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Clean Power Alliance
Power Response

CPA CLEAN POWER ALLIANCE

CEC Demand Flex Workshop

July 18, 2023

Agenda

- Clean Power Alliance Overview
- Power Response Program
  - Program overview
  - Implementation approach
  - Targets and results
  - Challenges and opportunities

Joanne O'Neill

Director of Customer Programs

Clean Power Alliance Overview

CPA CLEAN POWER ALLIANCE

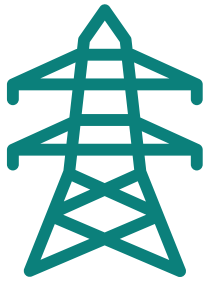
About Clean Power Alliance

- Joint Powers Authority serving 35 communities across Ventura and Los Angeles Counties
- 4th largest electricity provider in California providing service to over 3 million residents and businesses
- More customers receiving 100% renewable energy than any other utility in the nation
- Largest Community Choice Aggregator (CCA) in California

Local Programs for a Clean Energy Future

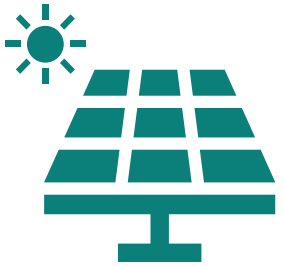
Our strategic plan calls for $200 million of investments in the communities we serve in three areas:

Resilience & Grid Management



Building & Transportation Electrification

Local Procurement



Program Overview

CPA CLEAN POWER ALLIANCE

Power Response Overview

What is Power Response?

- A demand response program that encourages both residential and commercial customers to reduce energy usage during energy savings events, when electricity cost is at its highest
- The program features four tracks in which to participate, making it available to all CPA customers so everyone has the chance to reduce energy usage and receive incentives.

How Does it Work?

- Participants in the program receive financial incentives for reducing stress on the grid, while helping our communities become more resilient.

Program Goals:

Objective #1

Reduce customer electricity use when demand on the grid is high

Objective #2

Reduce power outages and create resiliency

Objective #3

Unite customers in community action for the greater good

	CPA CLEAN POWER ALLIANCE POWER RESPONSE Smart Home	CPA CLEAN POWER ALLIANCE POWER RESPONSE Home	CPA CLEAN POWER ALLIANCE POWER RESPONSE Multifamily Community	CPA CLEAN POWER ALLIANCE POWER RESPONSE Commercial Leaders
Launch Status	Launched – January 2022	Launched – May 2023	Launched – March 2023	Launched – March 2023
Eligibility	Residential • Owns eligible smart connected device	Residential • Smart connected device not necessary	Affordable Multifamily Housing • (5) or more units • Meets affordable housing qualification	Business • Site(s) with regular energy use between 4 and 9 PM
DR Method	• Automatic Demand Response • Smart Connected Devices	• Behavioral Demand Response • Participants manually adjust their usage at home	• Automatic Demand Response • Smart Connected Device	• Automatic for site(s) with an eligible smart device and/or • Sites manually adjust electricity use of systems
Incentives	**Enrollment Incentives:** – Smart Thermostat: $80 – EV Charger: $100 – Battery: $300-$400 **Participation Incentives:** – Smart Thermostat: $40 – EV Charger: $25 – Battery: $100-$300 **Incentive Type:** – Digital or physical gift cards	**Enrollment Incentives:** – $20 for eligible CARE/FERA and DAC customers **Participation Incentives** – $2/kWh reduced (cumulative) **Incentive Type:** – Digital or physical gift cards	**Enrollment Incentives:** – $130/device incentive to building owners for managing enrollment and installation **Participation Incentives:** – $40 per device to residents – $30 per device to building owner **Incentive Type:** – Paper checks for enrollment – Gift cards for participation	**Participation Incentives:** – Incentive based on monthly average kW reduction – Up to $80 per kW each year for power reduced during events **Incentive Type:** – Paper checks to businesses

Implementation Approach

CPA CLEAN POWER ALLIANCE

Customer Outreach and Engagement

- **Awareness**
  - Overall CPA awareness
  - Informational program webpages
  - Explainer videos
- **Outreach**
  - Targeted email (OEM & CPA)
  - Social media & digital ads
  - Billboards & transit ads
  - Radio Advertisement
- **In Language Program Support**
  - Translated webpages
  - Translated Terms & Conditions
  - Call Center Support

Smart Home Program Structure

- **Program Structure:** Market facing automated demand response program

- **Program Parameters:**
  - 20 events per season (May-Oct, Nov-Apr)
  - Events up to 4 hours, no more than 3 events / week, no events on holidays
  - Exception – Grid Emergency per CAISO

- **Event Notifications:**
  - Day Ahead Notification Email
  - Day Of Reminder Email
  - Announcement on Device

Smart Home Enrollment Process

Step 1 - Start Enrollment:

Start the enrollment by selecting your device on the CPA webpage **OR** directly through your smart device.

Step 2 – Authorize to Share Your Data:

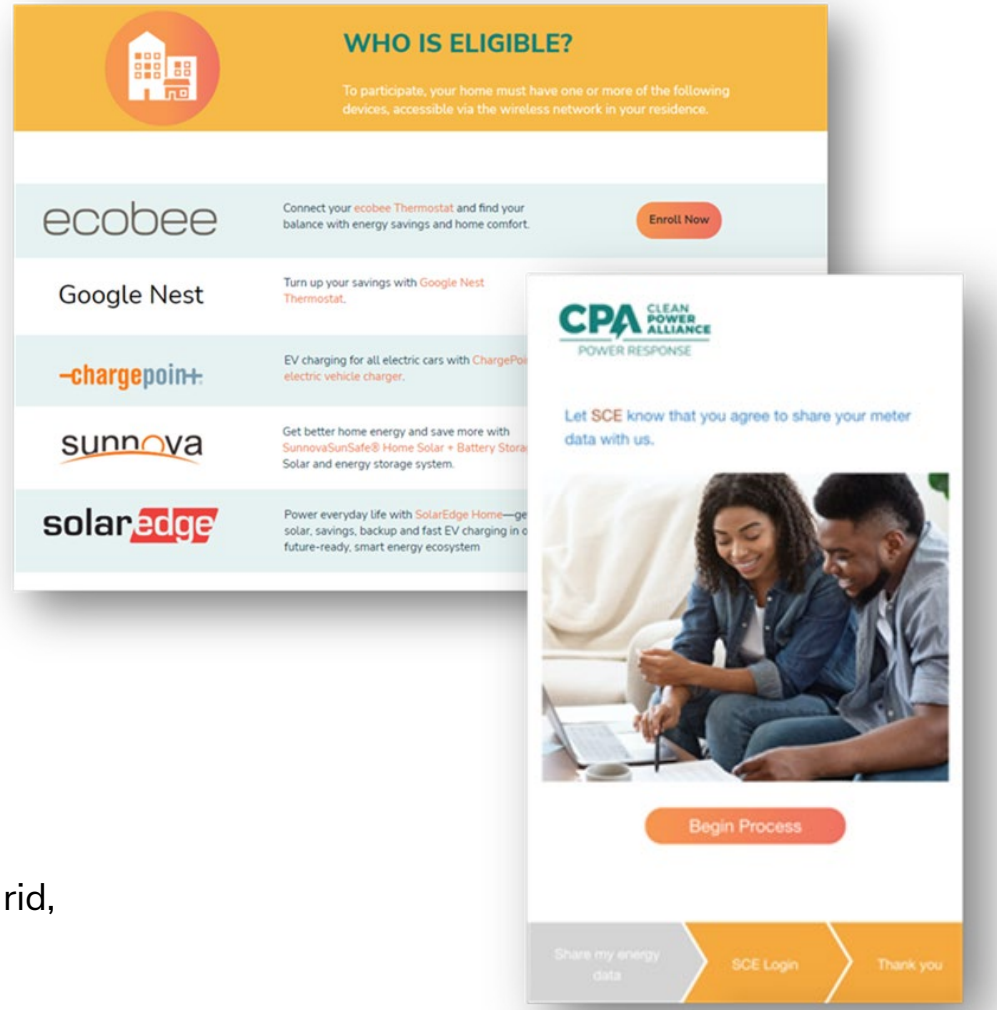
Follow prompts through the **ShareMyData** application to safely share your SCE meter data with the Program.

Step 3 – Register Your Device:

If the customer selected to enroll through the CPA webpage, they will then register their device in the Power Response Program through their OEM's device, application, or webpage.

Note:

Customers are then registered in DRRS by our program implementer, AutoGrid, which takes up to 4 weeks to process



Targets and Results

CPA CLEAN POWER ALLIANCE

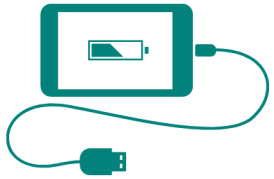
CLEAN POWER ALLIANCE

POWER RESPONSE
Smart Home

2022 Results

6.4 homes' electricity use for one year

84,673 miles driven in a gas-powered car



4M smartphones charged

Program 2023 Targets

Technology	Devices Enrolled	Load Reduction Potential
Battery Energy Storage	53	53 kW
EV Charging Station	112	56 kW
Smart Thermostat	1,826	1,826 kW
Total	**1,991**	**1,935 kW**

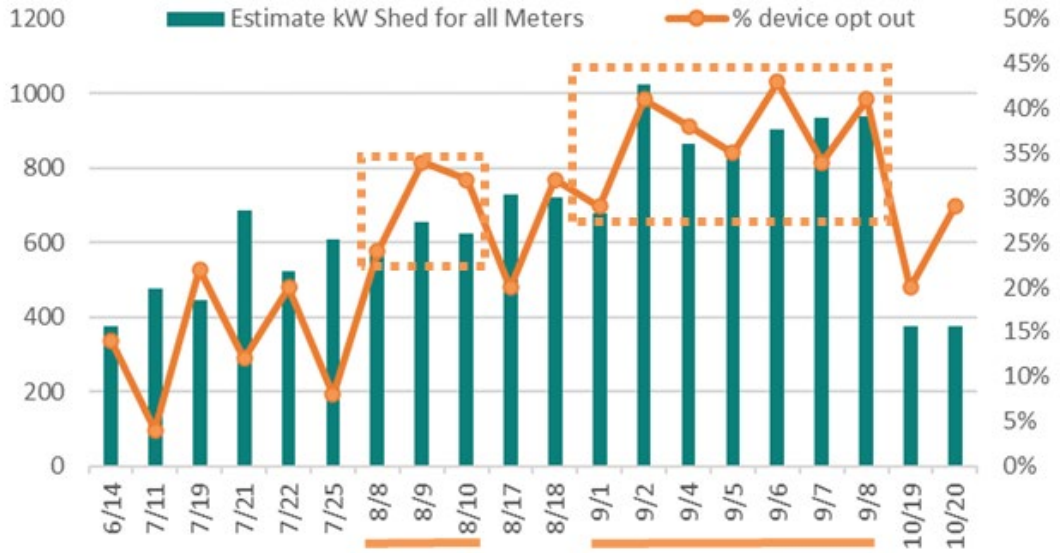
Survey Results

87%+ of participants would recommend program

Primary reason for participation:
save energy and money (53%) and **financial incentives** (27%)

Smart Home Event Performance

- **Summer 2022 Energy Saving Events:**
  - Average daily load reduction: **0.7 MW**
  - To-date savings of **47 MWh**
  - Average event opt out: **27%**



- **Measurement & Verification**
  - Net energy reduction is compared to historical energy use
  - CAISO's Business Practice Manual for Demand Response - five-of-ten baseline

Challenges and Opportunities

CPA CLEAN POWER ALLIANCE

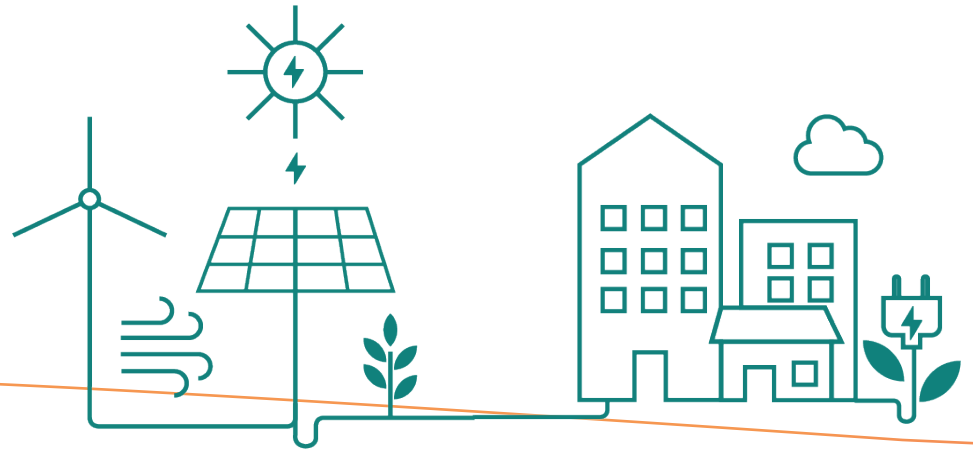
Considerations for Scaling

Challenges

- Recruitment and enrollment timelines are lengthy
- Data access and Rule 24 data release process adds customer burden
- Increased event opt-outs during consecutive event hours and days

Opportunities

- Expand device and manufacturer eligibility
- Increase program accessibility for low-income customers



Thank you

Additional information available at
www.cleanpoweralliance.org/powerresponse

CEC Workshop – VPP/DF

Kimberly Beltran, Technical Programs Manager

Sonoma Clean Power

Sonoma Clean Power

Sonoma Clean Power – Who we are

Community Choice Aggregator (CCA)

- CleanStart - 50% renewable, 91% carbon-free
- EverGreen – 100% renewable and local 24/7

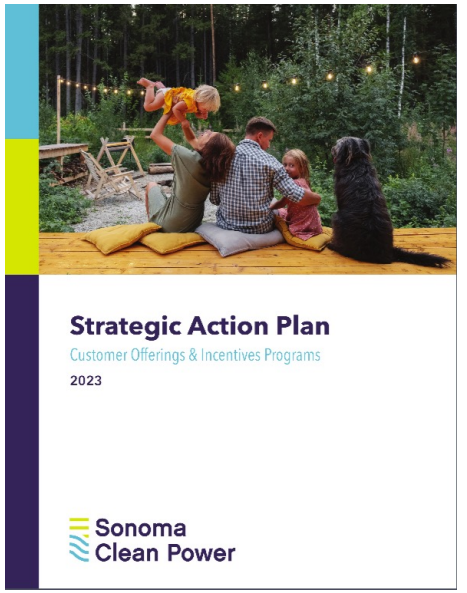
History

- Public agency and the default service provider serving Sonoma County since 2014 and Mendocino since 2017. Run by a Board of Directors and Community Advisory Committee with approximately 230,000 customer accounts. Operate from revenue, not taxes.

SCP programs:

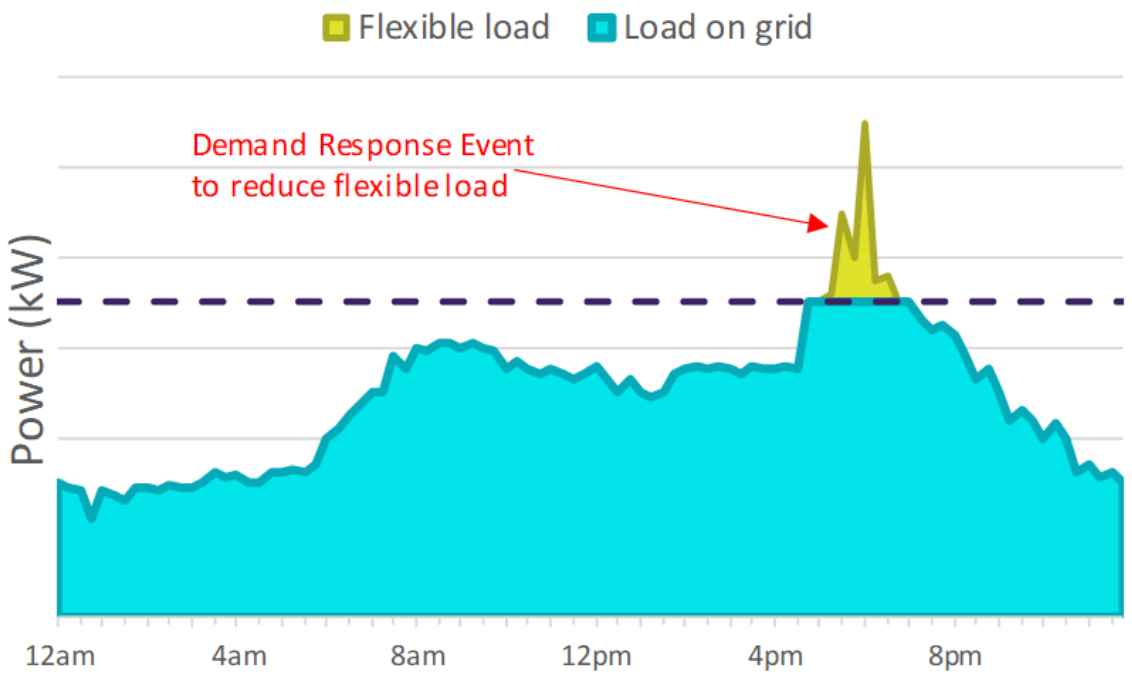
- Designed to address specific areas of community interest and incorporates equity considerations. Details are available in our Strategic Action Plan found at www.sonomacleanpower.org/strategic-action-plan.
- Full current offering can be found at www.sonomacleanpower.org/offers-and-incentives

Our mission is to turn the tide on the climate crisis, through bold ideas and practical programs.



GridSavvy Rewards – Program Overview

- Supports grid reliability by encouraging customers to shift loads to reduce grid stress caused by high demand or constrained supply. Includes Flex Alerts called by CAISO.
- Partnered with AutoGrid Systems, Inc. beginning in 2022
- Behavioral demand response (BDR) launched in 2022
- Current ADR program (event-based demand response) eligible devices:
  - Smart thermostats – Pre-cool before event/increase temperature setpoint during event
    - Nest, ecobee, Emerson Sensi (coming soon)
  - EV chargers – Slow charge rate or stop completely
    - JuiceBox, ChargePoint, Wallbox (coming soon)
- Future program additions (permanent load-shifting):
  - Battery energy storage system (BESS), heat pump water heaters, and managed charging via telematics likely between 2024-2025.



Current Metrics/Recruitment/Goals

Program goals

- 5 MW of dispatchable DR by 2024
- Simplify enrollment, unenrollment, and allow participation with more than one device or program option
- Reduce peak demand resource adequacy obligation and evaluate feasibility to participate in CAISO markets (building value to pass to customers)

Current Incentives (subject to change)

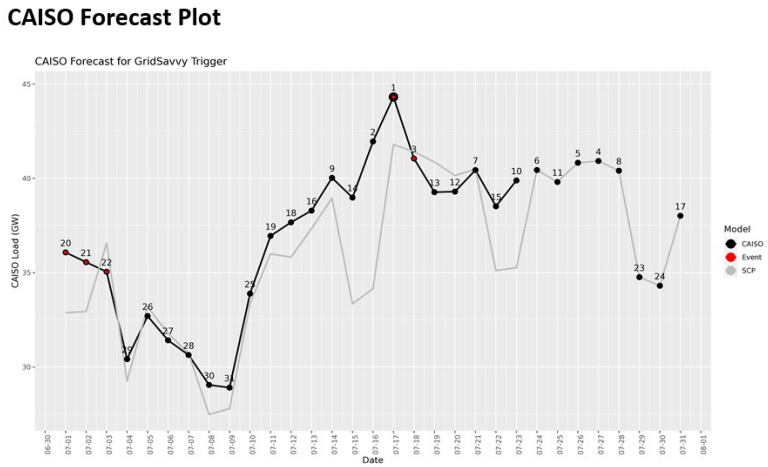
- EV chargers (50% POS discount + $250 GridSavvy Rewards enrollment incentive)
- Smart thermostats ($50 POS discount in webstore or $50 enrollment incentive (BYOD)
- $5/month bill credit (limit 1 per account)
- Performance incentive $2/kWh (BDR)

Current dispatchable devices

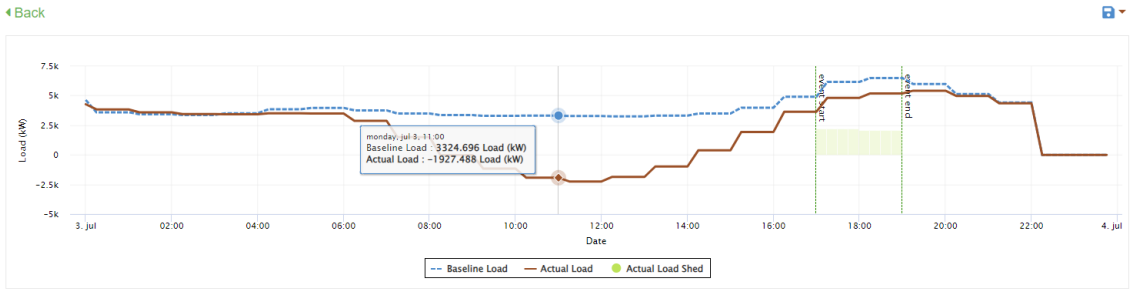
- EV chargers – 1,016 dispatchable
- Smart thermostats – 237 dispatchable

Program Recruitment Targets					
	2022	2023	2024	2025	2026
Smart Thermostats	100	2,000	2,500	3,000	3,500
	0.1 MW	1.6 MW	2.0 MW	2.4 MW	2.8 MW
EV Charging	1,500	2,000	2,500	3,000	3,500
	0.9 MW	1.2 MW	1.5 MW	1.8 MW	2.1 MW
Behavioral DR	2,000	5,000	7,000	10,000	10,000
	0.4 MW	1.0 MW	1.4 MW	2.0 MW	2.0 MW

Implementation – Launch Process



- 2018 - Smart device dispatch testing - EV chargers
- 2019 - Smart thermostats
- Behavioral demand response (BDR) launched during the 2022 event season - 2,000 participants shed 0.5 MW per event. Current enrollment exceeds 7,000 with an anticipated shed of 2.0 MW on peak day during the 2023 event season
- Smart device dispatch started in 2023, M&V is pending



Event Info	scp-20230701-26-1P4I4L
Event Date	Jul 3, 2023
Start Time	5:00 PM
End Time	7:00 PM
Duration	2 h
Notification Time	Jul 2, 2023 4:00 PM
Targeted Devices	6958

Event Results	
Actual Load Shed (kW)	2169.16
Total Energy Reduction (kWh)	4338.31
Actual Load Shed (percent)	34.28%
Actual Load Shed Per Meter (kW)	0.32
Actual Meter Count	6741
Opted Out Resources	0

Program tools:

- Webstore (TechniArt hosts)
- Flex Platform for device management and M&V
- Data management and flows
- Planning & Analytics forecasting
- Website enrollment for BDR/BYOT
- Customer Portal

Program Challenges/Equity Considerations

Process

- Complex customer flows (enrollment, unenrollment, data)
- Customers may not be aware of their enrollment or which program is right for them
- Difficult processes to address dual enrollment and delayed resolution when unenrollment is pursued
- Registration (DRRS) entry errors/inconsistencies cause delays and rejections in registering resources/locations

Equity (BDR)

- Wi-fi connectivity issues prevent device dispatch for rural customers
- Required technology limits participation for customers without access to smart devices/Wi-fi

General

- Confusing and disparate programs trying to achieve the same thing
- 3rd party DR programs impact customer loads make forecasting and managing loads difficult for LSE
- Delay in interval data prevents timely understanding of participation impacts

Thank you!

Kimberly Beltran

Technical Program Manager

kbeltran@sonomacleanpower.org

Sonoma Clean Power

Dynamic Pricing – AgFIT Pilot

CEC Electric Program Investment Charge – VCE AgFIT Pilot

July 18, 2023

Ag Sector Dynamic Pricing – AgFIT Pilot

Background:

- CEC EPIC Grant Pilot: (Polaris) “Water pumping is the perfect manageable load…” CEC Commissioner Andrew McAllister
- LBNL: California DR Potential Study; Phase 3 Report – May 2020
- CPUC Summer Reliability Proceeding: Dec 2020; Invited to resubmit Sept 2021; approved late 2021; Final design Q2 2022 (amended decision)
- Launch Summer 2022; recruitment/results; 3-yr pilot with 5MW cap
  - Partner w/Polaris, TeMix, & PG&E

Objective: Test if farmers would respond to market-based price signals and shift load

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Ag Sector Dynamic Pricing – AgFIT Pilot

Ag Pumping is the largest available resource, second only to Office HVAC*

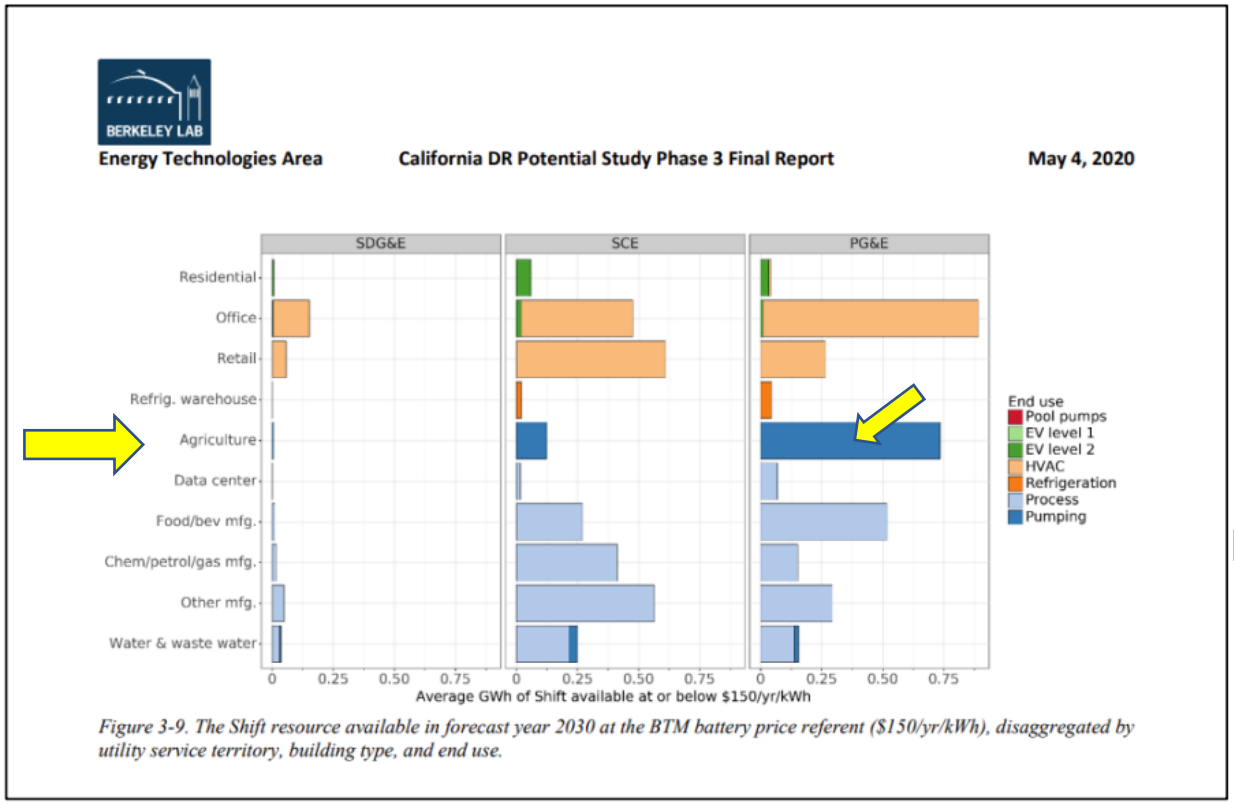

Figure 3-9. The Shift resource available in forecast year 2030 at the BTM battery price referent ($150/yr/kWh), disaggregated by utility service territory, building type, and end use.

Pumping is the least expensive shift resource

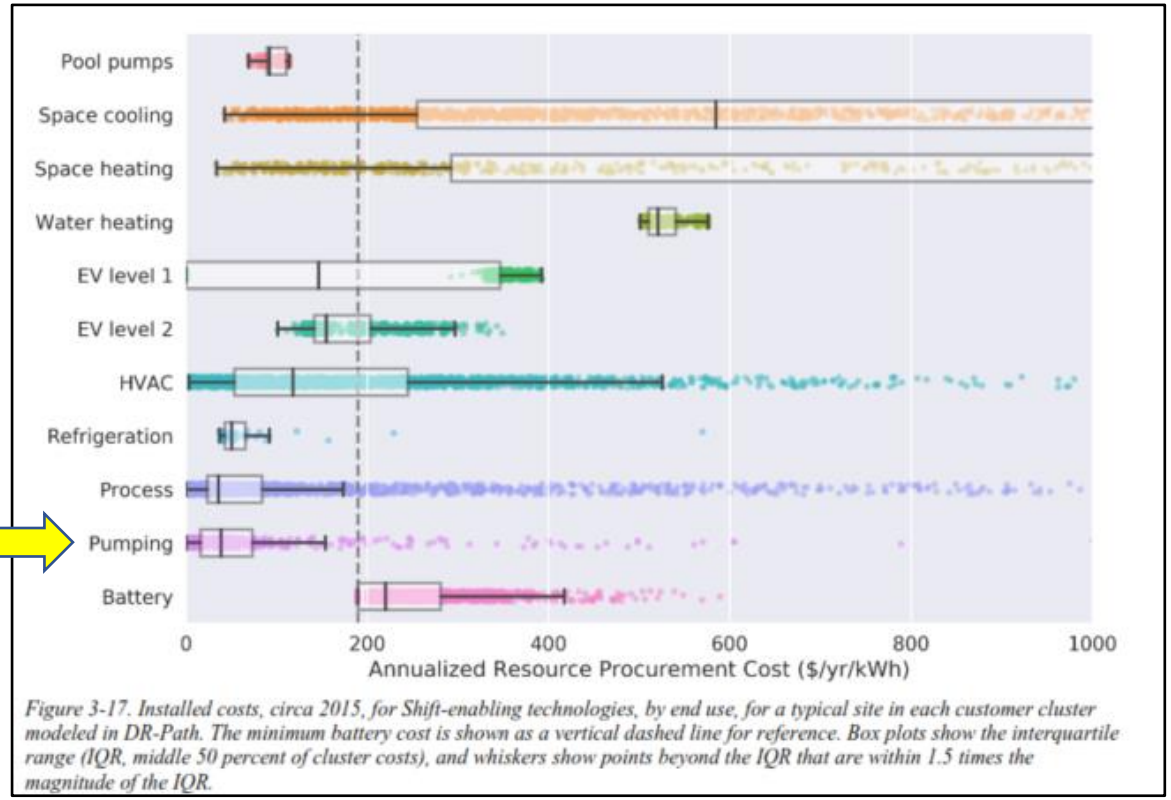

Figure 3-17. Installed costs, circa 2015, for Shift-enabling technologies, by end use, for a typical site in each customer cluster modeled in DR-Path. The minimum battery cost is shown as a vertical dashed line for reference. Box plots show the interquartile range (IQR, middle 50 percent of cluster costs), and whiskers show points beyond the IQR that are within 1.5 times the magnitude of the IQR.

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Ag Sector Dynamic Pricing – AgFIT Pilot

Ag Sector Dynamic Pricing Context/Background

- California faces grid reliability issues in the transition to low/no carbon future; water supply
- California farmers face a convergence of threats to their viability: water scarcity, rapidly rising electricity costs, and labor availability
- Irrigation automation can help with all three, but adoption is slow because of capital cost and the difficulty of realizing energy cost savings

Opportunity

- Irrigation pumping load is “flat” even though more than half could be shifted from critical ramp hrs
- The cost to enable that shift with automation and dynamic price signals is significantly less than that to deploy comparable battery storage

Scaling Proposal Overview

- Voluntary, incentives-based program – meet farmers “where they’re at”; based on research/pilot results; approx. 1MW season one; 3.25MW season two. Estimate up to 500MW shiftable ag load.
- Non-ratepayer funding would be used to:
  - Implement irrigation pump automation
  - Install water-saving, precision irrigation systems (e.g. drip)
  - Provide customer support so that farmers can automate irrigation systems to shift load out of peak hours and into non-peak hours

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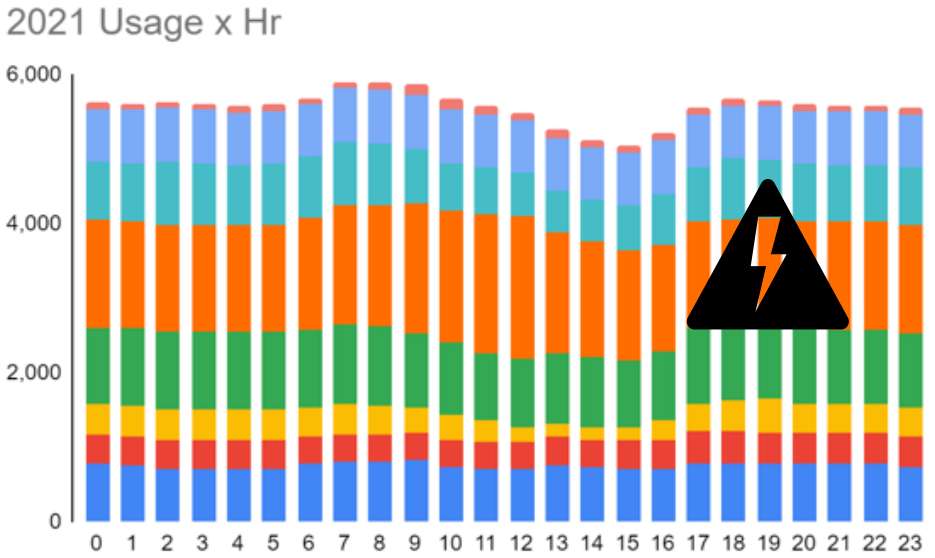
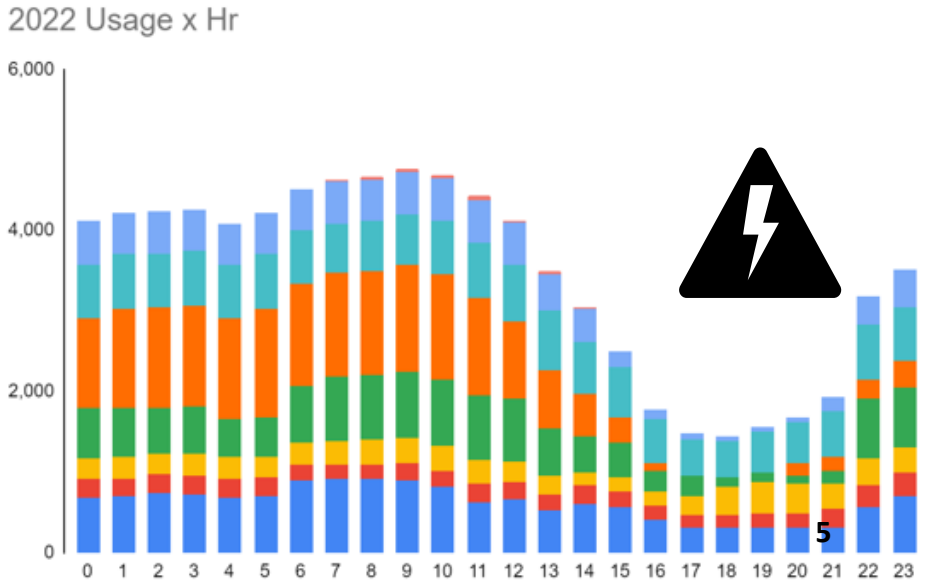
Ag Sector Dynamic Pricing – AgFIT Pilot

An Approach with Demonstrable Results (EPIC + AgFIT)

- Strong price signals that meet farmers where they are
  - Weekly scheduling
  - Eliminate win/lose demand charges
  - Offer significant savings
- Automation
  - Enables flexible irrigation scheduling
  - Provides additional operational value
  - Provides decision support and visibility
- Marketing, Education and Outreach
  - If you build it, they will not come without ME&O
  - Clear demonstration of the opportunity and how to achieve it
  - Close-in support and coaching, especially at the beginning





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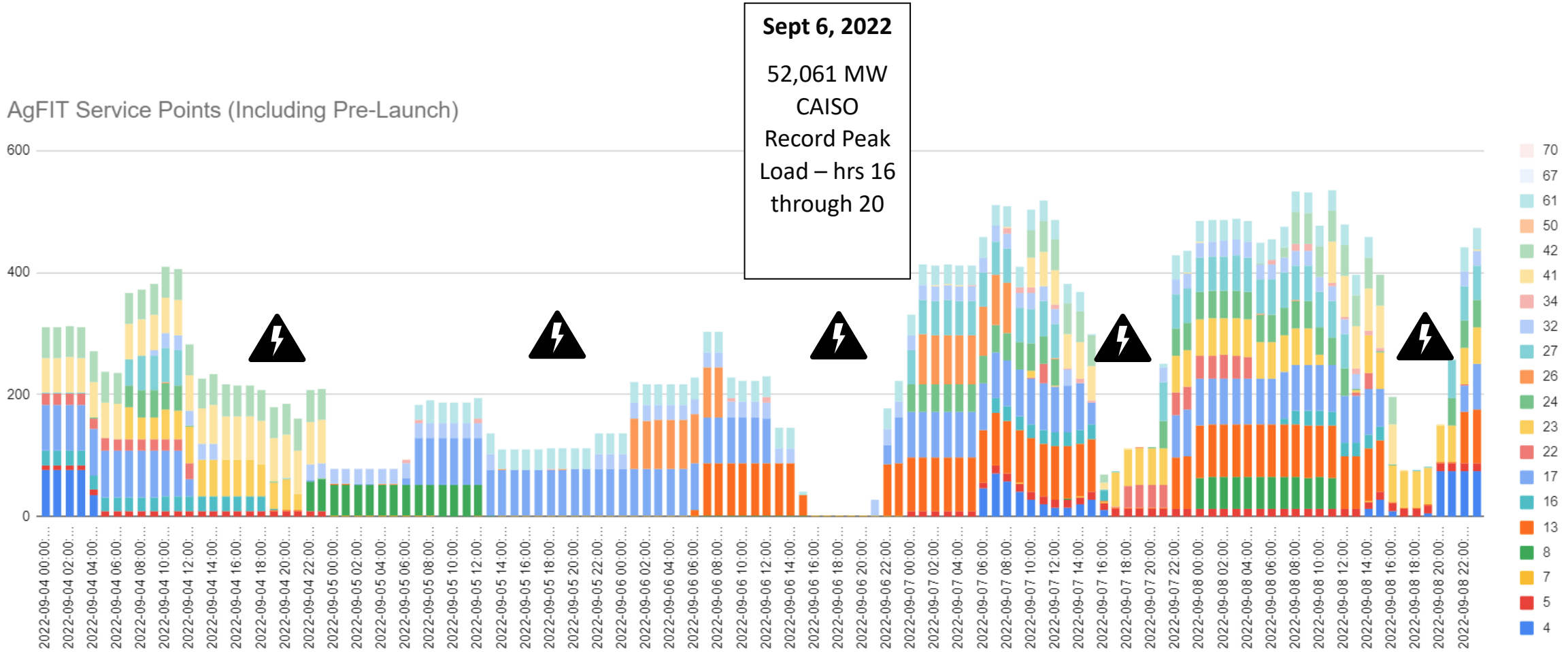
Ag Sector Dynamic Pricing – Customer View – Week Ahead Hourly View

Ag Sector Dynamic Pricing – AgFIT Pilot



Valley Clean Energy AgFIT Load Shift Response to historic heat dome disaster Aug 31 – Sept 9, 2022 (9/4 to 9/8 shown)

- 20 Agricultural Pumps in Valley Clean Energy's AgFIT pilot program

VALLEY CLEAN ENERGY

7.18.23

EBCE Smart Charge Pilot: January-May 2023

EAST BAY COMMUNITY ENERGY

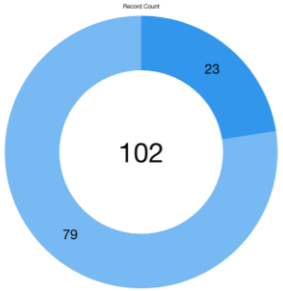
EBCE Member Jurisdictions

Alameda County and all associated Cities in darker green are in our service area.

The City of Stockton is expected to start service in January 2025.

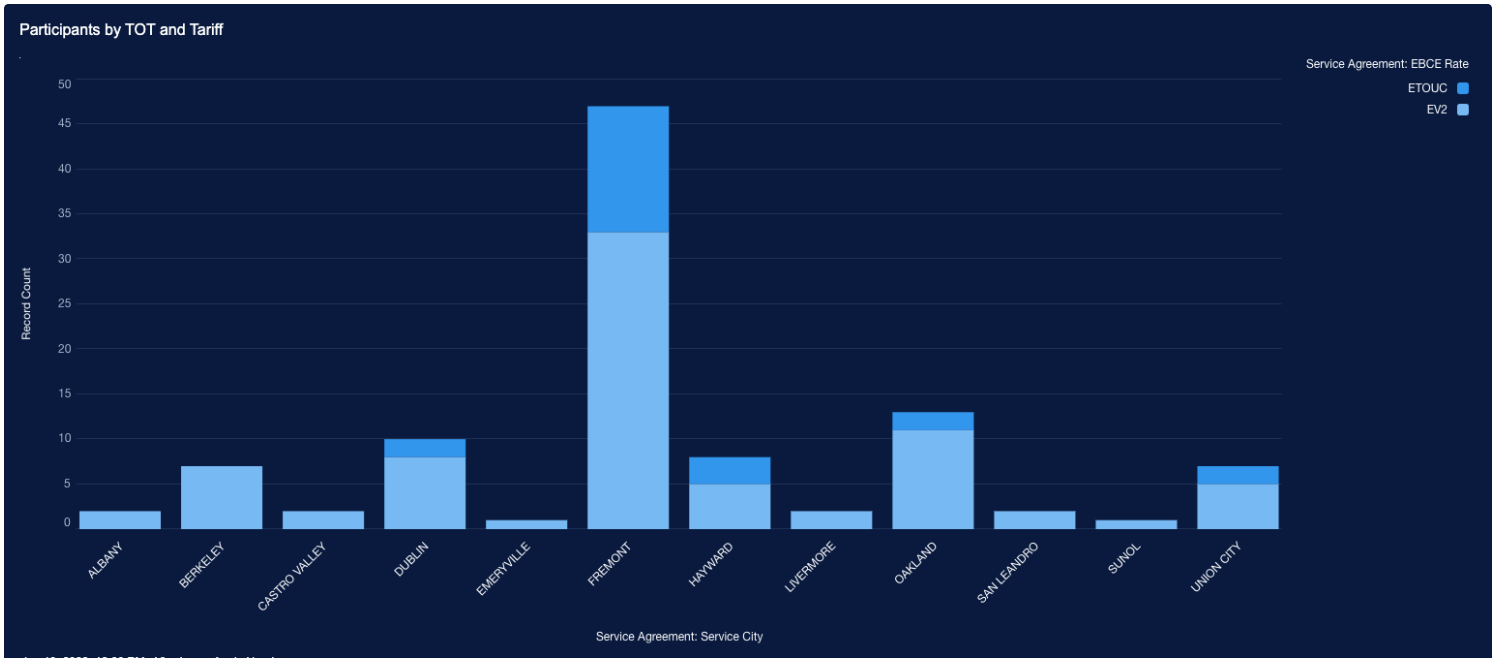
EAST BAY COMMUNITY ENERGY

EBCE Smart Charge Pilot: Design & Participants



TOUC: 23%
EV2: 77%

Low Income: 5%

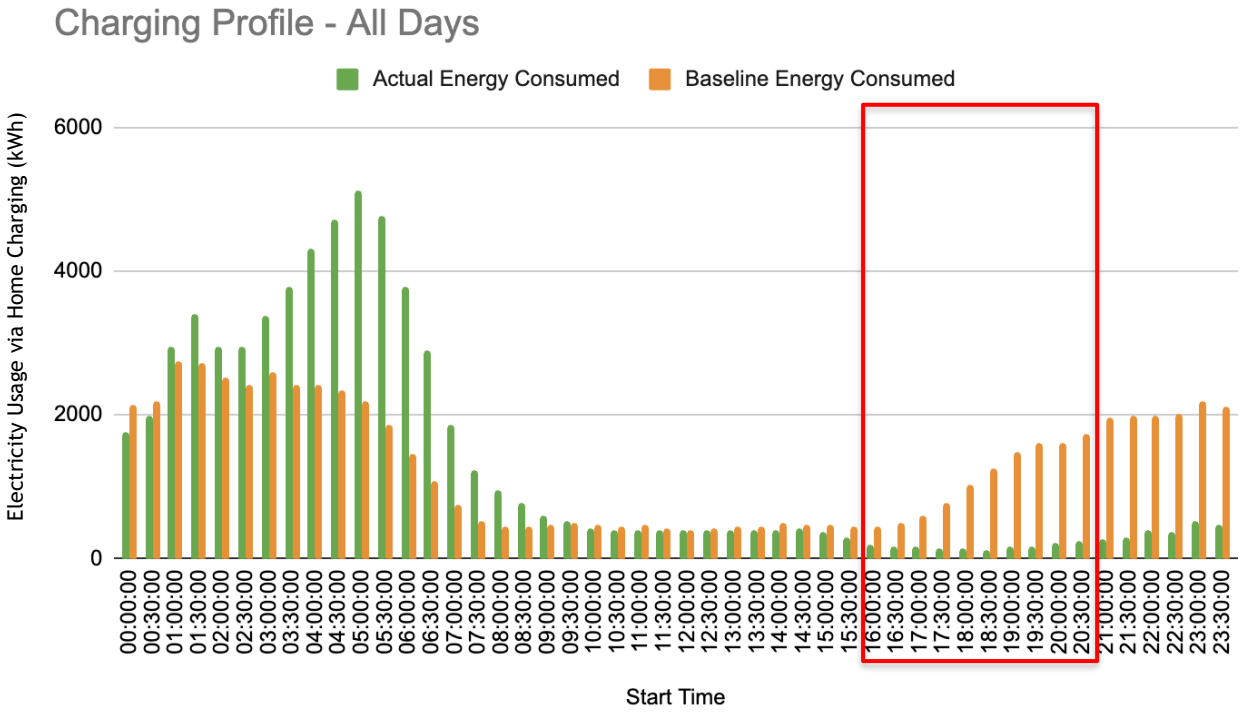


Impact: Summary Stats & Reducing Peak Load

Summary Stats

- 5 months full enrollment
- 4,176 home charging sessions
- ~100 MWh total
- 3.2% sessions overridden by customers

- 71.3% charging took place at home



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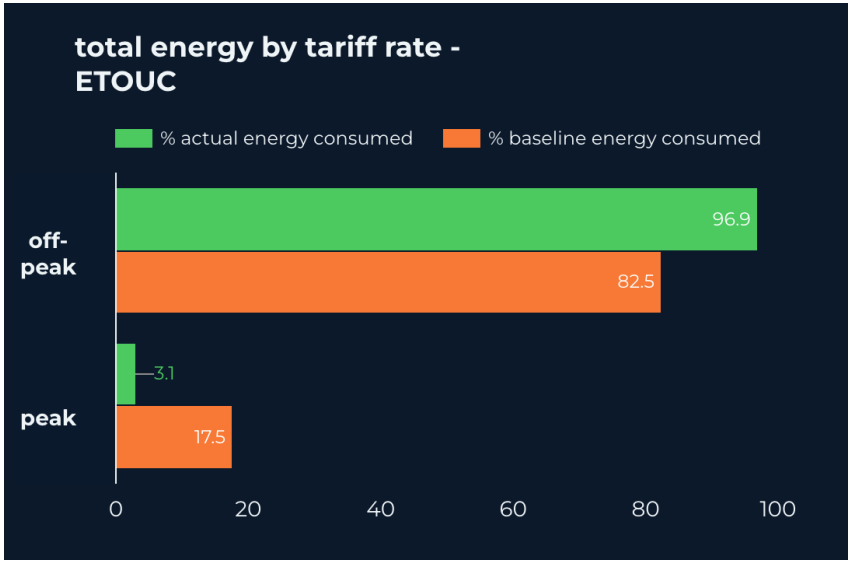
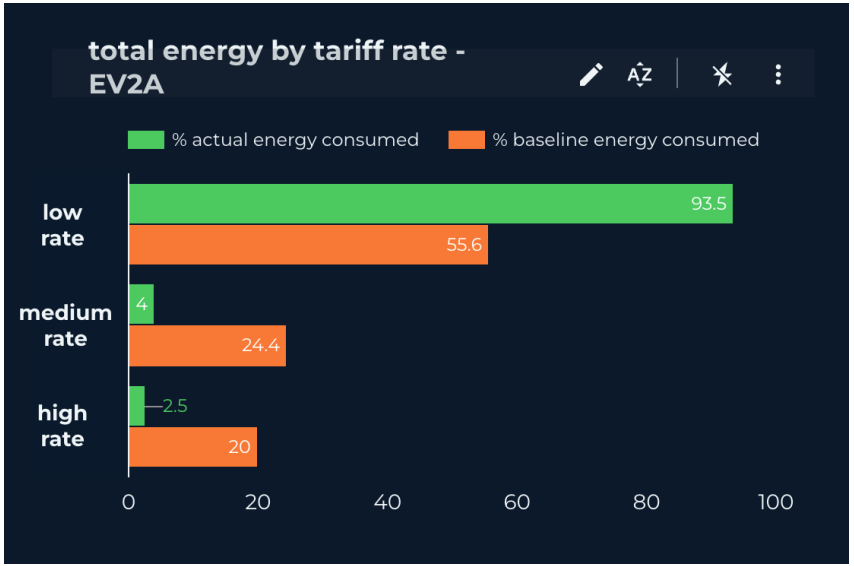
Impact: Differential Effects by Customer Rate





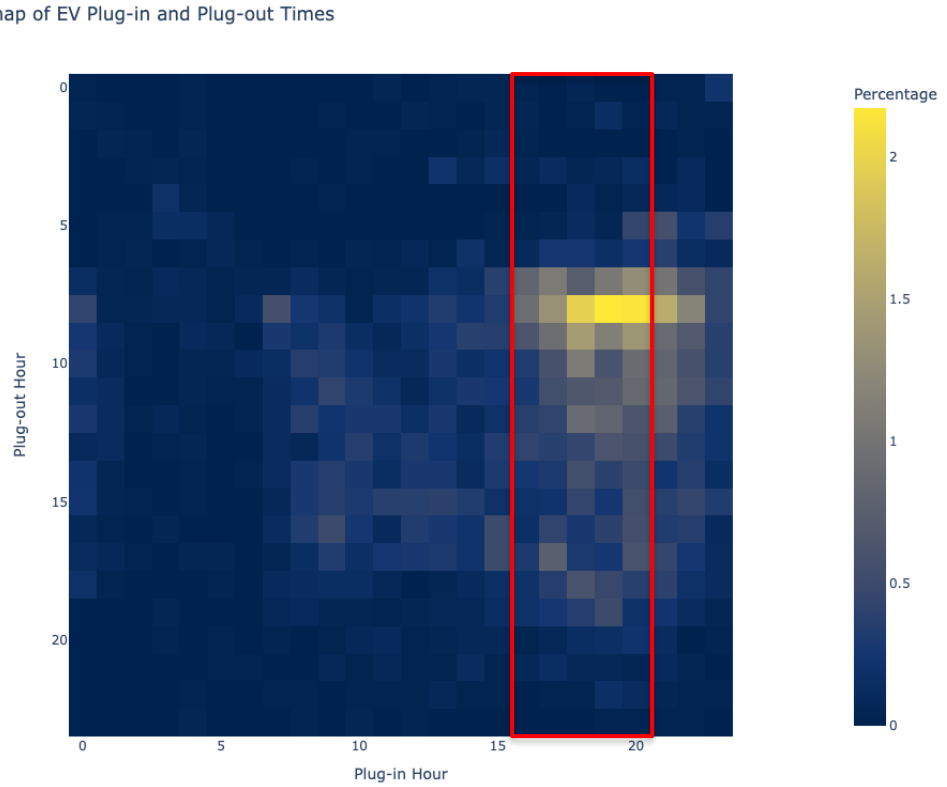
EAST BAY COMMUNITY ENERGY

Why do we need a charging shift in the first place?

Most Popular Plug In/Out Windows and their relative %

Plug-In:
…6-9pm – 32.5%
…4-9pm - 45.5%

Plug-Out:
…7-10am – 33.5%



EAST BAY COMMUNITY ENERGY

Challenges & Opportunities for Scale and Impact

- Existing TOU rates and home charging convenience necessitates these programs
  - Opportunity: Dynamic Rates Pilot via CalFlexHub (CEC/LBNL)

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- Existing OEM app enrollment v. managed charging Opt-in enrollment
  - Opportunity: auto enrollment upon vehicle purchase

EAST BAY COMMUNITY ENERGY

Challenges & Opportunities for Scale and Impact

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  - Opportunity: auto enrollment upon vehicle purchase

- VPP holy grail and segmented DERs lead to “too many apps”. Static v. active DERs.
  - Opportunity: consumer portal/app for many DERs, rather than one (EVs)

EAST BAY COMMUNITY ENERGY

Thank You!

Brett Wiley, Senior Program Associate

Questions? Give me a text or call:
510-929-6915

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ebce.org/es

中文
ebce.org/cn

EAST BAY COMMUNITY ENERGY

MCE Sync

Smart Charging App

Melanie Biesecker
Customer Programs Manager, Transportation Electrification

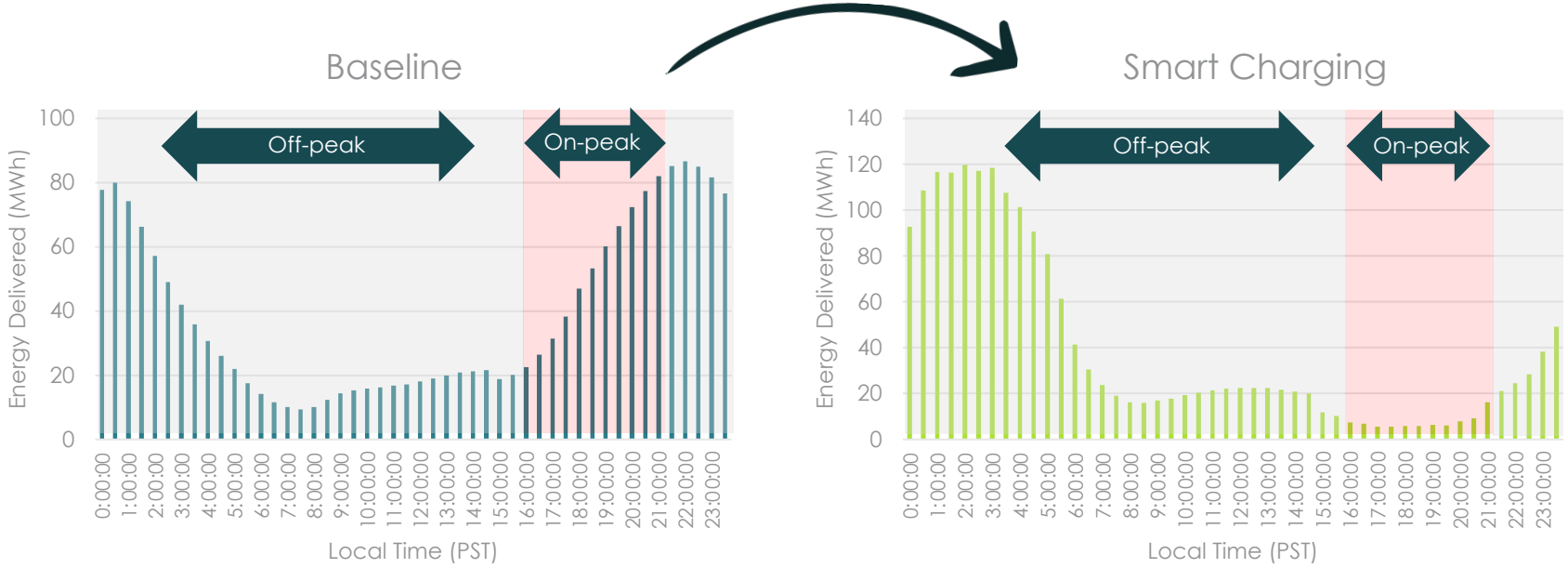
MCE Empowering Our Clean Energy Future
CONTRA COSTA | MARIN | NAPA | SOLANO

OUR MISSION

Confront the climate crisis by eliminating fossil fuel greenhouse gas emissions, producing renewable energy, and creating equitable community benefits.

OUR VISION

Lead California to an equitable, clean, affordable, and reliable energy economy by serving as a model for community-based renewable energy, energy efficiency, and cutting-edge clean-tech products and programs.



Support a resilient CA power grid

MCE Sync: EV Smart-Charging App

The MCE Sync app automates EV charging to help residential customers use the least expensive and cleanest energy on the grid

- Works with most EV makes & models
- $50 sign-up bonus
- Up to $10 per month cash back for charging during low-carbon events
- Saves $100 or more per year just by charging off-peak*
- Optimized for solar smart charging

MCE Sync

MCE Sync: Eligibility

- Be an MCE customer living in MCE service area
- Have a compatible EV or charger
- Can be enrolled in any residential electricity rate plan; greater bill savings may be seen on an EV or other Time-of-Use plan.

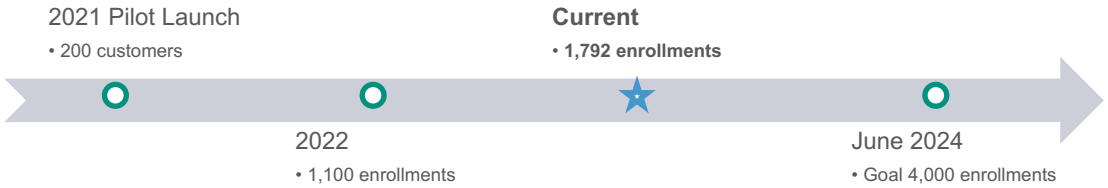
1,792 enrolled participants

210.3 KW average reduction per day

89.6% load reduction between 4PM-9PM

$16.49 average savings per customer (TOU)

$14.61 average savings per customer (all rates)



"It's simpler than a 'smart home' - I don't have to change timers or hit an on- or off-switch. I literally set it and forget it. I enjoy knowing how easy it is to give back to the environment."

-Brian, MCE Sync Customer

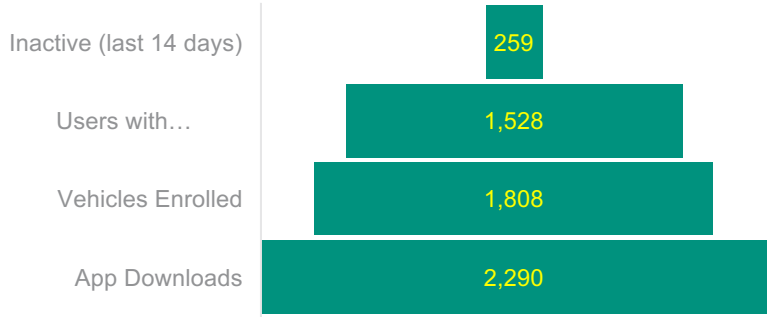
Impact

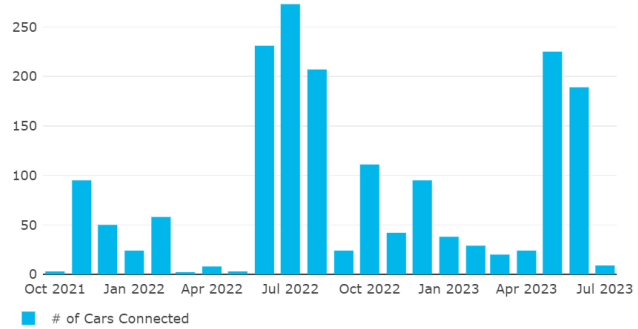
Targeted marketing and outreach. In-app and email notifications for low carbon events. Cross-promotion with MCE EV Instant Rebates program.

Increased customer incentives. Enhanced incentives for ongoing participation in low carbon events or other market /demand-response events.

Continuous app improvements. Peak Flex market signals, time-of-use/carbon-intensity signals, event-based signals.

Additional vehicle/charger integrations. Home charger rebates for compatible chargers.





Enrollment and Retention