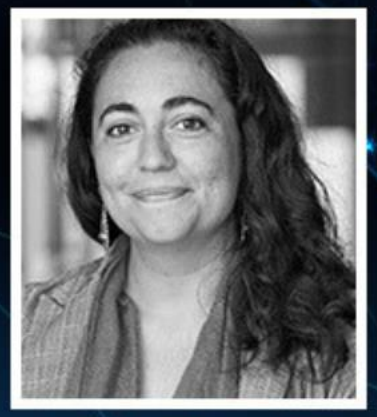
CALFLEXHUB SYMPOSIUM

SEPTEMBER 24 | 8am-6pm PT

SARAH SMITH

KIMBERLY BELTRAN



ALEXANDRA MCGEE

SIERRA HUFFMAN

DYNAMIC PRICING AND CCAS: CHALLENGES, OPPORTUNITIES, AND THE FUTURE OF LOAD FLEXIBILITY

Sarah Smith, Research Scientist, Berkeley Lab;
Kimberly Beltran, Technical Programs Manager, Sonoma Clean Power;
Alexandra McGee, VP of Strategic Initiatives, Marin Clean Energy;
Sierra Huffman, Program and Community Engagement Analyst, Valley Clean Energy

CalFlexHub

BERKELEY LAB

MOMENTUM

2024

MCE Virtual Power Plant

Provide a suite of customer-owned distributed energy resources (DERs) by 2025 to build a quiet, invisible, clean pockets of power

Technical Objectives:

- Receives device data, bypassing meter-data bottlenecks
- Allows digital signals to shift load for demand response
- Replaces need for peakers or diesel generators

Economic Objectives

- Uses social impact bond to acquire sites for rehabilitation
- Sell homes below market value with no resale restrictions
- Increases inter-generational wealth and DAC property values
- Weaves existing funding to maximize value (CEC, MCE, IRA)

Future Objectives

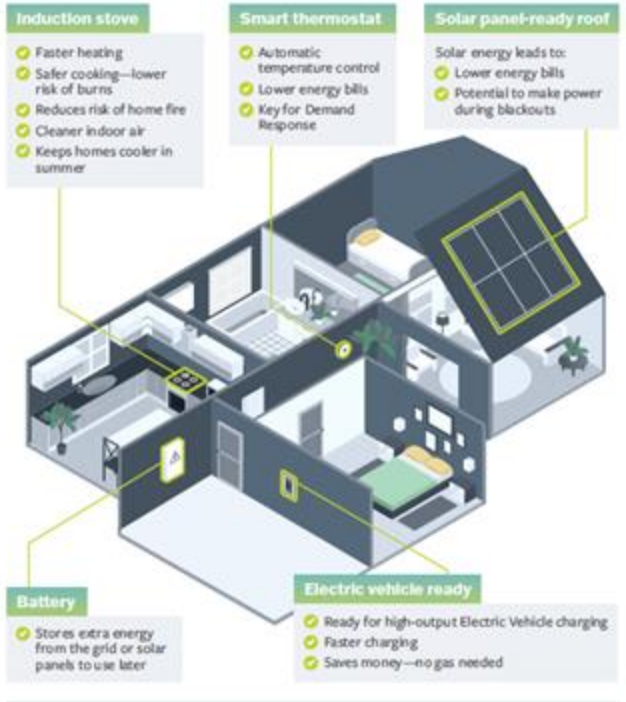
- Grow to 4 counties, including to ~63,000 solar sites (400MW)
- Tap other funding like IRA tax breaks and RA value
- Develop consistently responsive systems with validated loads to bid and settle into CAISO day ahead and real time markets

MCE Virtual Power Plant - Tariffs

Unique MCE approach – share the wealth through on-bill credit structures

VPP Value Sharing System Phase 1: Flat Tariff: Monthly credits in exchange for remote control and dispatch capability, with exceptions made for outage events:

- Residential: credits vary on number and type of DERs installed ($2-20/device/mo), capped at $40 or $50/month (pending income).
- Commercial and Industrial: credits capped at $300 for commercial and $750 for industrial. Annual true-up payment of actual value.



Future - VPP Value Sharing System Phase 2: Dynamic Tariffs + P4P Contracting: dynamic tariffs and P4P contracting to share full market value.

- Dynamic Tariffs: Customers paid based on actual market values.
- P4P Contracting: Vendors paid fairly using transparent, 3rd-party verified settlement procedures based on actual market value.

Aligns with anticipated push for market-sensitive rates.
Costs can be offset by reduced cost of procured energy by MCE.

MCE: Flexing Other Muscles

MCE Sync:

- Over 3,600 customer enrolled.
- 90% of charging shifted out of peak hours
- Includes smart charging to drive charging toward hour of peak solar production
- Will launch a Dynamic Pricing Pilot with 250 customers that sets an hourly variable rate for electricity used for charging.
    - Hourly variable rate is tied to real energy prices.
    - Pilot include bill protection - will always result in an incentive to participate.
    - Findings will inform a potential broader roll out.

Valley Clean Energy's AgFIT Pilot

Agriculture Flexible Irrigation Technology

Why the Agriculture Industry?

- 85% of VCE's territory is designated for agricultural use
- While 3% of VCE's customers are ag,16% of peak load and 18% of annual load is agriculture
- Ag load is hard to predict, volatile, and tied to rainfall
- Pumping identified as a cost-effective shiftable resource - LBNL
- Agricultural load seen as having high load flexibility potential - CEC

AgFIT's Structure and Benefits

- **Incentives** – $200/kw for automation and monthly bills savings for load shift
- **Customer Support** - software training, 1:1 calls and meetings
- **Price Design** – hourly, week ahead up to day ahead, grid responsive, and circuit specific
- **Bill Protection** – never pay more than Blue Bill and prices adjusted using tariff average
- **Additional Benefits** – water efficiency and reduced labor costs
- **Program Results** – Preliminary Assessment, Midterm Evaluation, and Final Evaluation

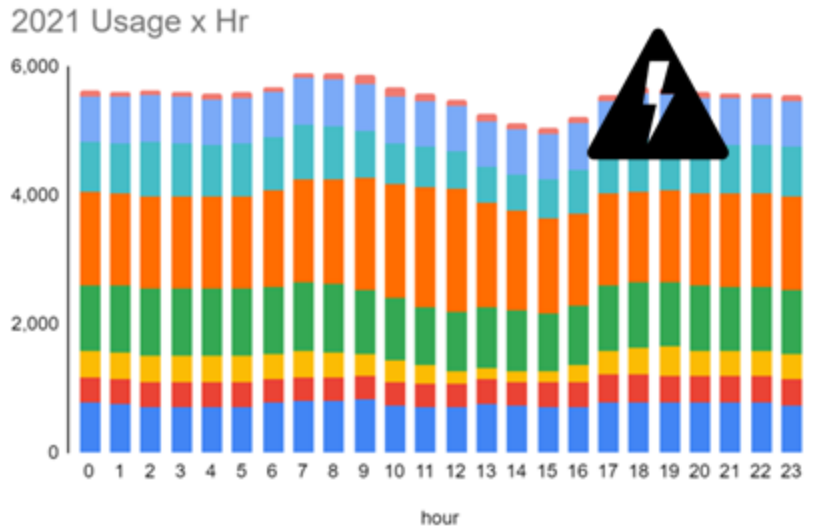
AgFIT Participation and Lessons Learned

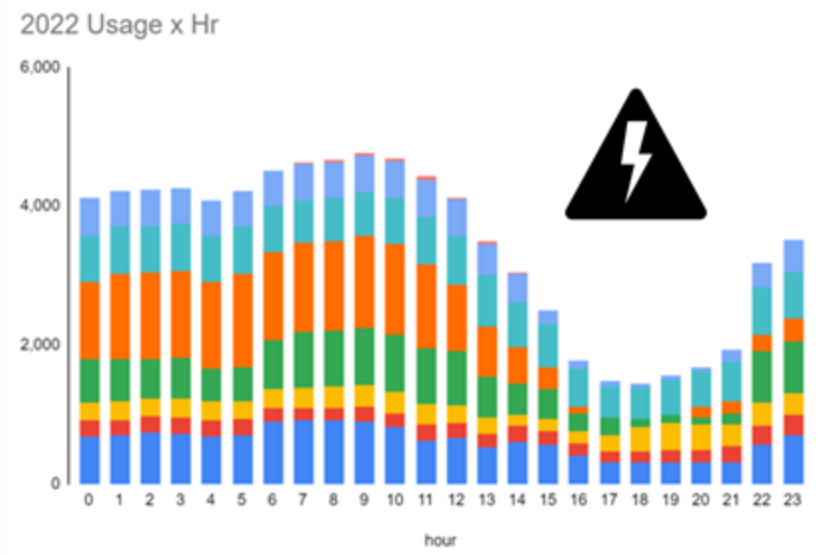
Program Participants

- 7 customers and 66 service points/meters
- 3.9 MW of enrolled load – PLUM
- Row crops to orchards

Key Takeaways

- Price response outside of Peak window
- Automation is driving customer action
- Almost all action is scheduled a week in advance with little to no modification in customer portal
- Community/industry connections and “word of mouth” marketing drives enrollment
- Customers need to see the results of their performance





AgFIT Weekly Scheduling

GridSavvy Rewards: Enhancing Load Flexibility through Demand Response

Presented by: Kimberly Beltran

Technical Programs Manager at Sonoma Clean Power

Sonoma Clean Power

Sonoma Clean Power (SCP)

Agency Background

- **Established in 2014**
- **Community Choice Aggregator** (CCA) serving approximately 87% (~230,000 meters) of homes and businesses in Sonoma and Mendocino Counties with cleaner energy at competitive rates.
- **Not-for-profit model**: Revenues reinvested into scalable and impactful energy initiatives.
- **Mission driven**: Our mission is to turn the tide on the climate crisis, through bold ideas and practical programs.

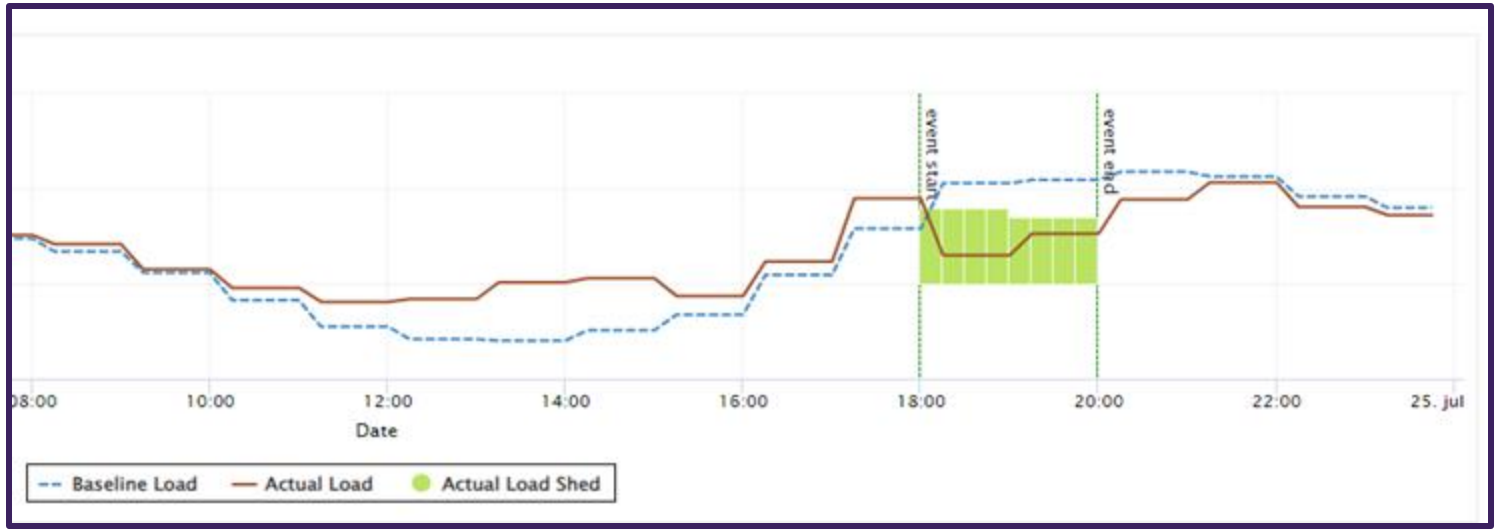
GridSavvy Rewards

Automatic Demand Response (ADR)

- Offers customers $5 monthly bill credit plus $100 enrollment incentive for integrating smart devices such as:
  - EV chargers: automatically slows charging during peak demand.
  - Smart thermostats: pre-cools participant's homes and adjusts temperature during grid events.
- Managing resources with AutoGrid Flex™ DERMS, integrating multiple smart devices and interfacing with OpenADR to optimize load flexibility. Can be scaled to improve grid stability without customer intervention.

Event Date	Jul 24, 2024
Start Time	6:00 PM
End Time	8:00 PM
Duration	2 h
Notification Time	
Targeted Devices	159

Actual Load Shed (kW)	74.89
Total Energy Reduction (kWh)	149.79
Actual Load Shed (percent)	69.66%
Actual Load Shed Per Meter (kW)	1.10
Actual Meter Count	68
Opted Out Resources	0



Behavioral Demand Response (BDR)

- Participants receive alerts to manually reduce energy use during peak demand, earning $2/kWh saved.
- Encourages customer engagement, offering rewards for active energy conservation.

PANEL DISCUSSION