



SEEC Virtual Forum: Webinar 9

August 20, 2020 | 10:00 AM – 11:00 AM PST

Maximizing Value of Resiliency Program: Case Study & Resources



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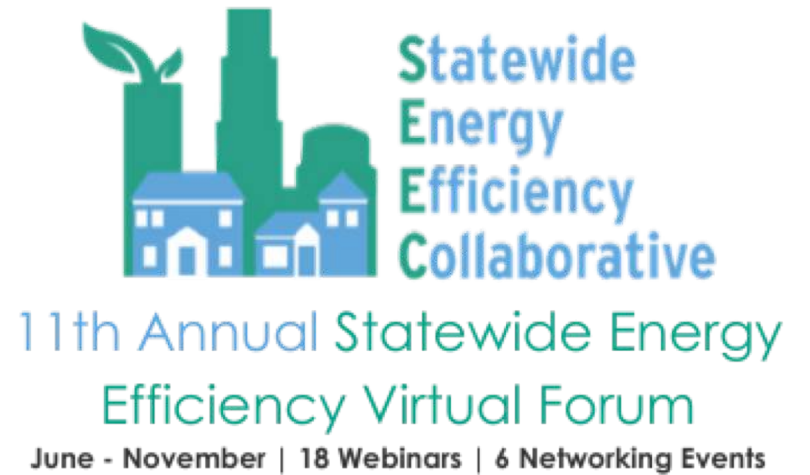


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8/25 – Networking Activity 3 Pictionary: Climate and Energy Edition!

9/1 – Webinar 10 Building Decarbonization Full Throttle: CPUC Updates and Regional Implementation

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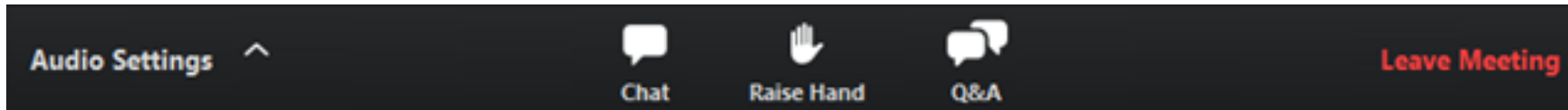
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Q&A

- Submit questions for panelists through the Q&A module at any point during the webinar.
- Upvote questions that you are interested in hearing responses to.



Chat

- Engage in a dialogue with your peers – share resources, case studies, and best practices
- Reach out to LGC staff if you encounter technical issues or have questions about the SEEC Forum.



Introducing Today's Panelists



Marie Gunter
Commercial Solar
Project Developer &
Manager
GRID Alternatives, Bay Area



Jamie Tuckey
Director of Strategic
Initiative
MCE



David Burdick
EVP Business
Development
TerraVerde



Woody Hastings
Energy Program
Manager
The Climate Center





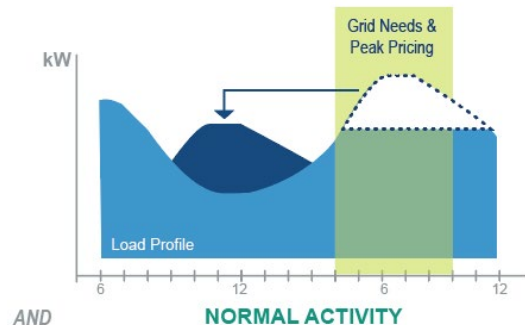
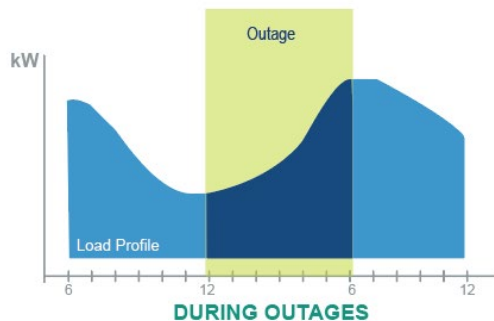
My community.
My choice.

MCE Energy Storage Program

August 20, 2020 

Program Vision

Dispatchable, fossil-free customer-sited storage for back-up power and shifting/shaping load away from peaks.



AND

Resilience

Back-up during power shut-offs or other outage events

Bill savings

By reducing demand changes and peak pricing

Lower emissions

Battery aligns with renewable energy sources to reduce carbon emissions

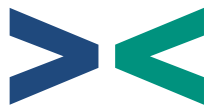
Contribute locally

Participation supports a healthy, reliable local grid

MCE Program Approach

BREAKTHROUGH

Innovative solution
concept & new to market



FOLLOWTHROUGH

Identify partners to launch, implement & manage the program.



PHASE 1. DEPLOY 15 MWH OF BATTERY STORAGE TO MCE CUSTOMERS

to meet initial
two-year resiliency and reliability goal

PHASE 2. EMPOWER MONITORING & CONTROL of diverse assets

PHASE 3. ENABLE FUTURE REVENUE STREAMS

by integrating the storage into CAISO
scheduling

Step 1: Funding Sources



- \$6M MCE Resiliency Fund

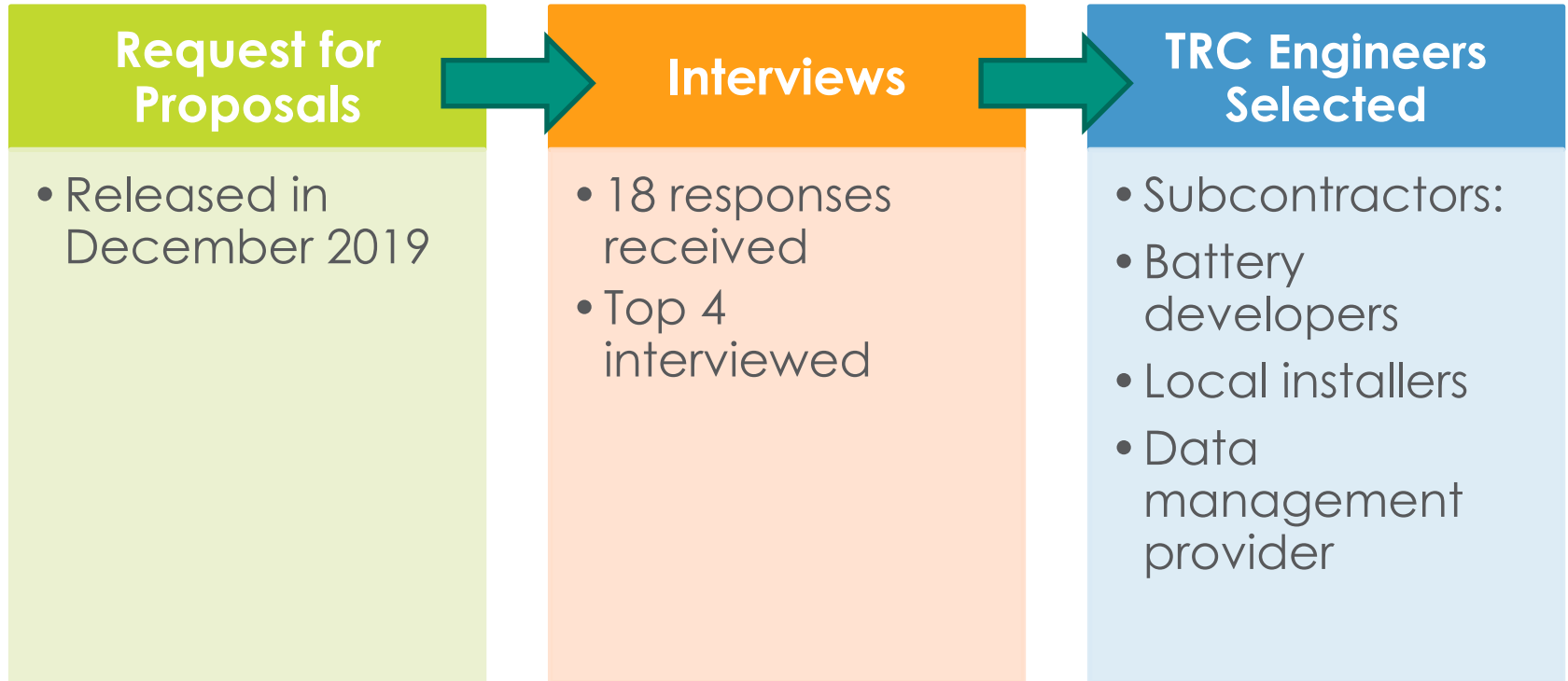


- \$200M+ Self Generation Incentive Program



- \$750,000 Marin Community Foundation Grant

Step 2: Program Partners



Step 3: Battery Programming & Control

Use Case 1 Daily Peak Load Management

- Off-peak charging from on-site solar & the grid
- On-peak discharging (4-9pm) to help power building

Use Case 2 Planned Public Safety Power Shutoffs

- Battery plans to charge to full capacity at time of notification

Use Case 3 Emergency Outages

- Battery immediately begins charging

Step 4: Customer Offering



MCE plans, designs & installs battery

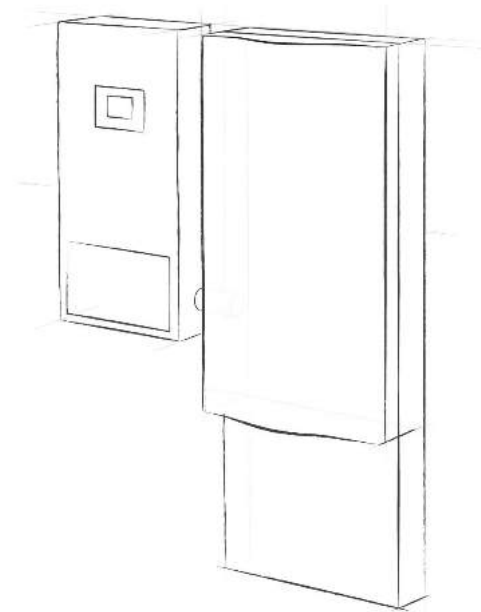


Reduced or no-cost customer-owned battery

- Stacked incentives: SGIP + MCE gap and/or bridge funding
- \$10-\$200/month bill credits
- Reduced energy costs with smart charging and discharging

Step 5: Determining Priority Customers

- Who are the most vulnerable and which serve critical needs?
- How do we maximize funding streams?
- What are the technical or physical site requirements?



Energy Storage Program Eligibility

- Mirror SGIP eligibility, prioritizes most vulnerable
 - 2+ public safety power shutoffs and/or high fire threat districts
 - Critical facilities
 - Low income, medically vulnerable
 - Disadvantaged communities
- Sites with existing or planned solar



Example Costs & Incentives

Customer Type	SGIP Eligibility	Battery Size	Project Costs	SGIP Incentive	MCE Gap Funding	Customer Pays
Residential	Equity Resiliency	17 kWh	\$20,000	\$17,000	\$3,000	-
Residential	General Market	17 kWh	\$20,000	\$5,000	\$2,000 - \$5,000	\$10,000 - \$13,000
Commercial	Equity Resiliency	200 kWh	\$200,000	\$200,000	-	-
Commercial	General Market	200 kWh	\$200,000	\$100,000	\$50,000	\$50,000

Step 6: Customer Marketing

- Worked with local government to identify priority critical facilities
- Direct email & mail marketing to eligible customers
- 150+ customers enrolled or in the pipeline in 1 month



Opportunities, Challenges & Lessons

- Eligibility data can be tricky - SGIP applications rejected due to conflicting eligibility data from PG&E
- Plan for lots of time for program design & rollout, but don't miss out on funding opportunities (SGIP)
- The market is ready and willing to pay
- Lead with messaging that allows for flexibility in program offering and incentives

Thank You

Jamie Tuckey

Director of Strategic Initiatives

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MARKET

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ENERGY

BEST PRACTICES IN CCA DER PROGRAMS

SEEC Virtual Forum - August 2020



David Burdick
Executive Vice President
david@terraverde.energy

TerraVerde ENERGY

independent energy advisory firm proudly supporting CCAs with designing, deploying, and administering DER programs, including:



DER PROGRAMS

TECHNOLOGIES



Battery



Solar PV



EV Charger



Thermostat



Water Heater

BENEFITS

- Reduced procurement costs
- Reduced RA requirements
- Reduced NEM payouts
- Reduced GHG emissions
- Shared value with customers
- Increased customer engagement
- Increased customer resiliency
- Increased electrification (revenue)

EXAMPLE PROGRAMS



DISTRIBUTED RA PROGRAM

DERs: solar PV + battery energy storage

Target Customers: residential & commercial customers with added emphasis on low-income and medical baseline

Value Streams: resource adequacy for CCAs, resiliency for customers

Stage: development



GREEN DISTRICT PROGRAM

DERs: battery, EVSE, thermostats, water heaters

Target Customers: residential, commercial, & municipal customers

Value Streams: wholesale market revenue & procurement cost savings to CCA, cost savings & resiliency benefits to customers

Stage: design

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DATA-DRIVEN
PROGRAM
DESIGN

MARKET

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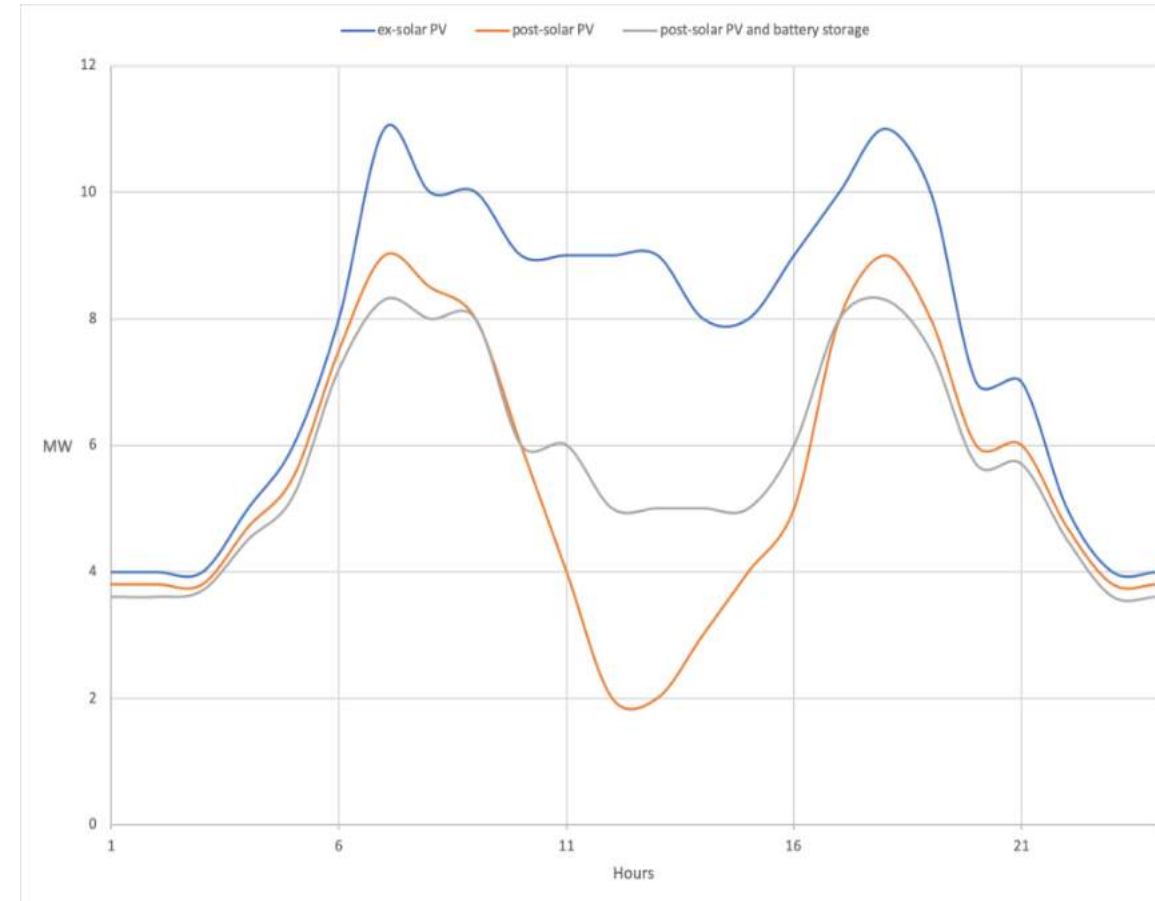
DATA-DRIVEN PROGRAM DESIGN

- Clarify and Establish Program Goals
- Assess Technology & Benefit Options
- Evaluate Historical Load & Procurement Costs
- Model Program Iterations
- Identify Target Customer Segments & Accounts
- Assess Available Incentives & Financial Structures
- Finalize Program Design

Example Financial Analysis

Impacts					
Electricity Sales Impacts (\$)	Day Ahead Impacts (\$)	Demand Response Revenues (\$)	Resource Adequacy Benefits (\$)	GHG Impacts (tCO2/MWh)	Net Benefits
\$8,460.27	\$49,279.31	\$255,670.00	\$123,958.02	-25.41	\$437,367.59

Example Load Shape Impacts of Batteries



example

SUMMARY METER MATRIX FOR BATTERY PROGRAM

Customer	SAID	Rate	Existing Solar PV Size (kW)	Existing Solar PTO Date	Total Consumption (kWh, ex-solar)	Facility Peak Demand (kW)	Load Factor	Percentage of Load in Evening Peak Ramp	SGIP Program Eligibility (Base, Adder, Equity Resiliency)



NAVIGA•DER

software to support CCAs in designing intelligent DER programs



funded by the CEC | will be available later this year



DATA-DRIVEN
PROGRAM
DESIGN

EFFICIENT
PROGRAM
DEPLOYMENT

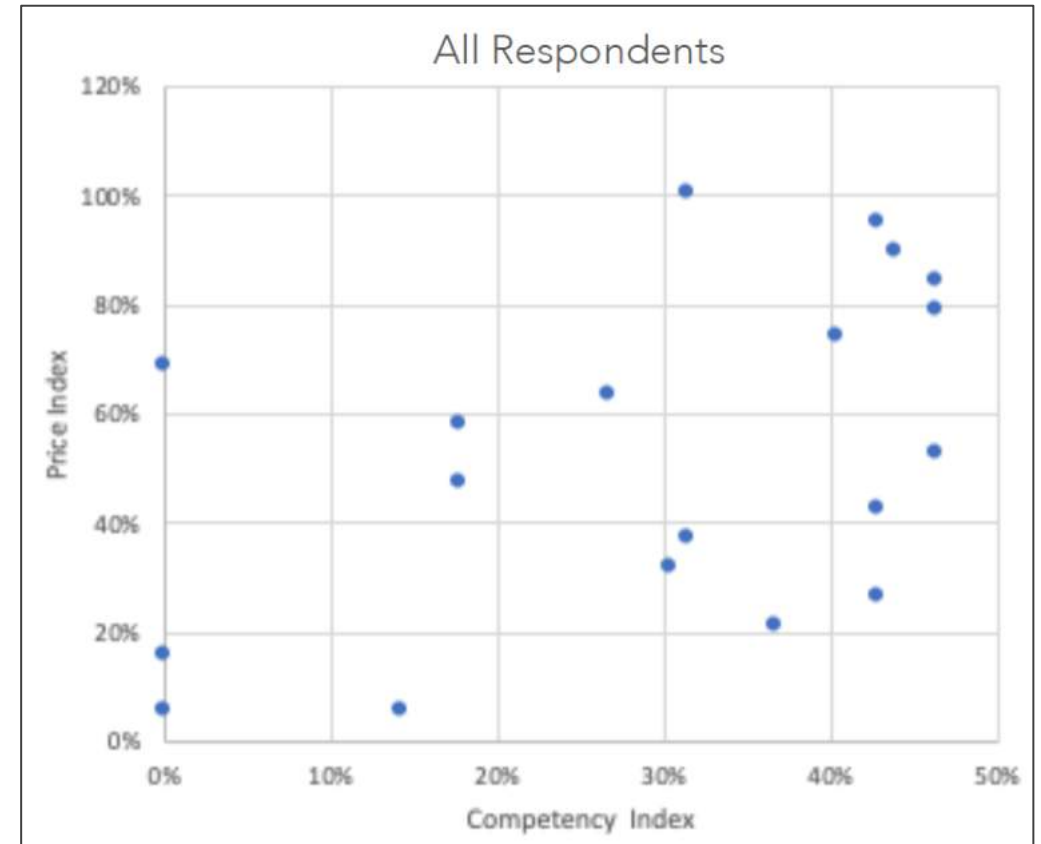
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EFFICIENT PROGRAM DEPLOYMENT

KEYS TO EFFICIENT RFPs

- Clear program specifications and goals while leaving opportunity for innovation
- Clear response requirements that allow for efficient “apples-to-apples” comparisons
- Comprehensive response requirements that ensure all necessary information is available
- Completed draft contract that creates a strong starting point for negotiations

Example Anonymized Respondent Evaluation Results



DATA-DRIVEN
PROGRAM
DESIGN

EFFICIENT
PROGRAM
DEPLOYMENT

EFFECTIVE
PROGRAM
ADMINISTRATION

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EFFECTIVE PROGRAM ADMINISTRATION

KEYS TO EFFECTIVE PROGRAM ADMIN

- Defining KPIs, strong leading indicators
- Scalable enrollment and validation process
- Transparent, actionable progress reporting
- Soliciting & capturing customer feedback
- Leveraging collected customer data

Example Summary Progress Reporting

	Last Month's Progress	Cumulative Progress	Total Target	Cumulative / Total (%)
Customer Enrollment (All Customers)				
Number of Customers Enrolled				
Associated Battery Capacity (MW-AC)				
Associated New PV (MW-DC)				
Target Customer Enrollment (LI-DAC Customers)				
Number of LI-DAC Customers Enrolled				
Associated Battery Capacity (MW-AC)				
Milestone Progress				
Commenced Installation (Battery Capacity, MW-AC)				
Commenced Operation (Battery Capacity, MW-AC)				

NAVIGADER

software for designing DER programs



LOG IN

DASHBOARD

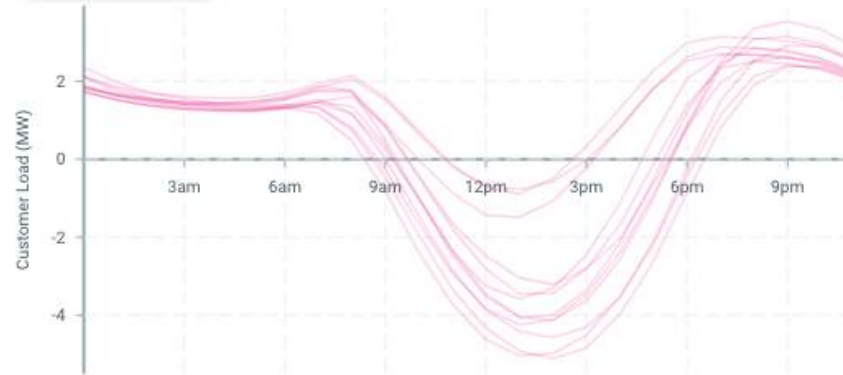
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UPLOAD

Uploaded Files

ADD FILE

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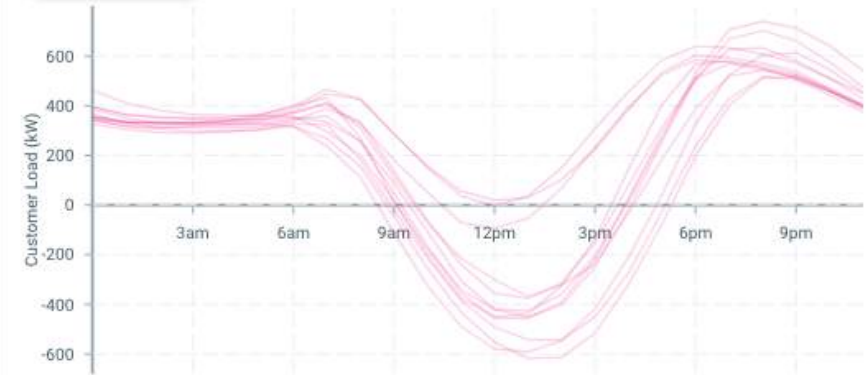
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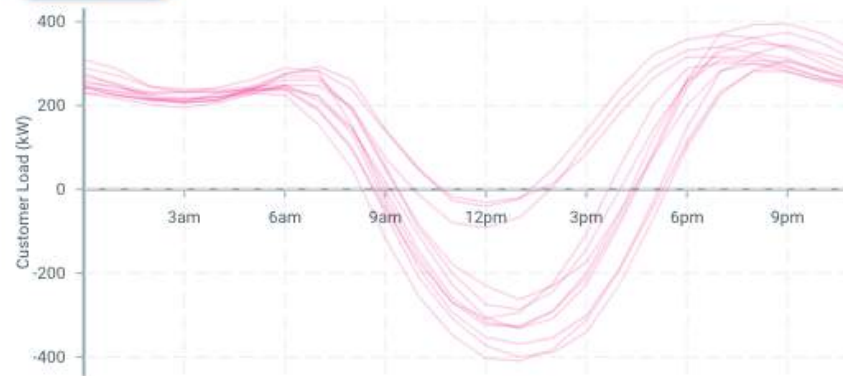
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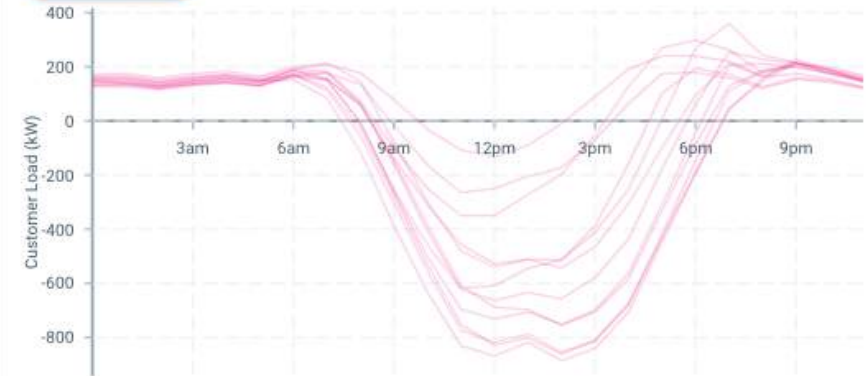
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Target Customer Identification

DASHBOARD

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Dashboard

COMPARE SCENARIOS

NEW SCENARIO

Scenarios

☐ Impact per customer

☐	Name	Created	Customer Segment (#)	DER	Program Strategy	Usage Impact (kWh/year)	Revenue Impact (\$/year)	GHG Impact (tCO ₂ /year)	RA Impact (MW/year)	Status	Menu
☐	Resi Battery Program - GHG Emissions Reduction	May 19, 2020	nem_e6_15min (107)	10kW @ 2 hours (90.0% efficiency)	GHG Reduction: CNS 2022 (charge from grid: True, discharge to grid: False)	68788.14	-\$6,747	0.53	-1.54	✓	⋮
☐	Resi Battery Program - RA Reduction	May 19, 2020	nem_e6_15min (107)	10kW @ 2 hours (90.0% efficiency)	RA Reduction: CCA 2018 (charge from grid: True, discharge to grid: False)	9736.08	-\$337	4.79	-2.11	✓	⋮
☐	Resi Battery Program - Flatten Evening Load Using NEM Exports	May 19, 2020	nem_e6_15min (107)	10kW @ 2 hours (90.0% efficiency)	Flatten Evening Load (4 PM to 10 PM Using NEM Exports)	27046.89	\$879	-42.59	-0.25	✓	⋮
☐	GHG Reduction	May 18, 2020	nem_etou_60min (1) (1819)	250kW @ 4 hours (86.0% efficiency)	GHG Reduction: CNS 2022 (charge from grid: False, discharge to grid: True)	771308.72	-\$26,712	-83.04	-0.93	✓	⋮

Program Iteration Evaluation

DASHBOARD

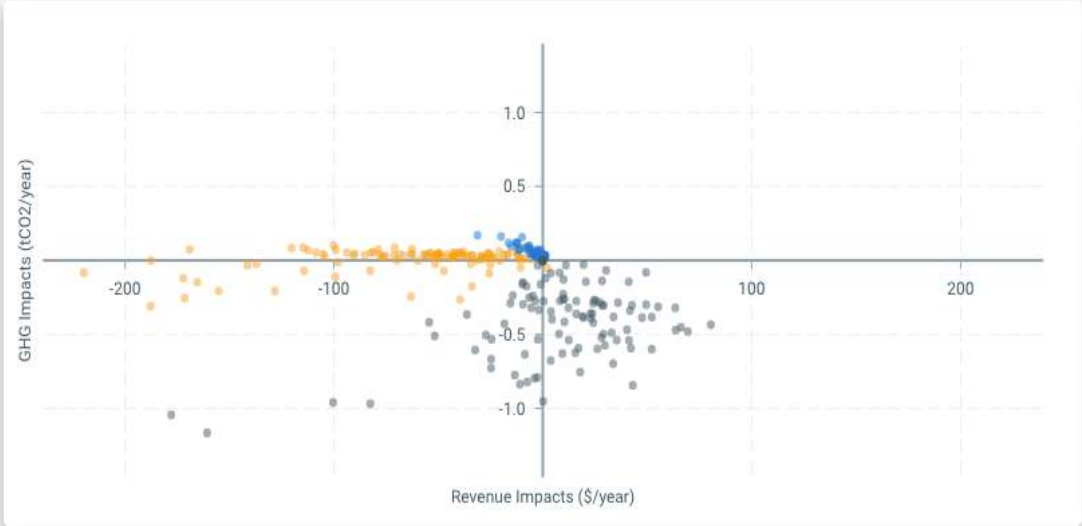
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UPLOAD

← Dashboard / Scenario Comparison

Scenario Comparison

Customer Bill Impact vs. GHG Impact



☐ Aggregate Customers

Legend

- Resi Battery Program - GHG Emissions R...
- Resi Battery Program - RA Reduction
- Resi Battery Program - Flatten Evening L...

Customers

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	SA ID	Rate Plan	↓ Usage Impact (kWh)	Revenue Impact (\$)	GHG Impact (tCO ₂)	RA Impact (kW)
●	484	HE6N	1270.75	-\$171	-0.25	-10.11
●	780	HE6N	1246.61	-\$155	-0.21	-16
●	652	HE6N	1223.14	-\$188	-0.31	-17
●	850	HE6N	1200.36	-\$128	-0.21	-26
●	540	HE6N	1181.11	-\$220	-0.08	-23

Analyze & Compare Scenarios



BEST PRACTICES IN CCA DER PROGRAMS

SEEC Virtual Forum – August 2020



David Burdick
Executive Vice President
david@terraverde.energy



SEEC Forum – August 20, 2020

Woody Hastings, Energy Program Manager

the
climate
center

Maximizing the Value of Resiliency Programs: Case Study & Resources

Why is The Climate Center involved?

- Reduction of greenhouse gas (GHG) emissions

And co-benefits...

- Increased reliability for customers
- Local economic value
- Grid system benefits
- Addressing equity issues

Policy Drivers



- Legislative
- Regulatory
- Gubernatorial
- Judicial
- CCAs
- Wild cards



...accelerating the deployment opportunities for GHG reduction, energy resilience and all of the co-benefits

Legislative

Align project outcomes with state policy



- AB 802 (Williams, 2015) – Building energy efficiency benchmarking
- SB 350 – Renewable portfolio standard – Superseded by SB 100 (De León, 2018), still a driver

Regulatory

- Policy goals in SB100
 - Administered by CPUC and CEC
 - R.18-07-003 – CPUC proceeding that continues implementation and administration of the California RPS for 60% by 2030
- Regulatory enforcement under AB 802
 - Administered by CEC
 - Applies to buildings that are 50,000 square feet or more (with some exceptions)
 - Must conduct an Energy Benchmark annually
 - Penalties for non-compliance range from \$500 to \$2,000 per day
- SGIP equity/resiliency budget

Gubernatorial Executive Action

Executive Department

State of California

EXECUTIVE ORDER B-55-18 TO ACHIEVE CARBON NEUTRALITY

IT IS HEREBY ORDERED THAT:

1. A new statewide goal is established to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing greenhouse gas emissions.

CCA Expansion

When we applied for the grant in 2017 there were five operational CCAs and it was still not clear if CCAs would succeed and become drivers of innovation.



**There are now
twenty-one
operational
CCAs!**



1. [MCE Clean Energy](#)
2. [Sonoma Clean Power](#)
3. [Lancaster Choice Energy](#)
4. [CleanPowerSF](#)
5. [Peninsula Clean Energy](#)
6. [Silicon Valley Clean Energy](#)
7. [Apple Valley Choice Energy](#)
8. [Redwood Coast Energy Authority](#)
9. [Pico Rivera Innovative Municipal Energy](#)
10. [Pioneer Community Energy](#)
11. [Clean Power Alliance](#)
12. [Monterey Bay Community Power](#)
13. [San Jacinto Power](#)
14. [Rancho Mirage Energy Authority](#)
15. [Solana Energy Alliance](#)
16. [Valley Clean Energy](#)
17. [East Bay Community Energy](#)
18. [San Jose Clean Energy](#)
19. [King City Community Power](#)
20. [Desert Community Energy](#)
21. [Western Community Energy](#)

Other Drivers: Wild Cards



- Wildfires of 2017, 2018, 2019
- PSPS
- IOU Bankruptcy
- Covid-19
- ? What's next ?

2017 Tubbs Fire – Coffee Park - Before/After



The Covid Situation – Impacts

ENFORCEMENT POSTPONED: CALIFORNIA BUILDING ENERGY BENCHMARKING

- Due to the interruption and hardship caused by COVID-19, owners of large commercial and multifamily buildings may delay compliance with the benchmarking reporting requirements from June 1 until September 1, 2020
- The CEC will not enforce the Benchmarking Program reporting requirements prior to September 1, 2020.

Conclusion: Drivers Strengthen Relevance

- Initial drivers remain relevant
- New policy drivers strengthen impetus for, and importance to stakeholders of for DER deployments
- Wild cards tend to strengthen rationale for BEO

Thank you!



Woody Hastings

Energy Program Manager

The Climate Center

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