 - 1.2 GW minimum total potential for projects sized at least 500 kW
 - 2 GW minimum total potential for projects of at least 100 kW

SSS interactive map: Alameda County overview



SSS interactive map: Marina Square with ICA



Solar siting capacity by site count



Solar Siting Survey

Totals:

Berkeley, CA 94710
 Emeryville, CA 94608
 Oakland, CA 94601
 Oakland, CA 94602
 Oakland, CA 94603
 Oakland, CA 94605
 Oakland, CA 94606
 Oakland, CA 94607
 Oakland, CA 94621
 San Leandro, CA 94579
 San Leandro, CA 94578
 San Leandro, CA 94577
 Castro Valley, CA 94546
 San Lorenzo, CA 94580
 Hayward, CA 94544
 Hayward, CA 94545
 Hayward, CA 94541
 Hayward, CA 94542
 Union City, CA 94587
 Newark, CA 94560
 Fremont, CA 94536
 Fremont, CA 94538
 Fremont, CA 94539
 Dublin, CA 94568
 Pleasanton, CA 94566
 Pleasanton, CA 94588
 Livermore, CA 94550
 Livermore, CA 94551

Summary by Sites

Count	kW_Total	PV W_AC >=	5,000 kW	> and >=	2,000 kW	Less than	2,000 kW
Sites		Sites		Sites		Sites	
252	662,224 kW	20	244,609 kW	71	190,041 kW	161	227,574 kW
1	5,699	1	5,699	-	-	-	-
2	7,637	1	5,387	1	2,250	-	-
5	7,650	-	-	1	2,619	4	5,031
1	5,712	1	5,712	-	-	-	-
2	2,618	-	-	-	-	2	2,618
2	2,921	-	-	-	-	2	2,921
1	1,476	-	-	-	-	1	1,476
1	1,240	-	-	-	-	1	1,240
11	53,368	2	37,490	3	6,748	6	9,130
2	3,734	-	-	1	2,424	1	1,310
4	10,882	1	6,390	1	2,040	2	2,452
27	55,645	-	-	13	34,415	14	21,230
1	2,690	-	-	1	2,690	-	-
2	2,610	-	-	-	-	2	2,610
14	32,067	1	7,675	4	10,898	9	13,494
30	72,478	2	20,046	9	24,221	19	28,211
1	2,702	-	-	1	2,702	-	-
1	5,800	1	5,800	-	-	-	-
27	54,437	1	9,249	7	18,320	19	26,868
18	50,766	2	17,145	6	20,293	10	13,328
1	2,265	-	-	1	2,265	-	-
38	83,755	1	21,125	9	22,861	28	39,769
5	8,931	-	-	1	2,088	4	6,843
12	30,408	2	12,504	3	8,133	7	9,771
7	12,606	-	-	2	5,465	5	7,141
7	22,512	1	11,541	3	6,819	3	4,152
14	23,891	-	-	3	9,280	11	14,611
15	95,723	3	78,846	1	3,510	11	13,367

- ▶ Open to all renewable energy technologies that meet California's Renewables Portfolio Standard (RPS) eligibility requirements
- ▶ Projects must be sited in the EBCE service territory
- ▶ Projects can sized up to 3 MW *

*All project size capacity references in this presentation are Alternating Current (AC) rated, unless noted otherwise.

EBCE FIT program size



- A 50 MW FIT will provide roughly 1.29% of EBCE annual electric load

FIT capacity	Annual energy production from each kW of FIT capacity	Annual energy deliveries through FIT	Annual CCA energy sales	Percent of total CCA retail sales
50 MW	1,600 kWh	80,000 MWh	6,200,000 MWh	1.29%

- Annual production of 1,600 kWh/kW of FIT capacity is based on solar resource analysis for Alameda County, as we expect PV to be the dominant FIT technology

Location	Solar resource quality (kWh/m ² /day)	System type	Capacity factor	Annual energy production (kWh/kW _{AC} /year)
Oakland Airport	4.63	Fixed rooftop installation	19.1%	1521
Livermore	5.00	Fixed rooftop installation	20.1%	1605
Livermore	5.00	Single-axis tracking installation	25.4%	2024

EBCE FIT initial pricing



- ▶ Initial baseline FIT pricing of 9¢/kWh fixed for 20 years.
 - ▶ This price is expected to support larger, ground-mounted solar PV projects in eastern Alameda County.
 - ▶ Modeling was done using NREL’s System Advisor Model.

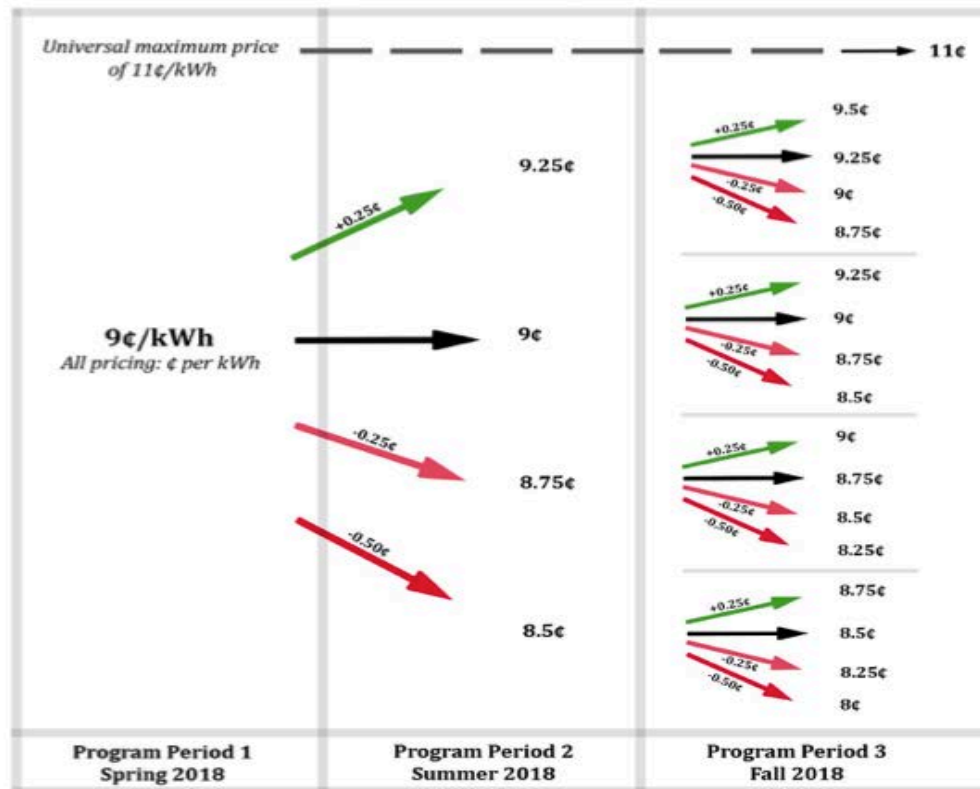
Type of system	Size of solar PV system (W _{AC})	Installed cost (\$/W _{DC})	20-year fixed PPA price (¢/kWh) Oakland	20-year fixed PPA price (¢/kWh) Livermore
Built environment	100 kW roof	\$2.30	15.6¢	14.8¢
Built environment	350 kW roof	\$2.12	14.5¢	13.8¢
Built environment	500 kW roof	\$2.06	14.2¢	13.5¢
Built environment	1 MW roof	\$1.90	13.5¢	12.8¢
Ground-mount	1 MW tracking	\$1.86	n/a ¹¹	10.0¢
Ground-mount	3 MW tracking	\$1.78	n/a	9.74¢

EBCE FIT Market Responsive Pricing (MRP)



Once baseline pricing is set for the initial FIT tranche, MRP governs baseline pricing, which can never exceed a universal maximum of 11¢/kWh.

Market Responsive Pricing for EBCE FIT



EBCE FIT pricing adders



- The concept of pricing adders is simple
 - An LSE identifies the characteristics it would like to see in its FIT projects and then creates adders to its baseline FIT price to incentivize projects with these characteristics.
- The Clean Coalition recommends East Bay Community Energy implement four pricing adders:
 - Built-environment adder at 20%
 - Rooftops, parking lots, parking structures, etc.
 - Small project adder at either 10% or 20%
 - 10% for projects larger than 100 kW and less than or equal to 350 kW.
 - 20% for projects less than or equal to 100 kW.
 - Community benefit adder at 5%
 - Tax-exempt and/or disadvantaged zone.
 - Dispatchability adder at 15 cents/kWh
 - Eligible for guaranteed daily dispatchable renewable energy at 2-4 hours of nameplate renewable energy FIT project.

Highlights from public comments on the FIT



- Numerous parties expressed strong support for the FIT because it will drive local renewable energy development and local job creation (CalSEIA, Borrego Solar, East Bay Clean Energy Alliance, others)
- Some parties (Borrego, EBCPA) would like to see a larger program and more adders; however, there are rate impacts to consider when it comes to expanding FIT program capacity and increasing the pricing.
- Borrego Solar recommended rolling unselected applications from one tranche into the next tranche. We agree with this suggestion and will clarify this in the final FIT design recommendations.
- More than Smart expressed concern about the benefits of the FIT to EBCE customers, as well as the untested nature of the proposed Market Responsive Pricing (MRP) mechanism.
 - In alignment with the goal of the LDBP, the FIT is designed to drive local economic and environmental benefits through local renewables. It also unleashes commercial-scale projects that are ill-suited to NEM (non-owner occupied, split-metered/multi-tenant, low on-site load) and avoids the tremendous inefficiency of auctions that kill any participation from the commercial-sale market segment.
 - The MRP is similar to California's ReMAT program, which has effectively driven down pricing for sub-3 MW renewable energy projects using a market adjusting tariff. An MRP has also driven German rooftop solar pricing to less than 5 cents/kWh equivalent.

Energy Efficiency

▶ Phased Recommendations

- ▶ Phase I: Support existing EE, build integrated data platform, comprehensive COS Study, RFQ for EE service providers
- ▶ Phase II: Targeted revenue-based programs, integrate Metered EE capabilities & CBA's, implement P4P contracting
- ▶ Phase III: ETA ratepayer-funded programs, cost-causation targeting, close coordination w/EE Program Administrators

▶ Public Comments

- ▶ Strong support for EE Assessment and Recommendations
- ▶ Some concerns re: P4P supplanting Direct Install/Deemed EE Programming

Demand Response

▶ Phased Recommendations

- ▶ Phase I: Support PG&E's existing DR programs
- ▶ Phase II: Offer customized DR programs in partnership w/established DR provider, rely on 3rd-party expertise/resources
- ▶ Phase III: Offer suite of in-house DR programs designed to shape/shift/shed load, leverage integrated data platform

▶ Public Comments

- ▶ Grid-enabled EV Charging Infrastructure is an important segment for EBCE to focus on
- ▶ Energy Storage is also maturing, but control clauses can create some concerns re reduced value to customers or asset owners

Energy Storage

▶ Phased Recommendations

- ▶ Phase I: CARE Customer Energy Storage Giveaway, NEM/FIT Adders & TOU Rate Pilots
- ▶ Phase II: Collaborative Procurement of Utility-scale ES, Implement VDER Tariff
- ▶ Phase III: VPP Aggregation of deployed ES systems

▶ Public Comments

- ▶ Strong Public Support for recommendations, including CARE Customer ES Giveaway
- ▶ Concerns regarding control clauses, recommended value of Energy Storage Adders, and Performance Penalties
- ▶ Suggested that we increase system size of CARE Customer giveaways

Pending Assessments/Recommendations

- ▶ **Opportunities for Fossil Fuel Switching**
 - ▶ **Natural Gas Sector** (*aka- Building Electrification*)
 - ▶ **Transportation Sector** (*aka- Vehicle Electrification*)
- ▶ **Rate Design as an Incentive**
- ▶ **On-bill Repayment and On-bill Financing**



ECONOMICS OF LOCAL DEVELOPMENT

LOCAL DEVELOPMENT BUSINESS PLAN

Prepared by:

Betony Jones, Climate and Workforce Research and Advising,
LDBP Labor and Workforce Advisor

LOCAL SOLAR ECONOMIC BENEFITS VS COSTS

In 2018 dollars

	100,000 MWh from local solar generation (@ \$90/MWh)	50 MW new local solar development (single axis) (@ \$1.86/W)	Impact of \$50/MWh price premium of 100,000 MWh from local solar (@ non-local solar cost of \$40/MWh)	Net Impacts (Alameda County)
Local Investment	\$9 million	\$93 million	(\$5 million)	
Direct Jobs	3	54	0	57
Total Jobs	31	85	(29)	87
Total Labor Income	\$2,060,857	\$6,375,580	(\$1,667,935)	\$6,768,503
Direct Employee Compensation	\$130,805	\$3,375,864	0	\$3,506,669
Proprietor Income	\$80,216	\$1,090,762	0	\$1,170,978
Total Economic Output	\$13,482,587	\$14,395,807	(\$4,559,176)	\$23,319,218



The net benefits of purchasing local solar yields job, income, and economic benefits that far exceed the negative impacts from the higher cost. 100,000 MWh of local solar would create 54 construction jobs and 3 ongoing maintenance jobs.

ENERGY EFFICIENCY OR ROOFTOP SOLAR VS RESIDENTIAL RATE REDUCTIONS

In 2018 dollars

	\$1 million invested in local ground-mounted renewable development	\$1 million invested in local commercial EE or rooftop solar	\$1 million in residential rate reductions
Direct Jobs	5.8	5.0	0
Total Jobs	9.2	8.9	5.9
Labor Income (Employee Compensation + Profits)	\$685,546	\$646,353	\$333,587
Direct Employee Compensation	\$362,996	\$340,342	0
Total Economic Output	\$1,547,936	\$1,612,460	\$911,835



Local investment in solar or EE create jobs and stimulate more local economic activity than rate reductions.

RESIDENTIAL RATE REDUCTIONS COMPARISONS

	\$1 million in residential rate reductions	\$1 million residential rate reductions (households <\$100K)	\$1 million residential rate reductions (households <\$70K)
Direct Jobs	0	0	0
Total Jobs	5.88	6.48	6.53
Labor Income	\$333,587	\$369,492	\$371,855
Total Economic Output	\$911,835	\$1,003,971	\$1,005,036

In 2018 dollars

Rate reductions targeted to lower income households generate more local economic benefits, than uniform rate reductions across all households. Uniform rate reduction actually cause net leakage of money out of the County due to non-local spending patterns of higher income households.

CONCLUSIONS

- Investing in local renewables, energy efficiency, and other clean energy activities generates greater local economic benefits, by every measure, than rate reductions.
- Union and prevailing wage job creation, an explicit goal of EBCE, only occurs when there is investment in actual projects (when you get “direct” jobs). (Prevailing wage or union jobs are not created by providing discounts on energy bills).
- Due to non-local spending patterns of higher-income households. Residential rate reductions result in a small net flow of money out of the County. Targeting rate reductions to lower-income households neutralizes this negative impact.
- While low or competitive rates are a priority in the EBCE the Joint Powers Agreement, they must be balanced with direct local investments to achieve the full measure of goals stated in the JPA Agreement.

Prepared by:


Betony Jones, Climate and Workforce Research and Advising

<http://betonyjones.com>

ECONOMIC BENEFITS DEFINED

ALL benefits are specific to Alameda County

- **Direct Jobs:** These are the jobs created from capital investments in the Alameda County. In the construction industry, we assume these jobs will provide prevailing wages and benefits, per the goals of EBCE.
- **Total Jobs:** This figure includes all of the direct, indirect, and induced jobs created by the change in spending. Indirect jobs are those that supply the industries directly affected (mainly retail and real estate jobs), and induced jobs are the number of jobs affected by a general change in economic activity (mainly retail, restaurant, and health care jobs).
- **Labor Income:** Includes total employee compensation + proprietor income (business profits). For these examples, profits are assumed to be 8 – 12 percent of the investment (in solar, wind, EE, etc.)
- **Direct Employee Compensation:** Includes the wages and benefits for the jobs created, and can be considered one measure of job quality.
- **Total Economic Output:** The value of the sale of all goods and services in Alameda County associated with a \$1 million change in spending.



All benefits extracted from IMPLAN using 2016 data in IMPLAN. Rate reduction calculations by income class based on household income distribution from 2016 census data, and household electricity consumption data by income class from EIA (2009)

JOINT POWERS AGREEMENT

By establishing the Authority, the Parties seek to:

- (a) Provide electricity rates that are lower or competitive with those offered by PG&E for similar products;
- (d) Establish an energy portfolio that prioritizes the use and development of local renewable resources and minimizes the use of unbundled renewable energy credits;
- (f) Demonstrate quantifiable economic benefits to the region (e.g. union and prevailing wage jobs, local workforce development, new energy programs, and increased local energy investments);
- (j) Provide and manage lower cost energy supplies in a manner that provides cost savings to low-income households and promotes public health in areas impacted by energy production;



The Joint Powers Agreement establishing EBCE provides clear direction on the local development and economic benefit goals



Discussion

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



Clean Coalition
Making Clean Local Energy Accessible Now



OPTONY

Special Advisors:
Betony Jones & Gary Calderon

Community Engagement Symposium

March 26, 2018



East Bay Community Energy Local Development Business Plan

Workshop #2: Community Benefit & Planning Tools

LDBP Project Team:

ALHIECON

ALH Urban & Regional Economics



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Community Engagement Symposium

March 26, 2018



East Bay Community Energy Community Benefit Impacts

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APPROACH TO ASSESSING COMMUNITY BENEFIT IMPACTS

- ▶ Assess Job, Labor Income, and EBCE Financial Impacts of Recommended Plan Strategies and Options
 - ▶ Prepared by ALH Urban & Regional Economics
 - ▶ Presenters, Amy Herman, Sarah Murley, and Thomas Jirovsky

- ▶ Scenario Analysis, Compare Impacts Across Multiple Scenarios and Support Programmatic Decision-Making
 - ▶ Prepared by EcoShift Consulting
 - ▶ Presenters, Zoe Elizabeth and Rick Betita

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COMMUNITY BENEFIT IMPACT ANALYSIS

- ▶ EBCE has been created by citizens of Alameda County to control electric power production, distribution, and ultimate cost to consumers. EBCE is designed to use surplus revenues (in lieu of profit) to provide significant community benefits in the form of:
 - ▶ Lower electric rates
 - ▶ Local economic development/job creation
 - ▶ Renewable energy
 - ▶ Greenhouse gas reduction
 - ▶ Energy efficiency investments
- ▶ 2021 stabilized operations expected to generate \$50 million in annual surplus

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JOB CREATION AND LABOR INCOME IMPACTS

- ▶ Sources of impacts
 - ▶ Installation of equipment (one-time)
 - ▶ Annual maintenance of equipment or on-going operations of utility-scale generation facilities
 - ▶ Annual customer savings translated into additional household and business purchases
- ▶ Job and labor income impacts are driven by the level of capital investment (regardless of source)
- ▶ All impacts estimated are in Alameda County
- ▶ Job impact includes estimated average wages as well as total labor income
 - ▶ Prevailing wage for large commercial, industrial, and utility-scale installations and maintenance
 - ▶ Non-union labor assumed for residential installations and maintenance

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ECONOMIC IMPACT MODELING

- ▶ Primarily relied on IMPLAN
 - ▶ IMPLAN is a national vendor of input-output software and data used to create economic impact models and is widely used in government, higher education, and in the private sector
 - ▶ IMPLAN breaks down the U.S. economy into over 500 industry sectors
 - ▶ Model creates county-level values by adjusting the national level data, such as removing industries that are not present in a particular region
 - ▶ Multipliers used in this analysis are specific to the economy of Alameda County
 - ▶ Data are updated annually - most current data are for 2016
 - ▶ To model EBCE job impacts, industry-specific multipliers were used for maintenance and repair of residential and non-residential structures as well as construction of new nonresidential structures for installation and maintenance
 - ▶ IMPLAN model estimates direct, indirect, and induced jobs

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ECONOMIC IMPACT MODELING

- ▶ The JEDI model was used to estimate the installation portion of capital investment and to compare direct job impacts from IMPLAN
 - ▶ Created by National Renewable Energy Lab (NREL) with models specific to PV Solar, Distributed Wind, and Land-Based Wind
 - ▶ Uses state-level IMPLAN multipliers (not specific to Alameda County)
 - ▶ Provides significant detail on breakdown of costs for specific sizes of solar and wind projects based on user-input on total cost

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COMMUNITY BENEFIT OPTIONS

- ▶ The LDBP team has identified numerous community benefit investment options/strategies to apply the surplus revenues for EBCE consideration, including:
 - ▶ Feed In Tariff (“FIT”) programs for solar and wind power generation
 - ▶ Net Energy Metering (“NEM”) programs for solar and wind power generation
 - ▶ Direct investment in solar/wind power production
 - ▶ Efficiency programs for Commercial/Industrial, Residential and CARE customers
 - ▶ Energy Storage systems (individual to utility scale investments)
 - ▶ Demand response programs to reduce peak hour power demand
 - ▶ Electric vehicle incentives (autos, buses, trucks)
 - ▶ Fuel switching programs to encourage electric appliance uses
 - ▶ Lower electricity rates for all customers / low income HH’s

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Representative Draft Findings - Illustrative Programs

- ▶ Feed In Tariff (“FIT”)
- ▶ Direct Investment
- ▶ Energy Storage
- ▶ Electric Vehicles
- ▶ Fuel Switching
- ▶ Reduced Electricity Rates

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Representative Draft Findings - Illustrative Impact Metrics

- ▶ Program description
- ▶ EBCE Costs
- ▶ Private capital investment
- ▶ Direct and total job impacts
- ▶ Labor income impacts
- ▶ Net cost to EBCE over 10 years
- ▶ Job creation index per \$1.0 million in capital investment

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FEED IN TARIFF (“FIT”)

- ▶ EBCE solicits proposals for wind/solar power development in Alameda County
- ▶ EBCE identifies specific goals (built environment, small scale, energy storage, etc.)
- ▶ EBCE offers to buy all power generated at \$0.09 to \$0.13 per kwh (FIT)
- ▶ EBCE paying premium of \$0.054 per kwh versus existing renewable power contracts
- ▶ For every 5 MW of solar production capacity:
 - ▶ Private sector capital investment of \$9.5 million
 - ▶ EBCE will incur \$420,000 in increased power costs per year
 - ▶ 28 direct jobs related to installation (\$41.83 per hour)
 - ▶ 48 total jobs
 - ▶ 1.1 total annual maintenance jobs will be required
 - ▶ \$3.8 million in labor income impacts for installation and maintenance
- ▶ Over 10-year period: 6.2 direct, indirect, and induced jobs generated per \$1 million in capital investment

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DIRECT INVESTMENT

- ▶ Once EBCE has established a good credit rating - EBCE directly contracts to build wind/solar power systems in Alameda County applying specific goals (union labor, energy storage, etc.). With economies of scale and as a non-profit, EBCE's amortized cost of power will be similar to the cost from the normal grid
- ▶ For every 5 MW of solar production capacity:
 - ▶ EBCE capital investment of \$8.9 million
 - ▶ 25 direct jobs related to installation (\$45.00 per hour)
 - ▶ 40 total installation jobs
 - ▶ 1.2 total annual maintenance jobs will be required
 - ▶ \$3.4 million in labor income impacts for installation and maintenance
- ▶ Less labor is needed for large scale installations, but EBCE has no net capital investment (funded by debt)
- ▶ Over 10-year period: 5.8 direct, indirect, and induced jobs generated per \$1 million in capital investment

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ENERGY STORAGE

- ▶ Solar power generation is concentrated around mid-day, while demand peaks in the evening hours, creating a significant demand/supply imbalance and the need for storage capacity
- ▶ Investment in energy storage reduces reliance on natural gas peaker plants
- ▶ For every \$5 million capital investment:
 - ▶ 5 to 6 direct jobs related to installation (\$47.56 per hour utility-scale and commercial/industrial, \$25.00 per hour residential)
 - ▶ 9 total installation jobs
 - ▶ 0.7 total annual maintenance jobs will be required
 - ▶ \$613,000 in labor income impacts for installation and maintenance
- ▶ EBCE has \$1.5 million net capital investment over 10 years
- ▶ Over 10 year period: 3.0 direct, indirect, and induced jobs generated per \$1 million of capital investment

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ELECTRIC VEHICLES

- ▶ Illustrative example 400 participating customers at a cost of \$37,420 for vehicle and charger installation, with EBCE contributing \$2,500 per customer
 - ▶ EBCE capital investment of \$1.0 million, total capital investment of \$15.0 million
 - ▶ 18.4 direct jobs related to retail purchase and charger installation, average \$34.66 per hour
 - ▶ 28.7 total jobs
 - ▶ \$2.1 million in total labor income impacts
 - ▶ All job impacts are one-time
- ▶ 1.9 direct, indirect and induced jobs per \$1 million of capital investment
- ▶ Electric vehicle subsidies are primarily a GHG and air pollution reduction investment

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FUEL SWITCHING

- ▶ Illustrative program 2,300 customers with appliance replacement cost of \$5,500 per home with EBCE contributing \$1,600 per home
 - ▶ EBCE capital investment of \$3.7 million, total capital investment of \$12.6 million
 - ▶ 106 direct jobs related to retail purchase and installation, average \$28.62 per hour
 - ▶ 188 total jobs
 - ▶ \$11.2 million in total labor income impacts
 - ▶ All job impacts are one-time
- ▶ 7.6 direct, indirect, and induced jobs per \$1 million of capital investment
- ▶ With profits from recommended Off-Gas program, EBCE will be able to recoup investment in fuel switching subsidies

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REDUCED ELECTRICITY RATES

- ▶ EBCE plans to sell power under a rate structure similar to PG&E
- ▶ For 1.5% overall rate reduction relative to PG&E rates:
 - ▶ EBCE will forego \$9.9 million in annual revenue
 - ▶ Customers savings will result in increased demand for other goods and services
 - ▶ 71 annual local jobs supported (average \$30.49 per hour)
 - ▶ \$4.5 million total labor income per year
- ▶ Over 10-year period: 7.2 induced jobs generated per \$1 million in customer savings

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SCENARIO ANALYSIS





SCENARIO ANALYSIS

- ▶ A dynamic assessment framework that pulls together results and recommendations from across the LDBP research team
- ▶ The purpose of scenario analysis is to:
 - ▶ support decision-making
 - ▶ clarify complex relationships
 - ▶ communicate complex data simply and clearly to multiple audiences
- ▶ Analysis is ongoing

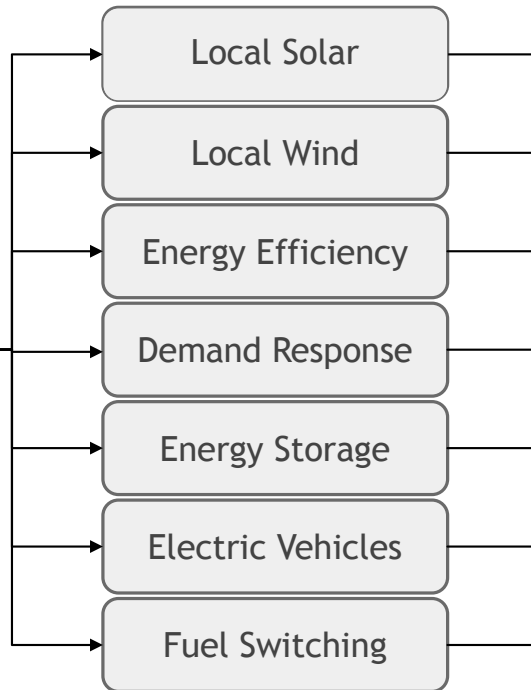


ANALYSIS FRAMEWORK

levers

- MW solar
- MW wind
- \$ investment

programs



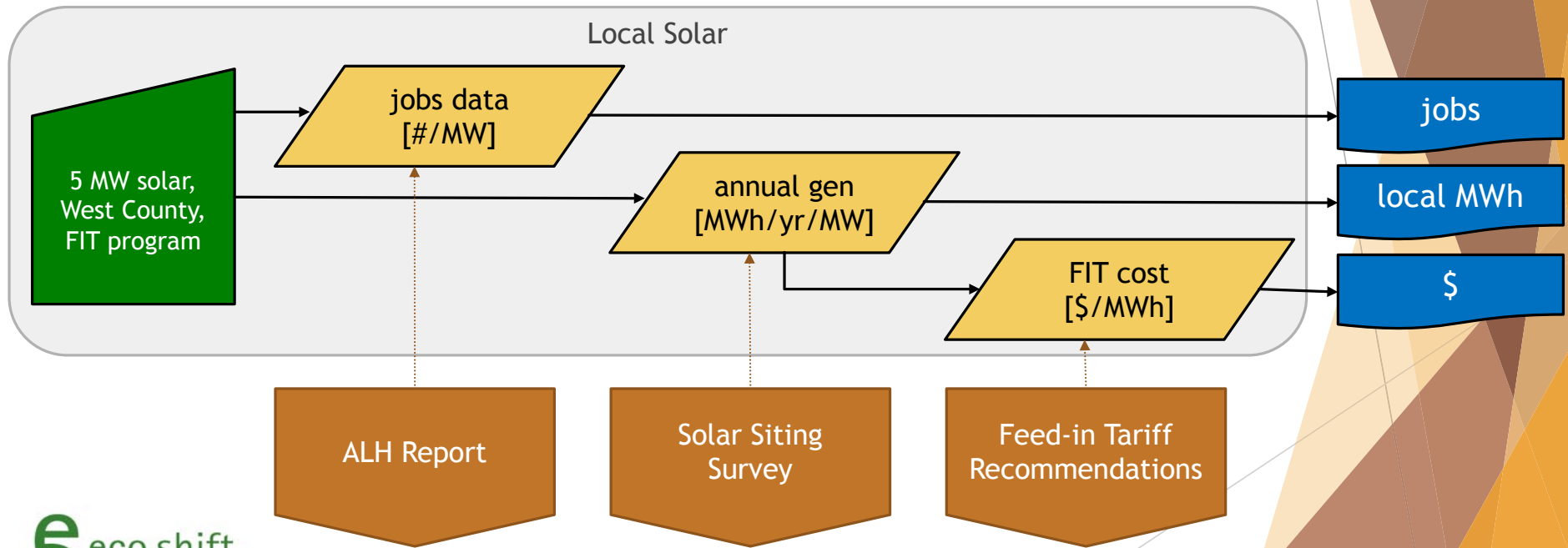
impacts

- jobs, average wages
- local generation
- surplus revenue
- GHG reductions
- air pollutant reductions





LOCAL SOLAR EXAMPLE



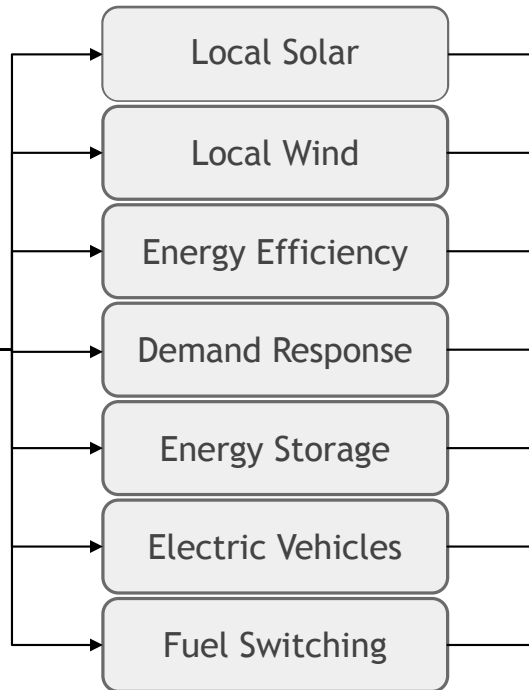


ANALYSIS FRAMEWORK

levers

- MW solar
- MW wind
- \$ investment

programs

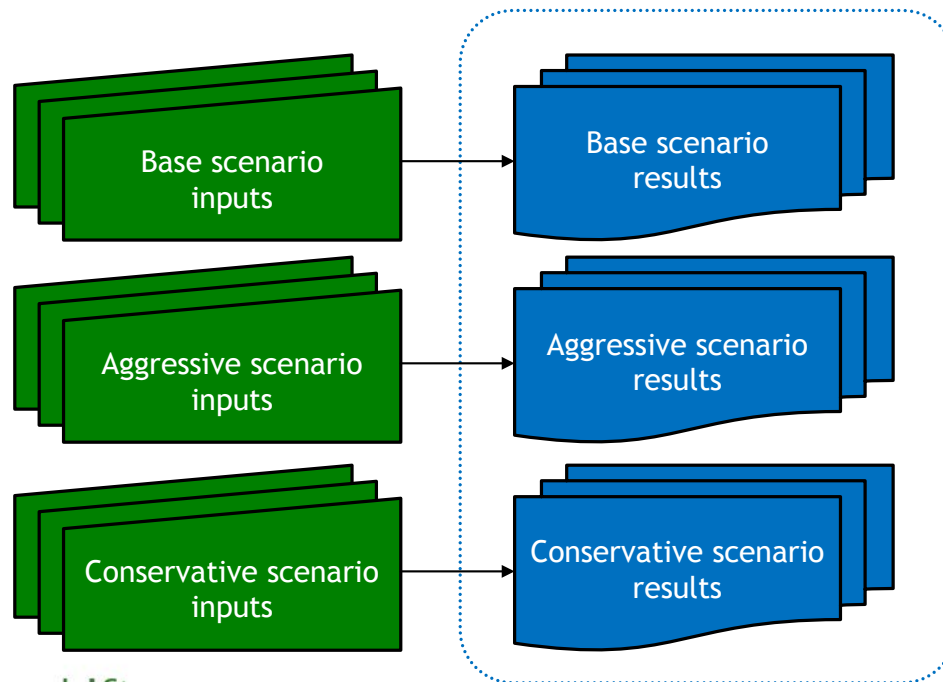


impacts

- jobs, average wages
- local generation
- surplus revenue
- GHG reductions
- air pollutant reductions



COMPARE MULTIPLE SCENARIOS



Multiple impacts:

- ▶ Jobs
- ▶ Average wages
- ▶ Local generation
- ▶ Surplus revenue
- ▶ GHG reductions
- ▶ Air quality impacts



COMPARE MULTIPLE SCENARIOS

- ▶ What will the impacts be if...
 - ▶ FIT and NEM uptake is really strong or really slow?
 - ▶ more small-scale solar is built in Oakland vs. large-scale in Livermore?
 - ▶ an aggressive demand response program is adopted?
 - ▶ there is more investment in electric vehicles and less in energy storage?



REAL PEOPLE, REAL IMPACTS, REAL ANALYSIS





KEY RELATIONSHIPS

- ▶ New local renewables create jobs (at the highest cost to EBCE), but do not result in GHG or air quality improvements.
- ▶ Energy storage, electric vehicle programs, and fuel switching have the potential to reduce GHG emissions and improve air quality over time, but create fewer direct jobs.
- ▶ Energy efficiency and demand response also have potential to reduce GHG and air pollution over time. The benefits are less direct than the above programs, but these programs also support grid resiliency and are thus essential to long term carbon reductions and sustainability.



BEYOND THE NUMBERS

- ▶ The purpose of the scenario analysis is to clarify and communicate a variety of impacts from a variety of programs in one place.
- ▶ CCAs generate dollars for community investment, not shareholder profits. The scenario analysis displays *one* set of options for this investment.
- ▶ Additional pathways are possible.
- ▶ There are important impacts of all of these programs that cannot be quantified; the final draft will include qualitative analysis.
- ▶ In a diverse region, there will be a variety of goals, priorities, and opinions.



FIRST OF ITS KIND DATA-DRIVEN ANALYSIS

- ▶ EBCE is the first CCA to invest in sophisticated analysis of local development.
- ▶ The results from across the LDBP enable a wide-variety of stakeholders to understand the costs and benefits of a variety of programs and thus to meaningfully engage in program development.
- ▶ Ultimately data-driven decision-making will lead to better outcomes for EBCE, its customers, stakeholders, board, and entire community.



QUESTIONS AND ANSWERS

- ▶ Thank you for your participation.
- ▶ We will be pleased to answer questions on our presentation and analysis.



East Bay Community Energy Local Development Business Plan

Closing Remarks

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