EAST BAY COMMUNITY ENERGY

CA Renewable Energy RFP Summary Highlights

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East Bay Community Energy

Goals & Objectives

- Secure a portfolio of contracts to provide EBCE customers with affordable renewable energy sources
- Meet a significant percent of SB350 long term contracting requirements
- Create new CA located renewable energy projects to deliver PCC1 RECs
- Drive CA and Alameda County job creation and community investment
- Contract low cost energy hedges to meet risk management goals

Actions

- Issue a broad, open, competitive solicitation to ensure wide array of opportunities considered
- Evaluate exhaustive combinations of projects to achieve desired volume targets and project characteristics
- Encourage RFP participants to include battery storage
- Target a minimum of 20MW of capacity from projects located in Alameda County

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RFP Solicitation

Request for Proposals

- Established standard offer and encouraged additional bid variations (e.g. size, term length, pricing structure, storage etc.)
- CA-located with a preference for new-build capacity
- Issued on June 4, 2018
- Received 568 unique offers associated with 75 projects, representing 19,770MW of nameplate capacity

Proposal Analysis & Portfolio Design

- All responses evaluated against deterministic electricity forecasts and qualitative considerations to determine short list
- Short listed projects performance tested under different market scenarios and ranked based on individual financial profile
- Individual financial profiles then placed into different potential combinations. Resulting portfolios then ranked by key metrics
- Final portfolio of projects selected based on both qualitative considerations and key financial metrics (expected outcomes, volatility around the expected outcomes and extreme downside outcomes)

Selection & Negotiation

- Final negotiations conducted to ensure selections determined based on most competitive offers
- Additional storage analysis conducted on shortlisted counterparties
- 20 projects shortlisted in the process
- 7 projects currently in active negotiations

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Workforce and Community Investment

- Projects are new construction within the state of California, which will employ significant labor throughout the state
- All development partners have committed to utilizing union workforce. Projects are at varying stages of development with some projects having signed PLAs and some in discussions/negotiations
- All development partners have committed to investing funds within Alameda County in the form of community investment grants/funds

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Key Risks & Mitigating Actions

Risk	Description	Mitigation
Development & Counterparty Risk	Project encounters issues with development milestones, local opposition, equipment sourcing or financing	-Projects selected based in part on qualitative due diligence related to development risk. -The anticipated project portfolio reflects a diverse mix of counterparties and project. -Selected projects are required to post development security to EBCE in event of default. -Regular reporting will track development progress.
Project performance risk	Projects do not perform due to project related issues or poor weather conditions	-Idiosyncratic project issues should be addressed through project/counterparty posted operation security and performance related requirements, such as guaranteed energy production. -Analysis of solar irradiation was completed looking at robust historical data and a wide forecast of potential future outcomes.
Financial Risk	Actual financial profile of proposals deviates from expectations as a reflection of macro energy market characteristics	-Projects evaluated against multiple benchmarks, including historical market data and forward scenarios from 3rd party consultant. Forward scenarios include wide range of market conditions and result in probabilistic financial profiles. -The anticipated project portfolio reflects a diverse mix of project locations and technology that includes storage and wind. -Total MWs procured under this RFP is forecasted to be approximately 30% of annual load.
Congestion / Basis Risk	Transmission constraints degrade the value of power EBCE is purchasing during the term of the agreements	-Quantifying forward congestion is notoriously challenging. EBCE interviewed multiple consulting firms to understand possible treatments. Project financial profiles include recent historical data to reflect current market dynamics. -The load EBCE serves provides partial offset to potential congestion.
Load management Risk	EBCE load reduces based on customer departures, increase in distributed energy resources, DA, energy efficiency, population decline, etc.	-Detailed management of load forecasts into the future and conservative renewables procurement that limited long-term contracts. -Total MWs procured under this RFP is forecasted to be approximately 30% of annual load.

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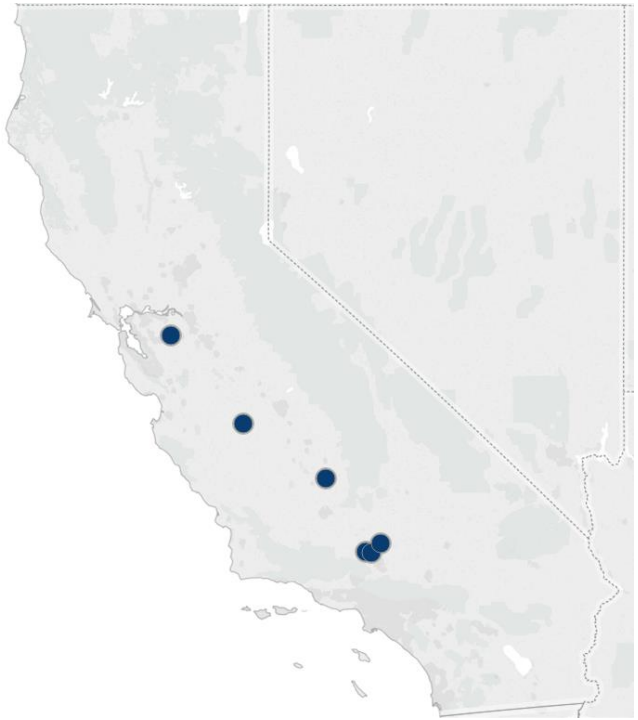
Portfolio Characteristics

- The final portfolio is expected to include 6-8 projects totaling approximately 600-700MWs in project capacity and up to 2,000,000MWhs per year
- Projects range from 50 to 150MWs
- The portfolio is expected to includes standalone solar PV, Solar PV + storage, and standalone wind
- Storage is included in 2 projects totaling between 60-90MWs of capacity with a 4hour duration
- Project maturities range from mid-stage to late-stage development status
- All projects are committed to utilizing union labor
- Projects include funds allocated towards community investment
- Projects include pnode and PG&E DLAP settled projects, 15-20year PPAs, as well as fixed and 2% escalating pricing structures



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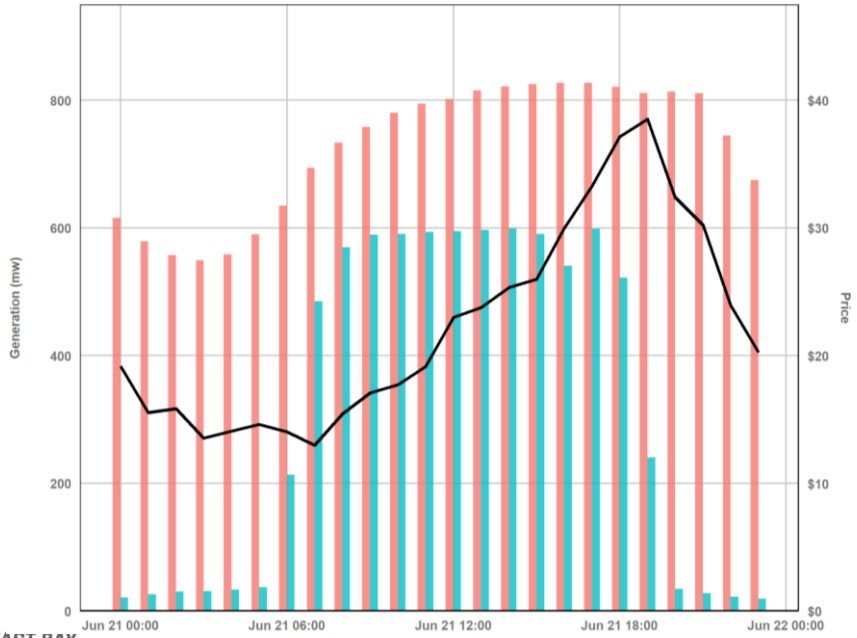
Proposal Analysis Methodology

- The hourly wholesale value of the electricity generated (relative to the contract price) was evaluated under a range of market conditions (~2,000 scenarios of projects for the next 15+ years).
  - Considered various natural gas prices, grid fundamentals, solar penetration, and weather conditions
- Analysis of basis risk associated with pnodes was completed based on historical pricing with a forecast incorporating statistical risk assessment.
- The resulting hourly cash flows were then summed to illustrate the range of potential cash flows in every month and year of the contract.
- The financials were plotted together to illustrate how frequently various levels of gains and losses occurred. This process also incorporated various risk weightings to consider mitigating downside scenarios.
- Because each proposal provided a unique hourly value profile, the projects were grouped into approximately 18,000 different potential portfolios to represent all possible project/portfolio combinations to meet EBCE's target capacity.
- EBCE selected the portfolio of projects that provided the best economic value while mitigating downside risk and, achieving qualitative criteria related to location, workforce development, and community investment.

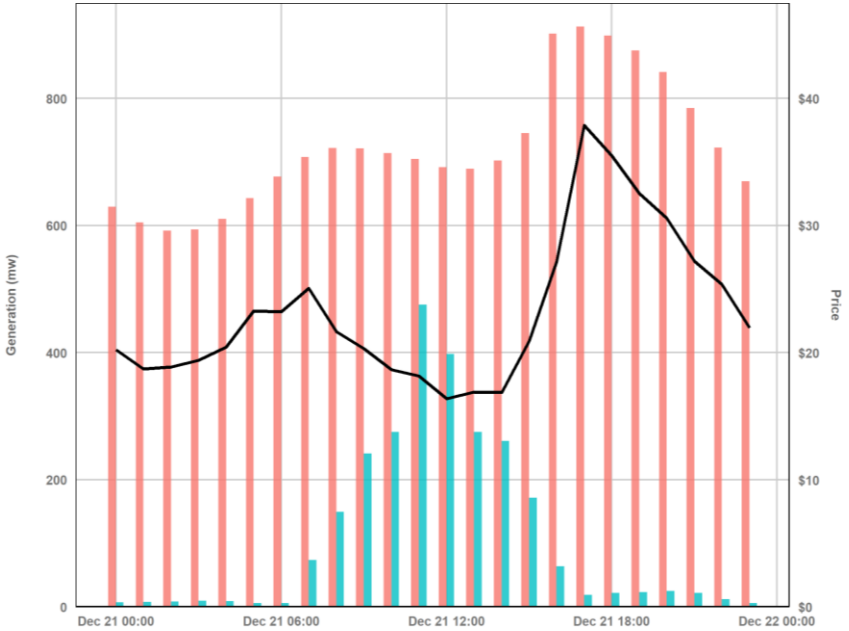
Sample: Historical Hourly Volatility

Due to the intermittency of renewable energy, there will be hours in which EBCE relies heavily on the open market to purchase electricity for customers. There will also be hours in which the renewables account for a greater proportion of the supply mix. Managing this risk will be key for success. Note: This portfolio does not reflect the integration of storage.

Example Summer Day



Example Winter Day



Customer usage

Renewable generation

Wholesale price

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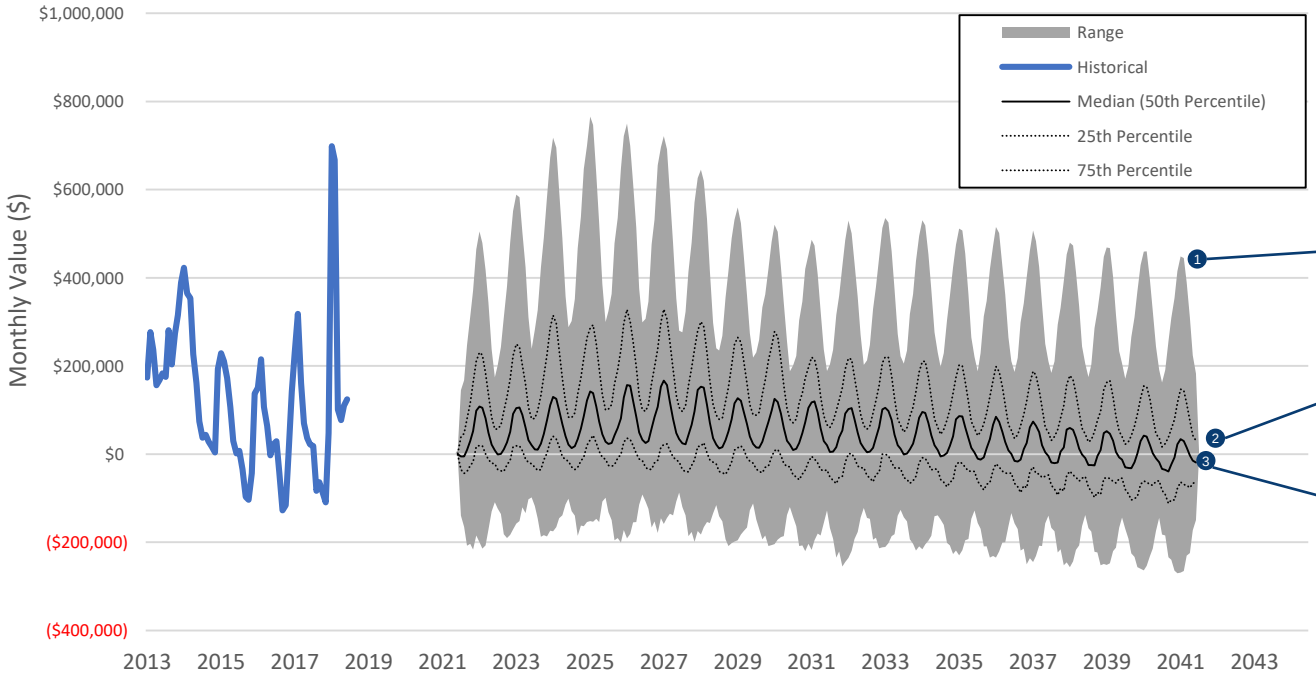
Example – Cash Flow Analysis

Monthly Economics: Historical vs Future



The range of cash flows that the contract produces with 99% likelihood in each month (1st percentile – 99th percentile)

The range of cash flows that the contract produces with 50% likelihood in each month (25th percentile –75th percentile)

The 'expected' cash flow that the contract produces in each month (50th percentile)

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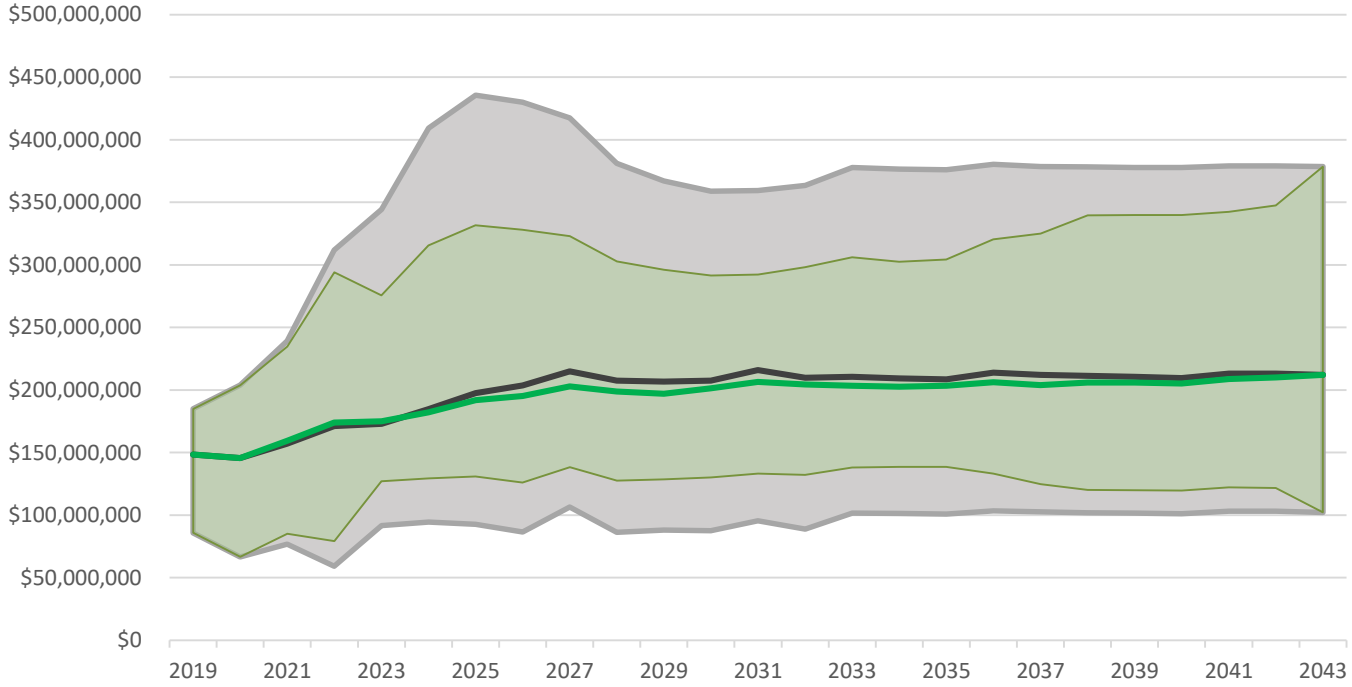
Forward looking analysis does not include monetary inflation ("CPI"); cash flows reflect energy only component

Strategically Managing Risk for Customers

The Impact of Renewables on Customer Cost Certainty



- Customers' bills are impacted by potential volatility in the price of electricity
- By incorporating the portfolio of fixed-price renewable energy, we can reduce the risk faced by our customers by ~40% (as measured by +/- 25% swings in cost; or the p25-p75 range)
- Based on the competitive price of renewables, this benefit can be achieved at a reduction in the median cost of ~3%

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Project and portfolio analysis conducted by Edison Energy

Next Steps

- Complete PPA negotiations for projects and anticipate bringing forth projects for board approval in May and June board meetings
- Certain contract terms, such as price will be redacted
- June Board retreat will include discussions on broader renewables procurement topics
- IRP process to begin this summer to look at the 5-10 year time frame and renewables targets above SB350 requirements
- Additional RFP/RFI planning to take place after completion of the CA Renewable Energy RFP

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