Empowering Our Clean Energy Future

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PITTSBURG | PLEASANT HILL | RICHMOND | SAN PABLO | SAN RAMON | WALNUT CREEK

# MCE Special Meeting
# Board Retreat
# Thursday, October 16, 2025
# 9:15 a.m.

*Public comments may be made in person at the address below.*

2300 Clayton Road, Suite 1500, Concord, CA, 94520

**Livestream Viewing**
**(Available before lunch break)**
https://mcecleanenergy.org/board-meetings/

Materials related to this agenda are available for physical inspection at MCE's offices in San Rafael at 1125 Tamalpais Ave, San Rafael, CA 94901 and in Concord at 2300 Clayton Road, Suite 1500, Concord, CA 94520.

DISABLED ACCOMMODATION: If you are a person with a disability who requires an accommodation or an alternative format, please contact MCE at (888) 632-3674 or ada-coordinator@mceCleanEnergy.org at least 72 hours before the meeting start time to ensure arrangements are made.

## Agenda Page 1 of 2

1. Roll Call/Quorum
2. Public Open Time (Discussion)
3. Welcome and Introductions (Discussion)
4. Year in Review and Key Highlights (Discussion)
5. 15th Anniversary Speaker (Discussion)
6. Managing MCE's Power Supply Portfolio (Discussion)
7. CAISO, Risk Mitigation, and MCE's Approach to Market Participation (Discussion)

8. Using Virtual Power Plants to Decrease Volatility and Risk in MCE's Supply (Discussion)

Lunch Break 12:15 - 1:15

**(Afternoon sessions available in person only)**

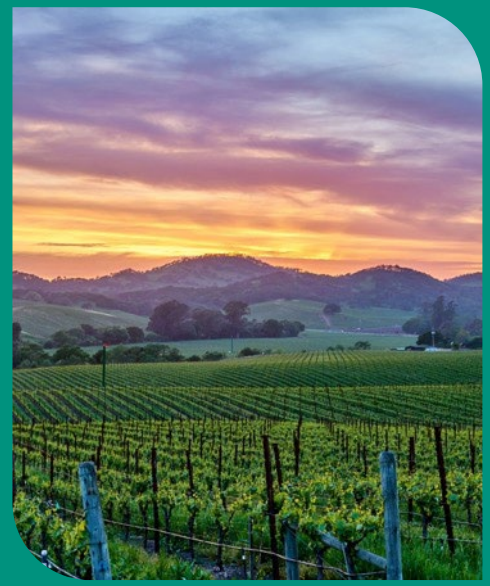
9. VPP In Action: Risk Mitigation Bidding Simulation (Discussion)
10. Small Group Breakouts with MCE Staff (Discussion)
11. Adjourn

*The Board of Directors may discuss and/or take action on any or all of the items listed on the agenda irrespective of how the items are described.*

# Managing MCE's Power Supply Portfolio

MCE Board Retreat

October 16, 2025



# Meet the Presenter

## Stephen Mariani

### Senior Power Procurement Manager

Joined in 2024

Stephen has nine years of experience in the energy industry including energy consulting, power supply management, and power procurement.

His experience includes four years of power supply management and power procurement for public power entities in California and three years regulating utility power procurement & PPA negotiations for the State of Hawaii. Stephen joined MCE's Power Resources and focuses on long-term power procurement. Stephen holds a BA in Economics from Tufts University and is an MBA candidate at the UC Berkeley Haas School of Business.

# Power Procurement Overview

## Power Portfolio Content

- Renewable targets
- Fossil-free targets
- PPAs + short-term contracts

## Resource Adequacy

- Compliance obligations
- PPAs + short-term contracts

## Wholesale Energy Markets

- CAISO revenues from power portfolio
- CAISO load costs
- Congestion rights

# Key Drivers of Power Supply Statistics

**MCE's Integrated Resource Plan**

Establishes targets

**Actual vs. Forecasted Retail Sales**

Denominator in most power portfolio calculations

**Actual vs. Forecasted Energy Production**

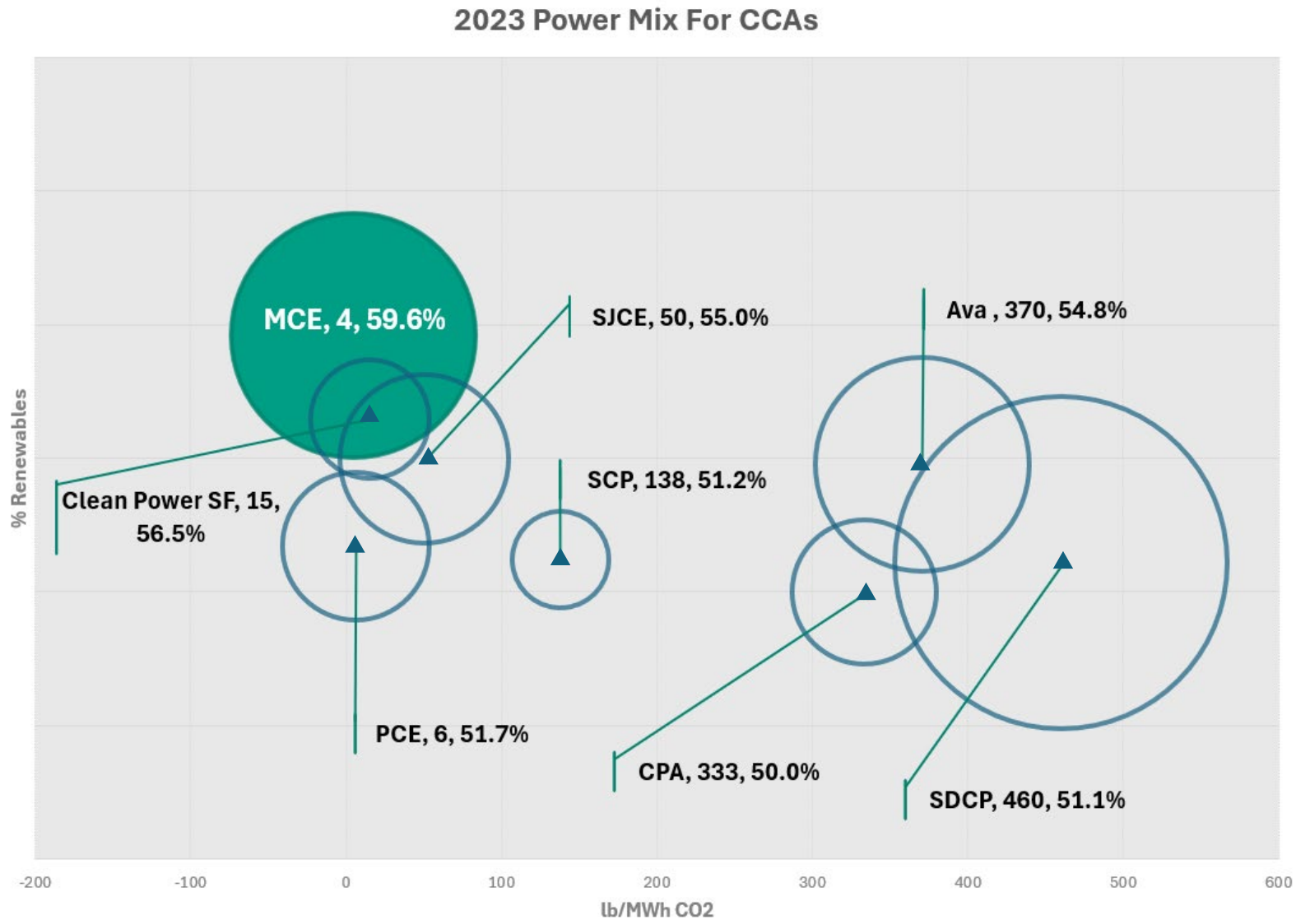
Product Availability & Budgetary Impact, Resource Intermittency, Curtailment, Outages, and Hydro conditions

Integrated Resource Plan (IRP)

Retail Sales

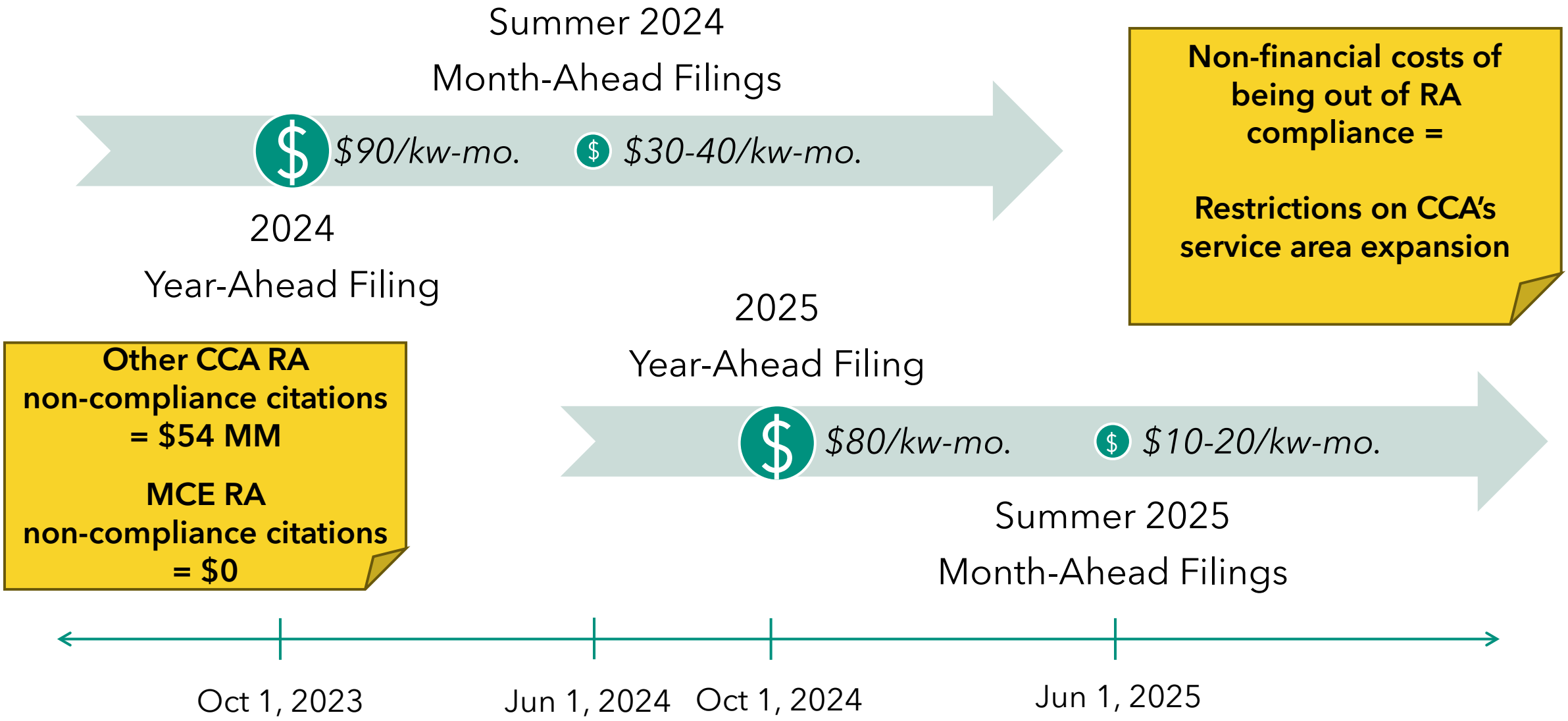
Fossil-Free Energy Production

# MCE Portfolio Target Comparison




- The graph shows the base service for major CCAs
- MCE provides the most renewable content with the lowest emissions content for the size of the Light Green service compared to other CCAs

# Costs of Compliance (Resource Adequacy)



# MCE's Planning & Procurement Process

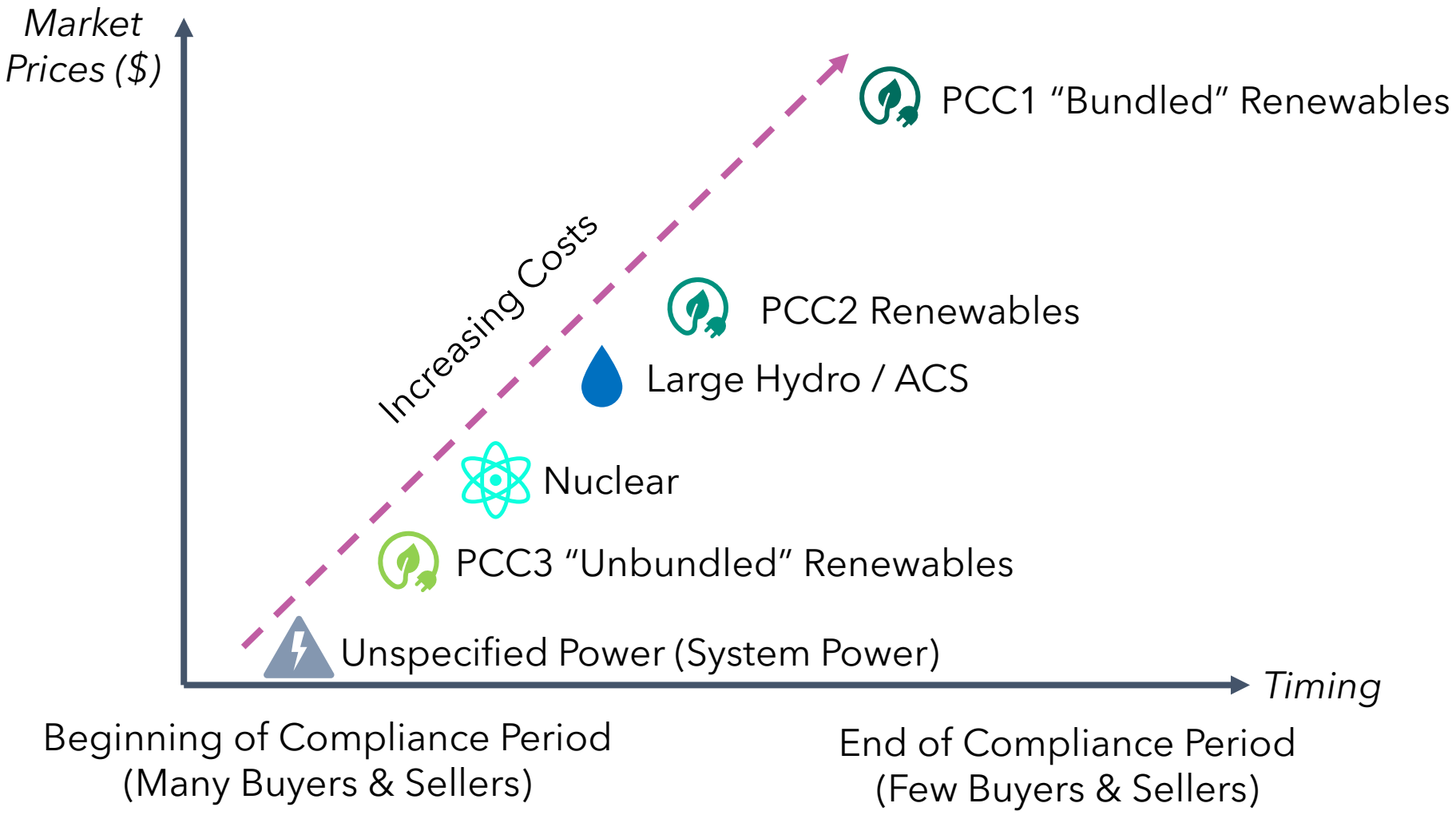
- Resource planning process utilizes a two-phased approach with attention given to:
  - Fossil-Free Commitments: contracted supply and open positions are evaluated in consideration of current IRP targets and compliance obligations.
  - Price risk mitigation/budgetary certainty: resource commitments are evaluated in consideration of potential market price exposure and budgetary/rate impacts.
- Fossil-Free Energy purchases/sales are pursued to align resource commitments with targets on a projected basis.
- Additional fossil-free purchases or sales may be executed throughout the year to balance commitments relative to needs (subject to product availability).

# Power Supply Menu

| Product | Description | In CCA PCLs? |
|---|---|---|
| Product Content Category 1 (PCC1) Renewables | Renewables + "bundled" energy located in CA or interconnected to a CA balancing authority | MCE only uses PCC1s |
| PCC2 Renewables | Renewables outside of CA paired with "substitute energy" imported into CA; carries emissions of paired energy | Unknown |
| PCC3 Renewables | "Unbundled" renewables; purchasing the renewable energy credit (REC), not the energy | Unknown |
| Large Hydro / Asset Controlling Supplier (ACS) | Fossil-free energy primarily from Pac Northwest hydro resources; ACS contains a small amount of nuclear energy | MCE + 2 CCAs |
| Nuclear | Nuclear energy historically trades at discount to large hydro | 8 other CCAs |
| Voluntary Allocation + Market Offer (VAMO) | CPUC program for CCAs to purchase from PG&E & other IOUs; Uncertain volumes & price due to market benchmark | MCE only took short-term |
| Unspecified Power | Energy not procured through a specified purchase; Emissions factor (EF) = 0.43 MT CO2e/MWh, 650x Light Green 2024 EF | 9 other CCAs |
| Feed-in-Tariff (FIT) | Standard agreement pays local renewable suppliers in MCE service territory fixed price per MWh ($55-80/MWh for attribute) | MCE only |

Contributes to additionality

# Environmental Attribute Prices




**Attribute Pricing**

PCC1:

- 2024: $80-100
- 2025-26: Low $20s

PCC2:

- 2024: $50-60
- 2025-26: Mid $10s

PCC3

- 2024: $5-7
- 2025-26: $3-5

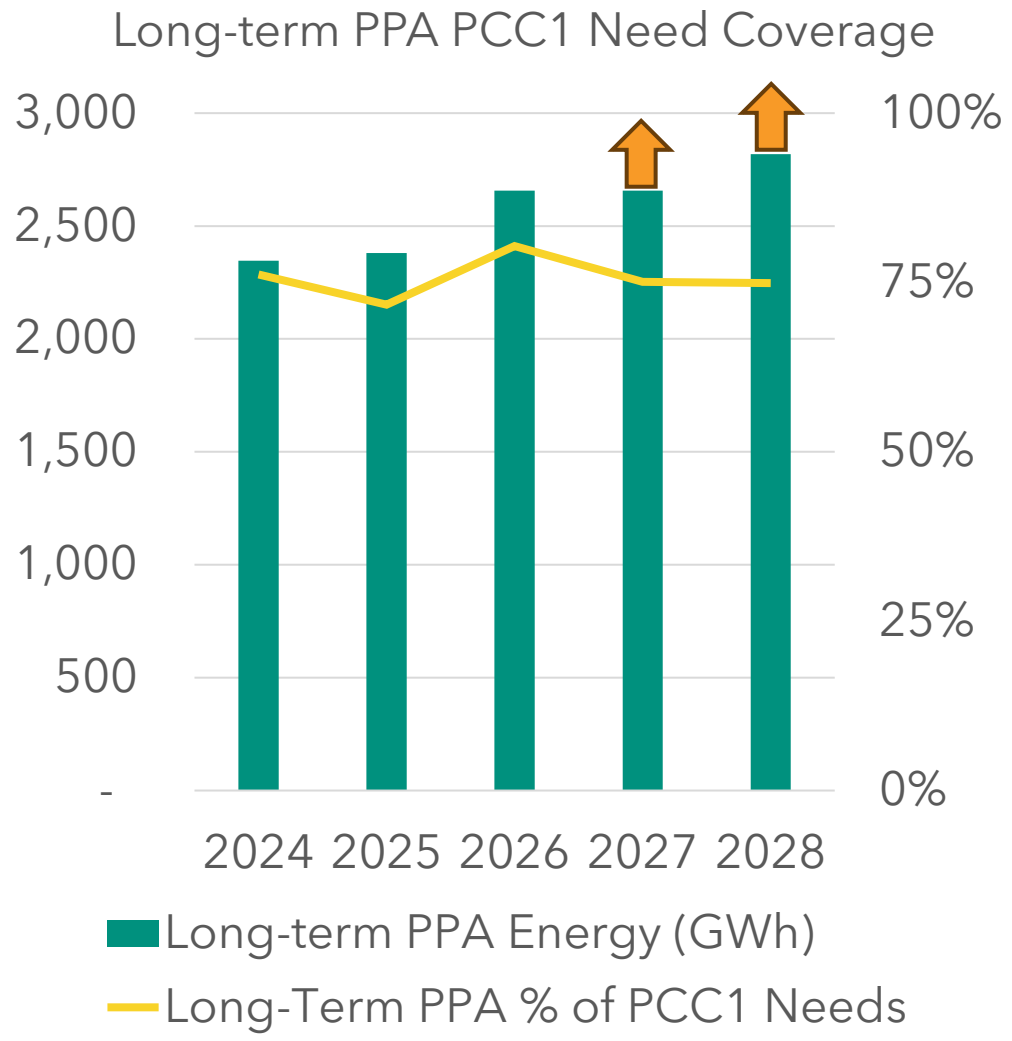
Large Hydro, ACS:

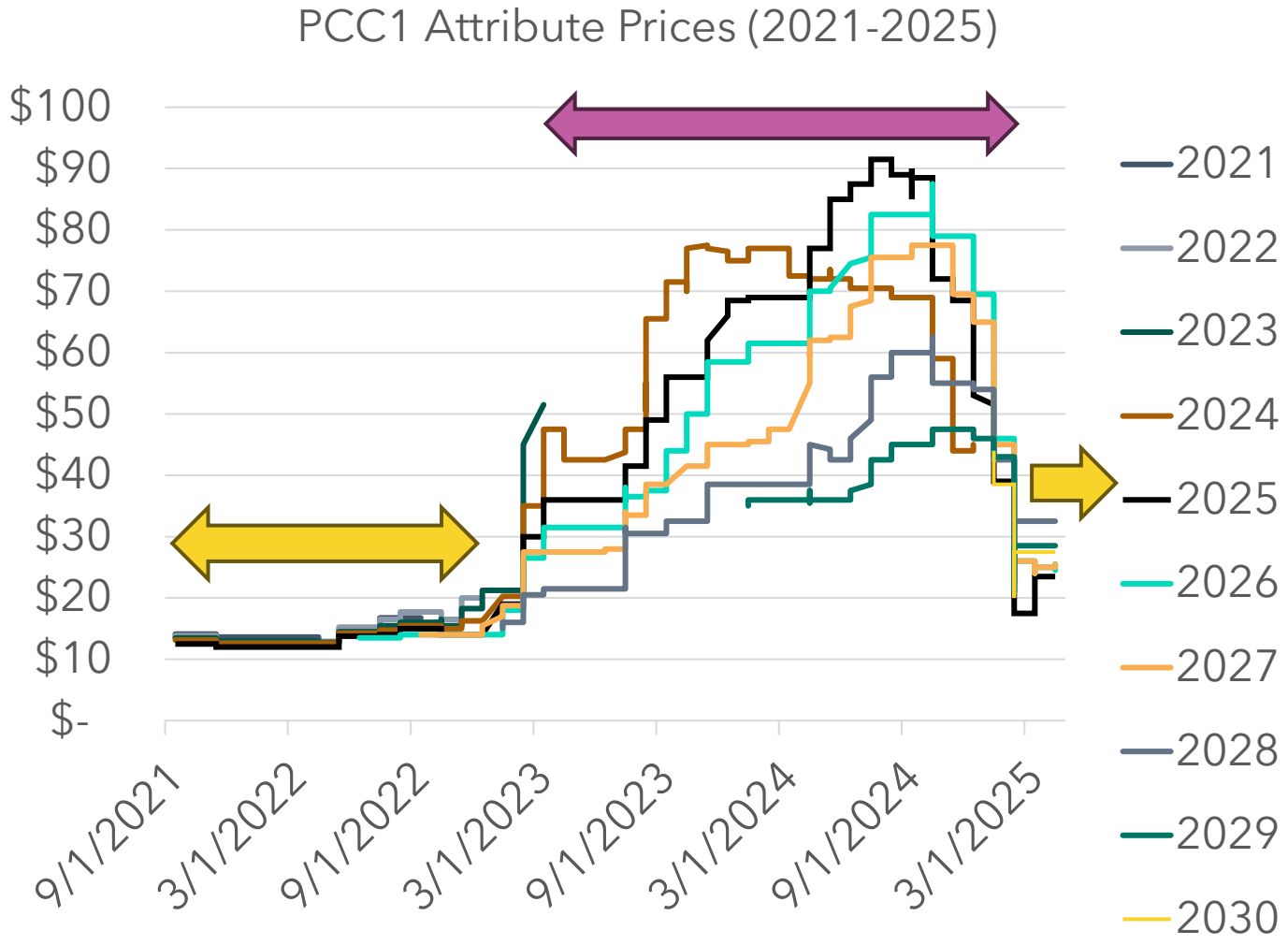
- 2024: $25-35
- 2025-26: <$10

Nuclear:

- 2024: $10-15
- 2025-26: No recent offers

# MCE's Long-Term Hedging from PPAs



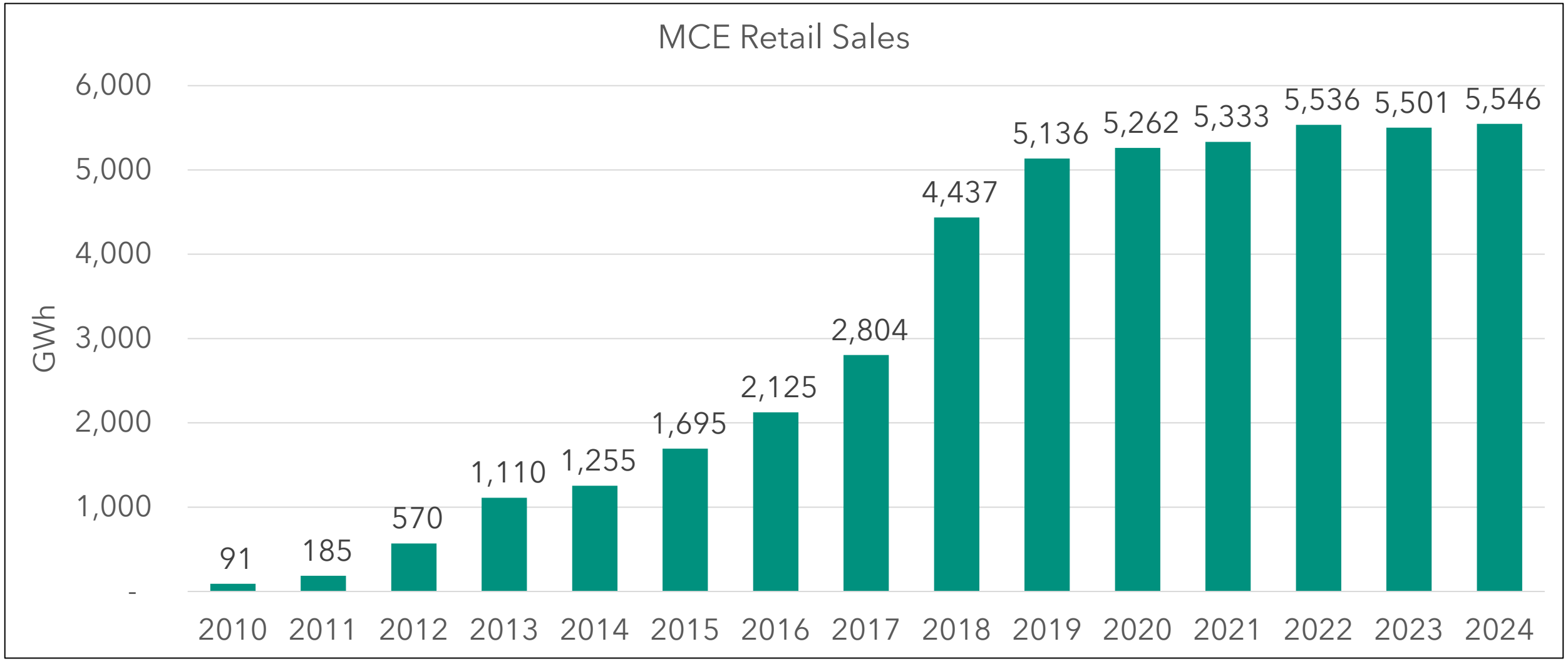




MCE still signing PPAs to add to these positions

Under-hedging may help MCE

Fully hedging may help MCE

# MCE Historical Retail Sales Growth



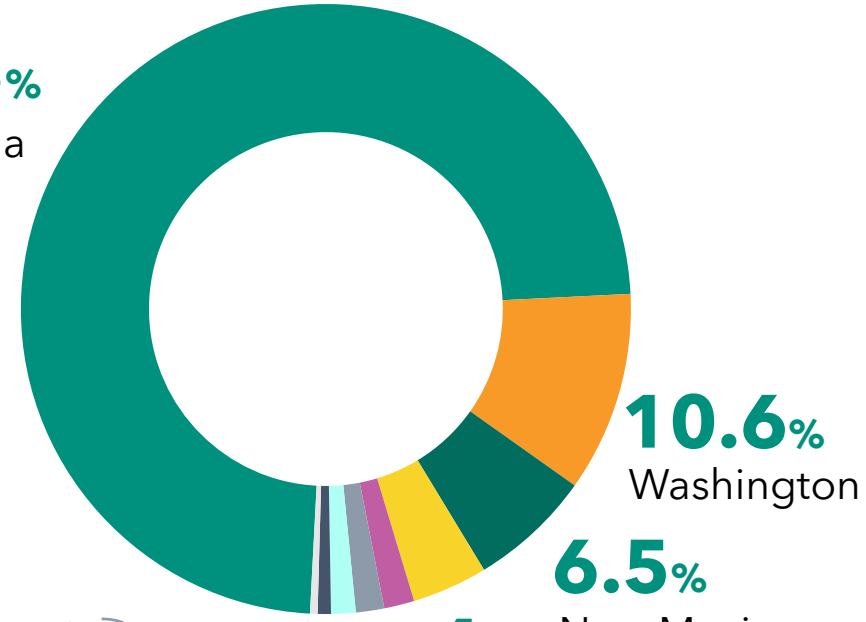
# MCE 2024 Sales and Customer Snapshot

| Program | % of Retail Sales | Retail Sales (MWh) | Customers (as of 12/31/2024) |
|---|---|---|---|
| MCE Light Green | 90.49% | 5,017,968 | 544,561 |
| Residential | 46.46% | 2,576,504 | 490,117 |
| Non-Residential | 44.03% | 2,441,482 | 54,444 |
| MCE Deep Green | 9.49% | 526,160 | 43,542 |
| Residential | 3.78% | 209,538 | 36,680 |
| Non-Residential | 5.71% | 316,622 | 6,862 |
| MCE Local Sol | 0.03% | 1,507 | 287 |
| Residential | 0.03% | 1,412 | 281 |
| Non-Residential | 0.00% | 95 | 6 |
| MCE Grand Total | 100% | 5,545,653 | 588,390 |

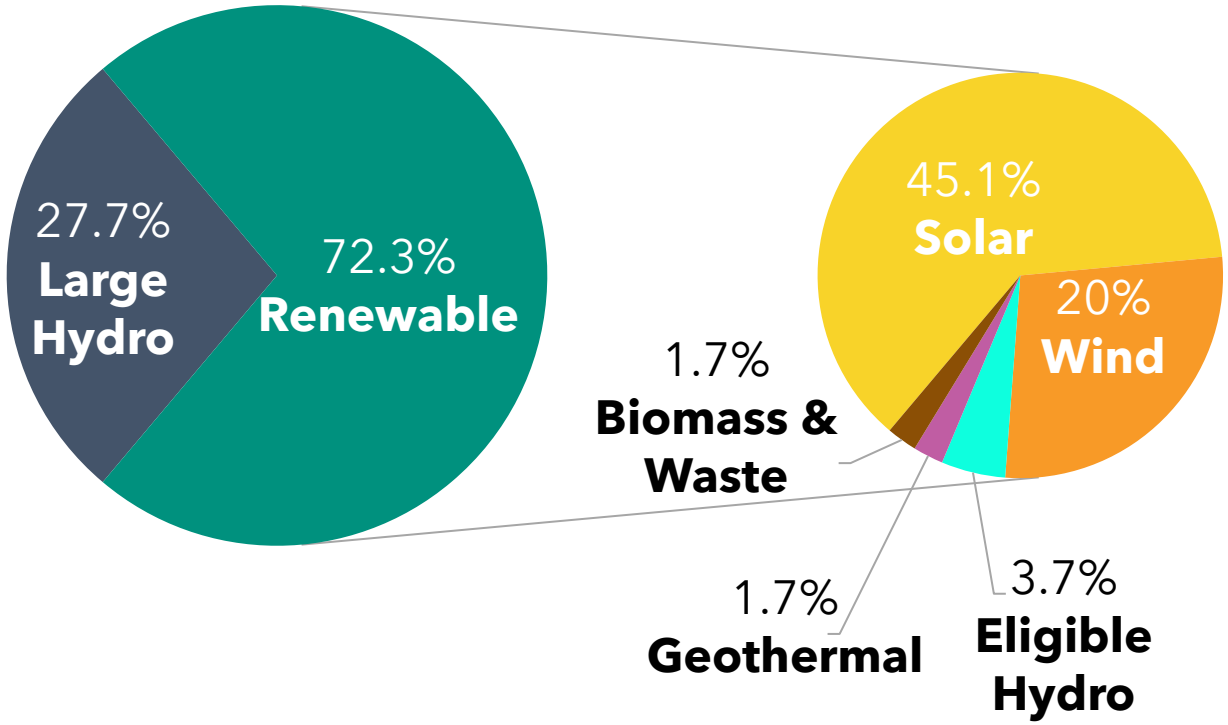
- MCE's peak demand of 1,360 MW occurred on July 11, 2024, HE19 (7:00 PM)
- 5% increase in peak demand relative to 2023 (1,295 MW on Aug 11, 2023, 6:00 PM)
- MCE experienced a 0.8% increase in retail sales relative to 2023 (5,500,637 MWh)

# MCE 2024 Resources by Origin & Type

## MCE Resources by Origin

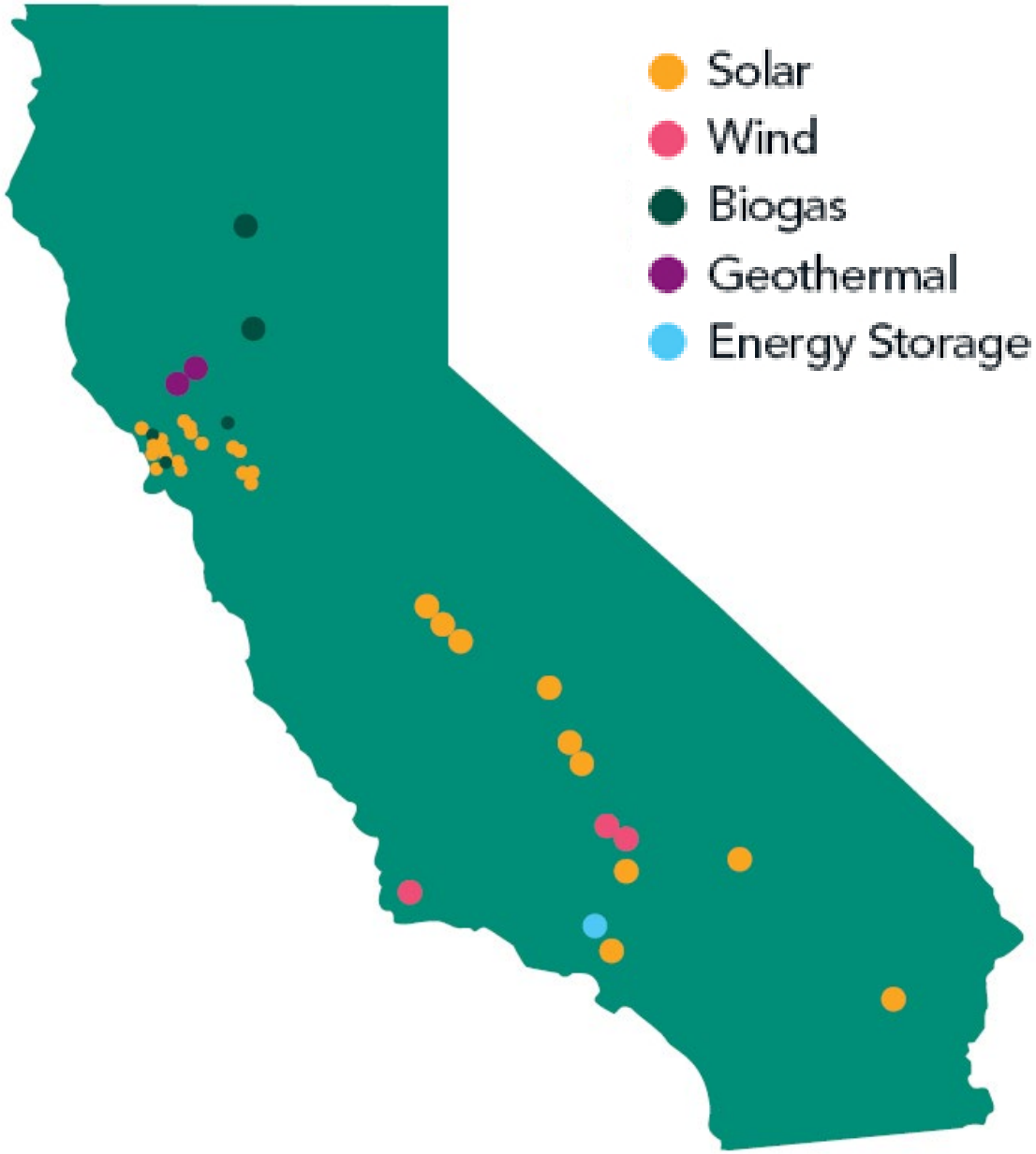



## MCE Resources by Type



# MCE's Renewables in California

- In 2024, 83.6% of MCE's specified renewable energy purchases were sourced from California-based resources.
- 73.3% of MCE's total purchases (fossil-free energy) came from CA-based resources.



# 2024 Supplier Diversity

| Renewable Energy Supplier | % Total RPS Deliveries in 2024 | Renewable Energy Supplier | % Total RPS Deliveries in 2024 | Carbon-Free Supplier | % Total CF Deliveries in 2024 |
|---|---|---|---|---|---|
| 3Phases Renewables | 1.6% | Genpower | 0.7% | Brookfield | 9.7% |
| Antelope Expansion 2 | 5.7% | Great Valley Solar 1 | 6.5% | Dynasty | 3.9% |
| Arica Solar | 6.5% | Kern and Tule Hydro | 1.7% | Morgan Stanley | 20.3% |
| Calpine Energy Services | 2.0% | Little Bear Solar (4 units) | 6.6% | PG&E | 28.5% |
| Clean Energy Alliance | 3.2% | Morgan Stanley | 2.9% | Powerex | 26.3% |
| Cottonwood Solar | 1.3% | PG&E | 18.9% | Tenaska | 9.9% |
| Daggett Solar Power 3 | 7.4% | Pattern Energy | 9.3% | WAPA | 1.3% |
| Desert Harvest | 4.6% | RE Mustang 4 | 1.5% | | |
| East Bay MUD | 3.1% | Shell Energy | 4.6% | | |
| Feed-In-Tariff Projects | 1.4% | Strauss Wind | 5.3% | | |
| G2 Energy (Hay Road) | 0.3% | Voyager Wind III | 3.5% | | |
| G2 Energy (Ostrom Road) | 0.6% | WM Renewable Energy | 0.3% | | |

MCE received specified-source energy products from ≈65 unique suppliers in 2024

# MCE 2024 Power Content Label

| ENERGY RESOURCES | 2024 MCE TOTAL POWER MIX (Actual) | 2024 LIGHT GREEN POWER MIX (Actual) | 2024 LOCAL SOL POWER MIX (Actual) | 2024 DEEP GREEN POWER MIX (Actual) | 2024 GREEN ACCESS POWER MIX (Actual) |
|---|---|---|---|---|---|
| **Eligible Renewable**** | **72.3%** | **69.3%** | **100.0%** | **100.0%** | **100.0%** |
| -- Biomass & waste | 1.7% | 1.9% | 0.0% | 0.0% | 0.0% |
| -- Geothermal | 1.7% | 1.9% | 0.0% | 0.0% | 0.0% |
| -- Eligible hydroelectric | 3.7% | 4.1% | 0.0% | 0.0% | 0.0% |
| -- Solar | 45.1% | 44.5% | 100.0% | 50.0% | 100.0% |
| -- Wind | 20.0% | 16.9% | 0.0% | 50.0% | 0.0% |
| **Coal** | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Large Hydroelectric** | 27.7% | 30.7% | 0.0% | 0.0% | 0.0% |
| **Natural Gas** | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Nuclear** | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Other** | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Unspecified sources of power** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| **TOTAL** | **100.0%** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

**MCE's Total Power Mix and Light Green Power Mix include an additional (not shown) 1.45% unbundled RECs (PCC0) delivered by PG&E under the VAMO supply agreement: PCC0 RECs relate to contracts executed on or before June 1, 2010 (prior to PCC distinctions)

# MCE's 2024 Power Content Label

| 2024 POWER CONTENT LABEL<br>Marin Clean Energy ("MCE") | Deep Green | LocalSol | LightGreen | GreenAccess | CA Utility Average |
|---|---|---|---|---|---|
| **Greenhouse Gas Emissions Intensity**<br>(lbs of $CO_2e$ emitted per megawatt hour) | **0** | **0** | **1** | **0** | **359** |
| **Electricity Sources**<br>■ Renewables and Zero-Carbon Resources<br>■ Fossil Fuels and Unspecified Power |  |  |  |  |  |
| **RPS Eligible Renewables** | **100%** | **100%** | **69%** | **100%** | **45%** |
| Biomass & Biogas | 0% | 0% | 2% | 0% | 2% |
| Geothermal | 0% | 0% | 2% | 0% | 5% |
| Eligible Hydroelectric | 0% | 0% | 4% | 0% | 2% |
| Solar | 50% | 100% | 44% | 100% | 23% |
| Wind | 50% | 0% | 17% | 0% | 14% |
| **Large Hydroelectric** | **0%** | **0%** | **31%** | **0%** | **10%** |
| **Nuclear** | **0%** | **0%** | **0%** | **0%** | **11%** |
| **Emerging Technologies** | **0%** | **0%** | **0%** | **0%** | **0%** |
| **Other** | **0%** | **0%** | **0%** | **0%** | **0%** |
| **Natural Gas** | **0%** | **0%** | **0%** | **0%** | **10%** |
| **Coal & Petroleum** | **0%** | **0%** | **0%** | **0%** | **2%** |
| **Unspecified Power (primarily fossil fuels)** | **0%** | **0%** | **0%** | **0%** | **22%** |
| **Total** | **100%** | **100%** | **100%** | **100%** | **100%** |
| Retail sales covered by retired unbundled RECs | 0% | 0% | 2% | 0% | |

■ This label does not reflect compliance with the Renewables Portfolio Standard (RPS), which measures the use of tracking instruments called Renewable Energy Credits (RECs) over the course of multi-year compliance periods. RECs that are purchased separately from the renewable energy ("Unbundled RECs") can be used for RPS compliance, but they do not factor into the power mixes or GHG emissions intensities above.

■ GHG intensity figures exclude biogenic $CO_2$ and emissions from geothermal sources and grandfathered imports of firmed-and-shaped energy. For detailed information about all GHG emissions from California's retail electricity suppliers, visit the CEC webpage at the link below.

■ Unspecified power is electricity purchased from a genericized pool on the open market.

https://www.mcecleanenergy.org/

**Want to learn more?**
**Visit https://www.energy.ca.gov/programs-and-topics/programs/power-source-disclosure-program**

# MCE's 2024 Power Content Label

*Zooming in:*

**2024 POWER CONTENT LABEL**

**Marin Clean Energy ("MCE")**

| | Deep Green | LocalSol | LightGreen | GreenAccess | CA Utility Average |
|---|---|---|---|---|---|
| **Greenhouse Gas Emissions Intensity** (lbs of $CO_2e$ emitted per megawatt hour) | 0 | 0 | 1 | 0 | 359 |
| **Electricity Sources** ■ Renewables and Zero-Carbon Resources ■ Fossil Fuels and Unspecified Power |  |  |  |  |  |

*Continues below:*

# MCE's 2024 Power Content Label

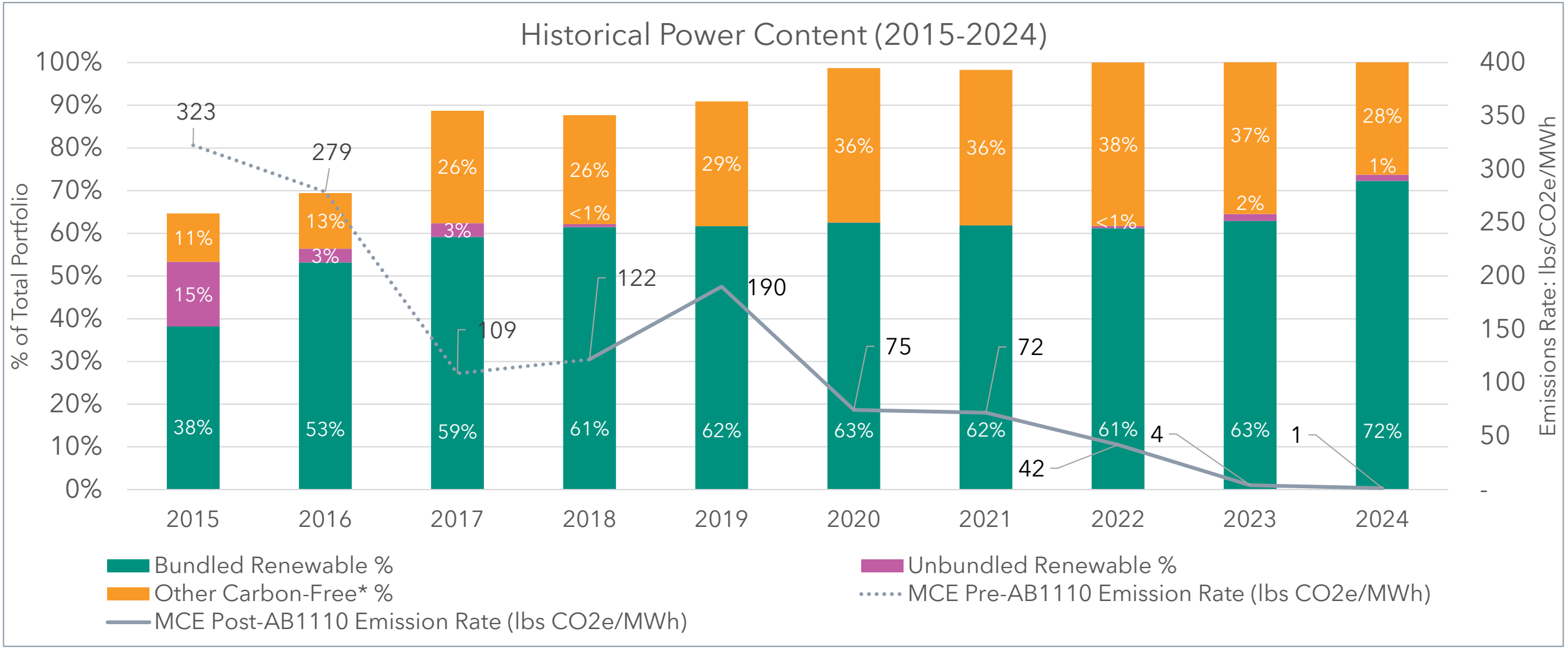
| 2024 POWER CONTENT LABEL<br>Marin Clean Energy ("MCE") | | | | | |
|---|---|---|---|---|---|
| | Deep Green | LocalSol | LightGreen | GreenAccess | CA Utility Average |
| **RPS Eligible Renewables** | **100%** | **100%** | **69%** | **100%** | **45%** |
| Biomass & Biogas | 0% | 0% | 2% | 0% | 2% |
| Geothermal | 0% | 0% | 2% | 0% | 5% |
| Eligible Hydroelectric | 0% | 0% | 4% | 0% | 2% |
| Solar | 50% | 100% | 44% | 100% | 23% |
| Wind | 50% | 0% | 17% | 0% | 14% |
| **Large Hydroelectric** | **0%** | **0%** | **31%** | **0%** | **10%** |
| **Nuclear** | **0%** | **0%** | **0%** | **0%** | **11%** |
| **Emerging Technologies** | **0%** | **0%** | **0%** | **0%** | **0%** |
| **Other** | **0%** | **0%** | **0%** | **0%** | **0%** |
| **Natural Gas** | **0%** | **0%** | **0%** | **0%** | **10%** |
| **Coal & Petroleum** | **0%** | **0%** | **0%** | **0%** | **2%** |
| **Unspecified Power (primarily fossil fuels)** | **0%** | **0%** | **0%** | **0%** | **22%** |
| **Total** | **100%** | **100%** | **100%** | **100%** | **100%** |
| Retail sales covered by retired unbundled RECs | 0% | 0% | 2% | 0% | |

# 2024 Highlights

- 100% Fossil-Free (Renewables + Carbon-Free + ACS*)
  - Up from 99.9% in 2023
- 73.7% RPS-eligible (64.5% in 2023)
  - 71.9% Directly Delivered Renewables (PCC1** and PCC0)
  - 0.4% Firmed & Shaped Renewables (PCC0)
  - 1.4% Unbundled Renewables (PCC0 from VAMO***)
- 27.7% Large Hydro (including ACS)
- 73.3% California-based supply (all resources)
- 83.6% California-based renewables (% of total renewables)
- 1.46 lbs CO2e/MWh Light Green Emissions Factor (AB1110)
  - Equivalent ~100% GHG-free
  - Total Portfolio Emissions Factor = 1.3 lbs CO2e/MWh
  - 2023 Portfolio emissions factor = 4 lbs $CO_2e$/MWh

* ACS = Asset Controlling Suppliers
** PCC = Product Content Category
*** Voluntary Allocation Market Offer

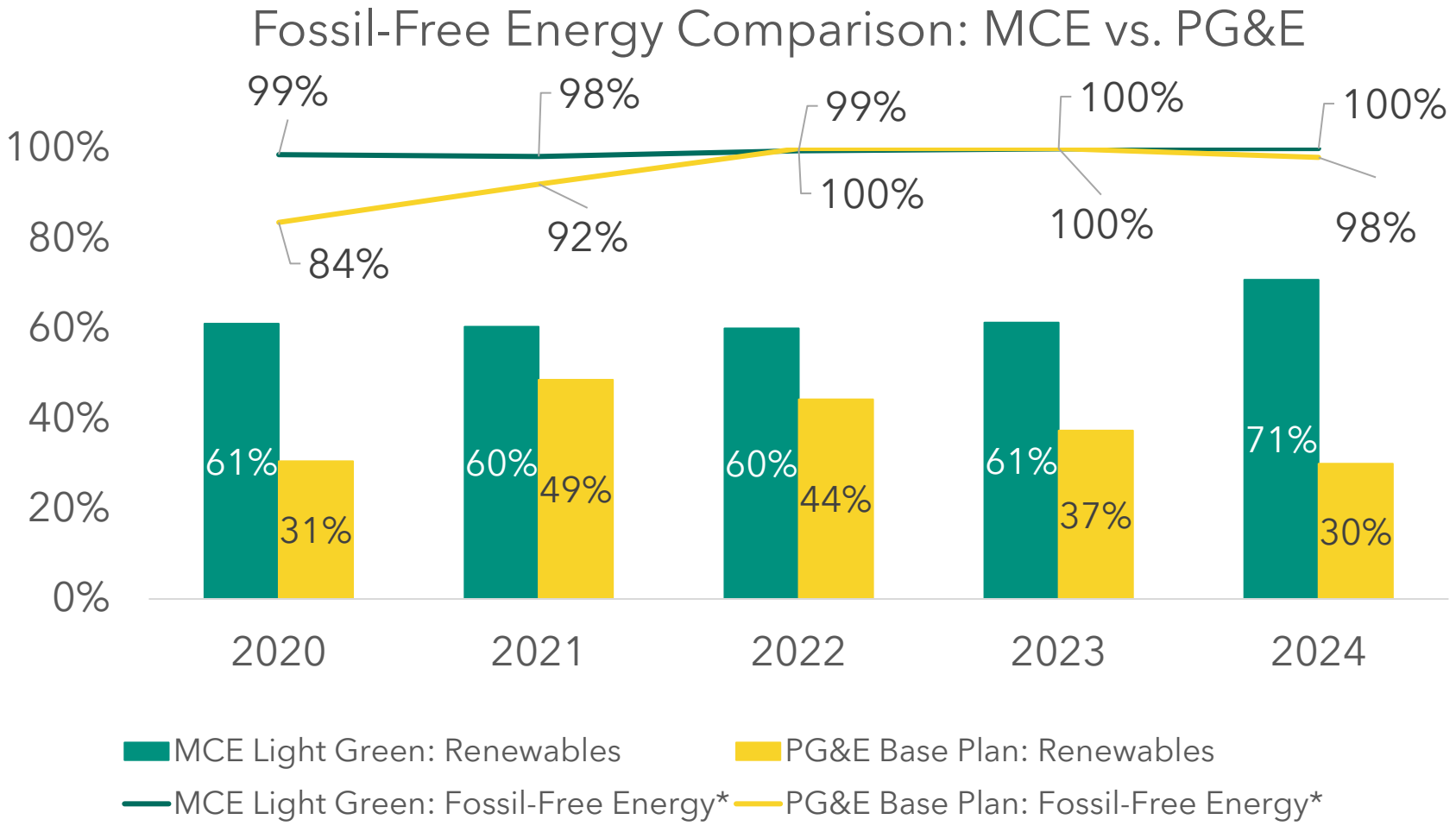
# MCE Historical Power Content (2015-2024)




*Includes energy delivered by large hydroelectric generators and Asset Controlling Suppliers

Note: Percentages for 2023 and 2024 sum to more than 100% due to the inclusion of unbundled PCC0 RECs.

# MCE vs PG&E: Five-year Portfolio Summary




- PG&E's 2024 Base Plan power portfolio included **63% nuclear energy & 7% Unbundled RECs**
- MCE's 2024 Light Green power portfolio included **0% nuclear energy and 1.6% Unbundled RECs**
- PG&E's Base Plan Emission Factor = 16 lbs CO2e/MWh (MCE Light Green Emission Factor = 1.4 lbs CO2e/MWh)

*Includes RPS-eligible renewable, large hydro and nuclear power sources

Source Data: Annual Power Source Disclosure Reports, as provided by the CEC (2020-2024)


# Thank you!

MCE

mceCleanEnergy.org
info@mceCleanEnergy.org

# CAISO, Risk Mitigation, and MCE's Approach to Market Participation

MCE Board of Directors
October 16, 2025

# Meet the Presenter

## CB Hall

### Principal Power Procurement Manager

Joined in 2018

CB has 20+ years of energy and finance experience and has worked for the California ISO, PG&E, Sonoma Clean Power, and Morgan Stanley.

CB works on MCE's power resources team in a wide range of areas including evaluating long-term offers, procuring short-term supply and helping manage MCE's market operations. He holds a BA in Economics from Brown University and an MBA from Dartmouth College.



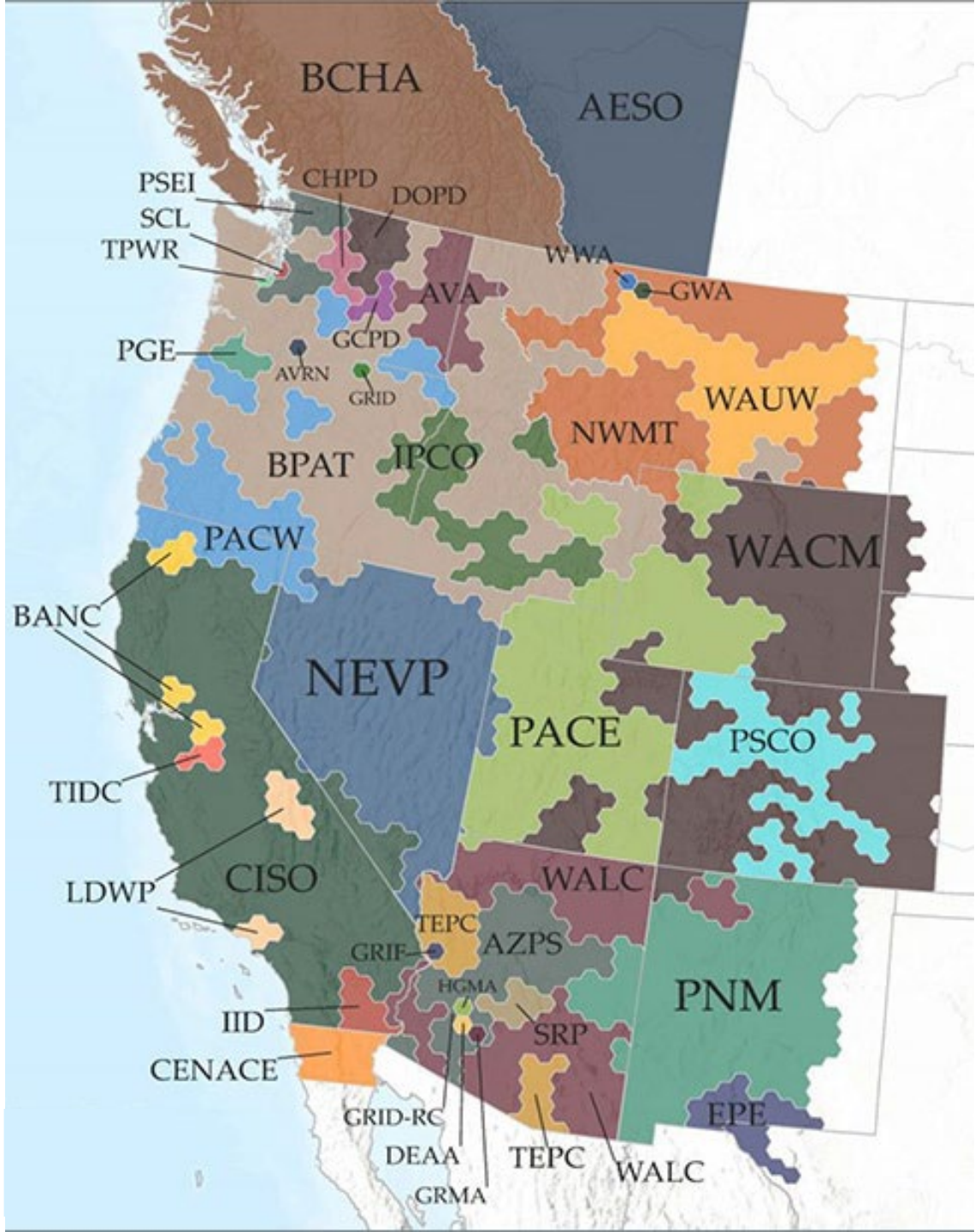
2

# Agenda

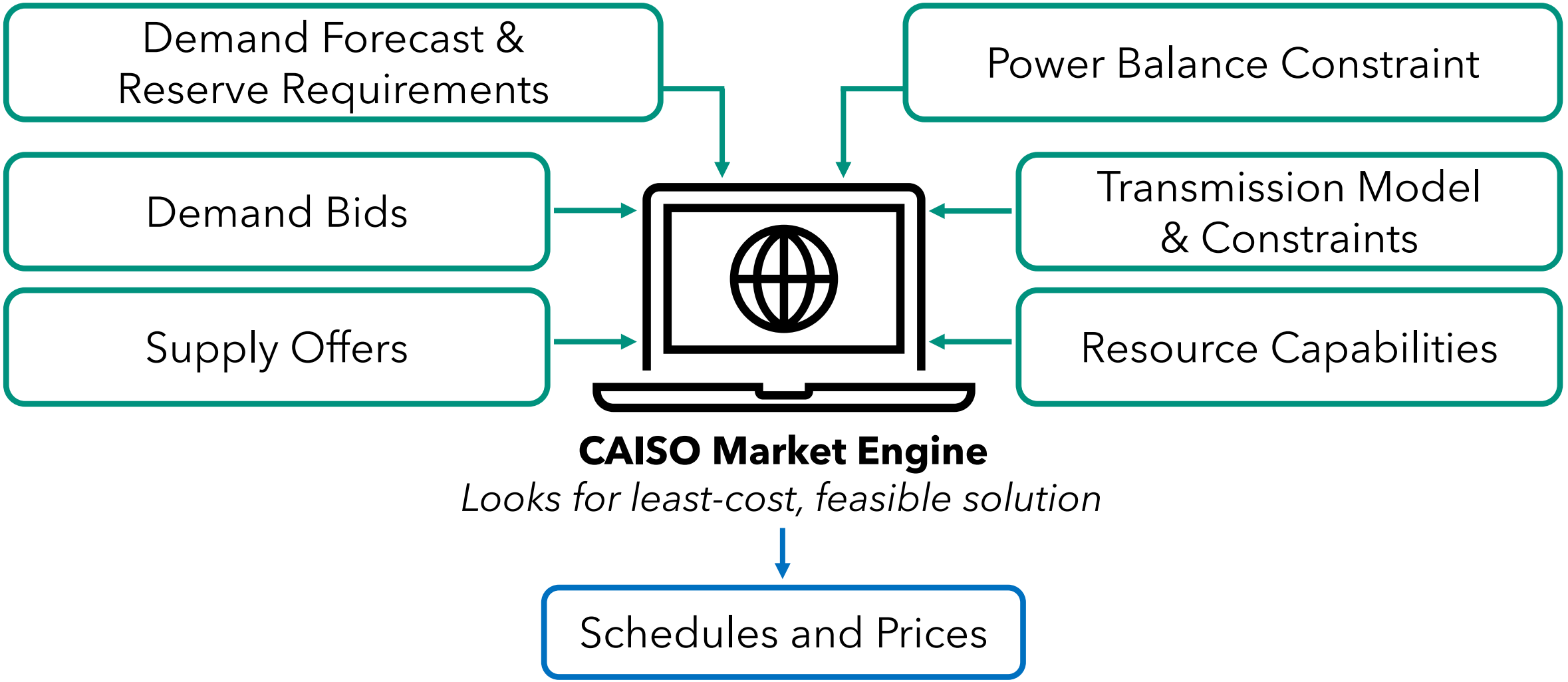
- 38 balancing authorities serve the western grid
- The California Independent System Operator (CAISO) uses markets to help balance supply and demand
- MCE actively participates in CAISO markets

# 38 Balancing Authorities Serve the Western Grid

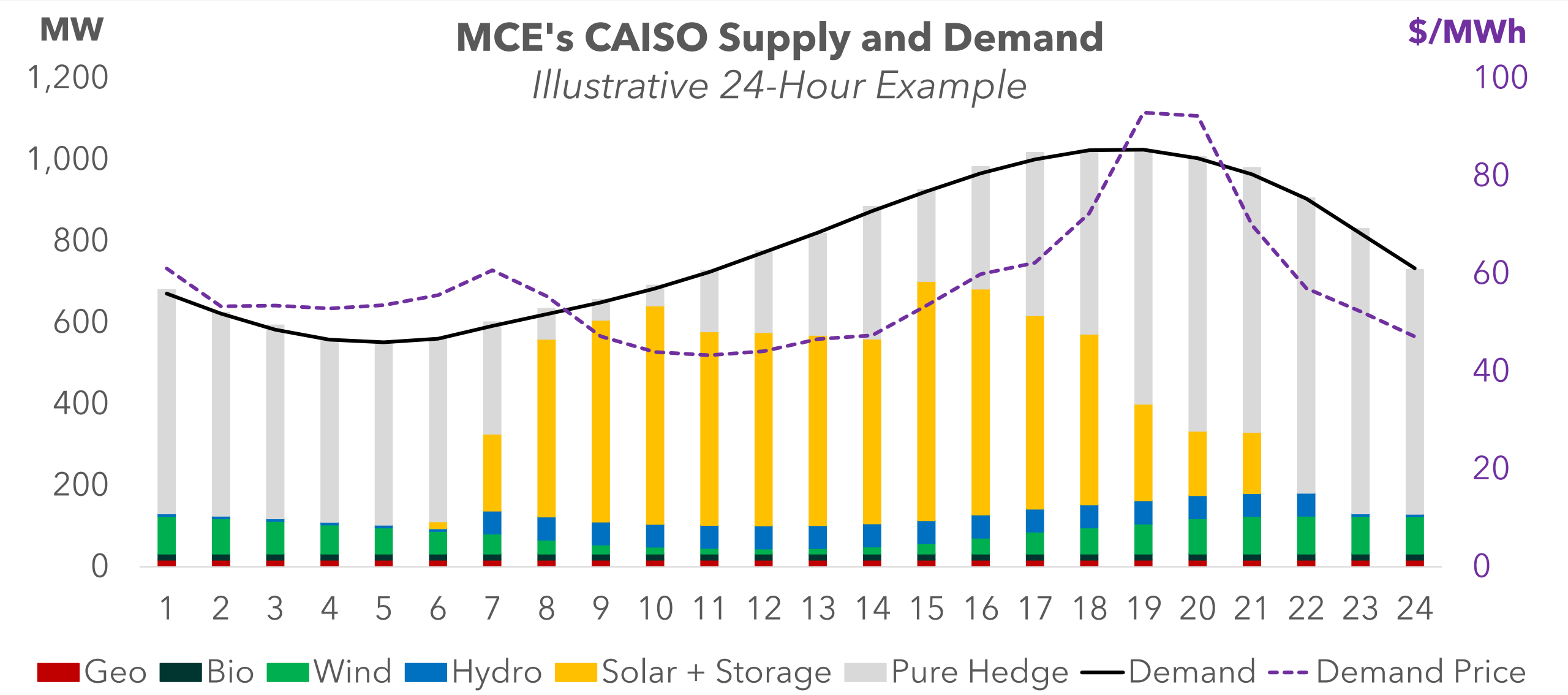
- Balancing authorities balance supply with demand at all times.
- When this balance is achieved, grid frequency is 60 Hz.
- CAISO is the balancing authority for approximately 80% of CA.



# CAISO Uses Markets to Help Balance Supply and Demand



# MCE Actively Participates in CAISO Markets



# Thank you!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# Using Virtual Power Plants to Decrease Volatility and Risk in MCE's Supply

MCE Board Retreat
October 16, 2025




# Meet the Presenters

## Vicken Kasarjian

### Chief Operations Officer

Joined MCE in 2018

Vicken's career spans over 38 years in the energy industry. Before joining MCE, Vicken's previous work at CAISO, SMUD, NCPA, IID and CDWR included finance, procurement, building and operating power plants and transmission lines, developing markets, and reliably operating balancing authorities. Vicken participated in the development of AB1890 that created the CAISO, and was an elected trustee at NERC representing Load Serving Entities in North America.

Vicken works with all staff, the Board, and external entities to achieve a fossil-free portfolio. Vicken establishes policies to take MCE to the next level of strategic growth on a firm financial footing.

# Meet the Presenters

## Alexandra McGee

### Vice President of Strategic Initiatives

Joined MCE in 2015

Alexandra develops strategy and cultivates relationships to drive forward innovative, out-of-the-box opportunities to move our communities collectively toward a clean energy economy. At MCE, she has fulfilled many roles for the agency: project manager, Spanish translator, community organizer, liaison to municipalities, grant writer, academic author, and as a diversity, equity and inclusion consultant.

She holds an MA from UC Berkeley for her research on community approaches to small-scale decentralized renewable energy for rural electrification in Nicaragua.

# Meet the Presenters

## Shuvo Chowdhury

### Vice President of Technology & Analytics

Joined MCE in 2022

Shuvo is a graduate of the University of Toronto with a BASc in electro-mechanical engineering. Prior to MCE, he has worked in a variety of leadership roles in the energy sector, including at utilities, technology & management consulting, private developers and family offices.

Shuvo leads MCE's Technology & Analytics department. He oversees MCE's technology platforms and strategy, as it relates to data analysis, cybersecurity and analytics. He specializes in process optimization, energy-technology strategy and risk management.

# Meet the Presenters

## Sam Irvine

### Senior Strategic Initiatives Manager

Joined MCE in 2024

Sam holds a dual MBA and MPA from Presidio Graduate School and has supported the efforts of CCAs, project developers, financiers, and community groups for more than a decade. He currently supports MCE's Strategic Initiatives Department and is managing MCE's Virtual Power Plant initiatives.

Prior to joining MCE, Sam was the primary project manager of Richmond Advanced Energy Community VPP Pilot. Sam specializes in cultivating public private partnerships to accelerate our just energy transition

# Customer Objectives

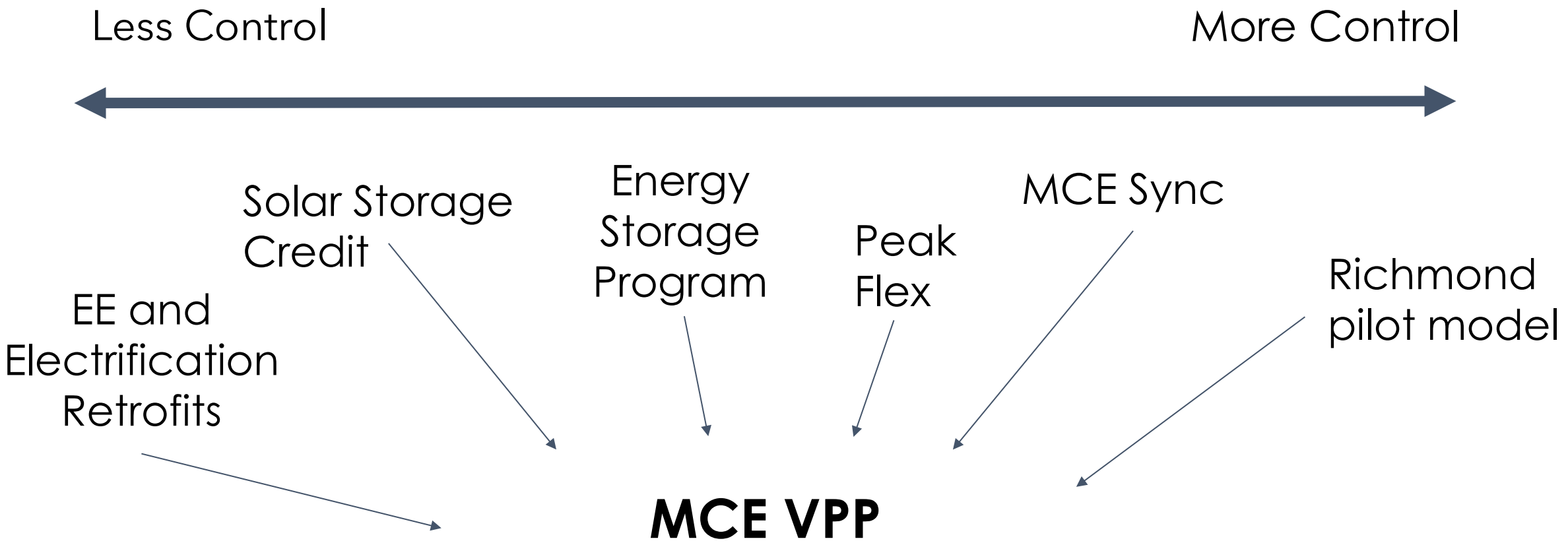
- **Electrification:** Leverage successful MCE programs to modernize homes & businesses with devices that improve comfort, flexibility, and resiliency, while creating jobs in the process
- **Better Air Quality:** Replace the need for peaker plants or diesel generators with green technology
- **Bill Savings:** Reduce energy burden for customers with sensitive load management
- **New Revenue Stream:** Share financial benefits through easy on-bill credits; increase property values
- **Customizability:** Prioritize customer comfort and allow for a diversity of risk appetite

# Grid Objectives

- **Decentralized Resources:** Establish flexible load with smaller customizable solutions rather than costly centralized solutions
- **Diversified Solutions:** Aggregate devices with different load profiles for dynamic load shifting
- **Real-time Innovation:** Directly receive device data, bypassing meter-data bottlenecks, enhancing transparency
- **Faster Operations:** Unlock faster energy management toward a 24x7 settlement
- **Enhanced Reliability:** Support the grid with community-level flexibility
- **New Markets:** Unlock revenue in wholesale markets
- **Cost Savings:** Reduce procurement & resource adequacy obligations

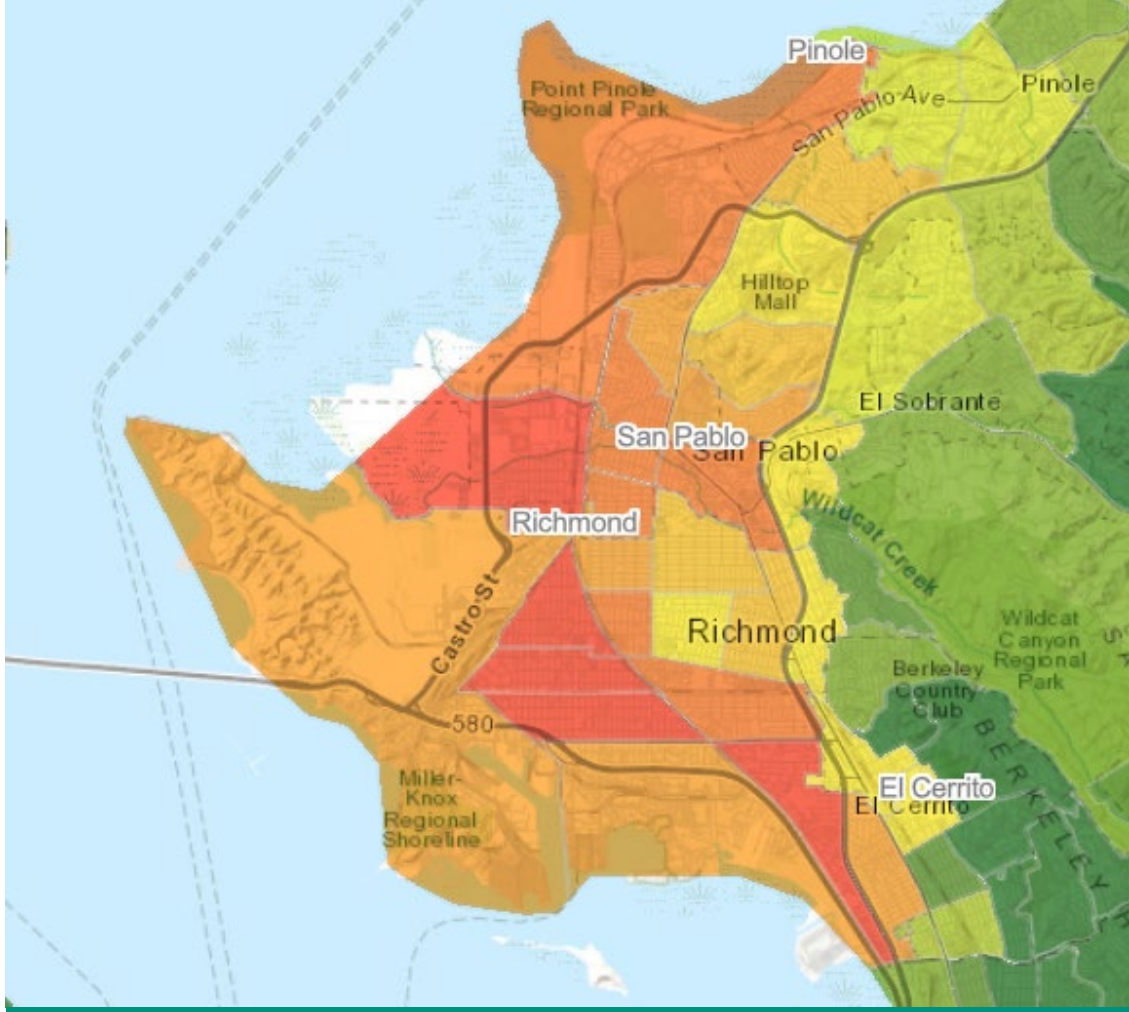
# Customer Choice

**Multiple Strategies for Customized Solutions**



# History

- **May 2022, MCE joined a $5M California Energy Commission EPIC grant in Richmond**
- Provide a suite of *customer-owned* distributed energy resources (DERs) by 2025 to build a quiet, invisible, clean pockets of power to develop a Virtual Power Plant (VPP)
    - Rooftop solar, heat pump water heaters, smart thermostats, smart plugs, EV chargers, batteries
- **VPP FLEX adds $5M from CEC and $5M from MCE to expand program to all MCE communities** with a focus on integrating existing Customer Programs into the VPP




- Refinery built before city incorporated in 1905
- WWII temporary housing still in use today; 71% built before 1980
- 99$^{th}$ percentile for asthma & CARB designated AB 617 community - high air pollution

# Residential

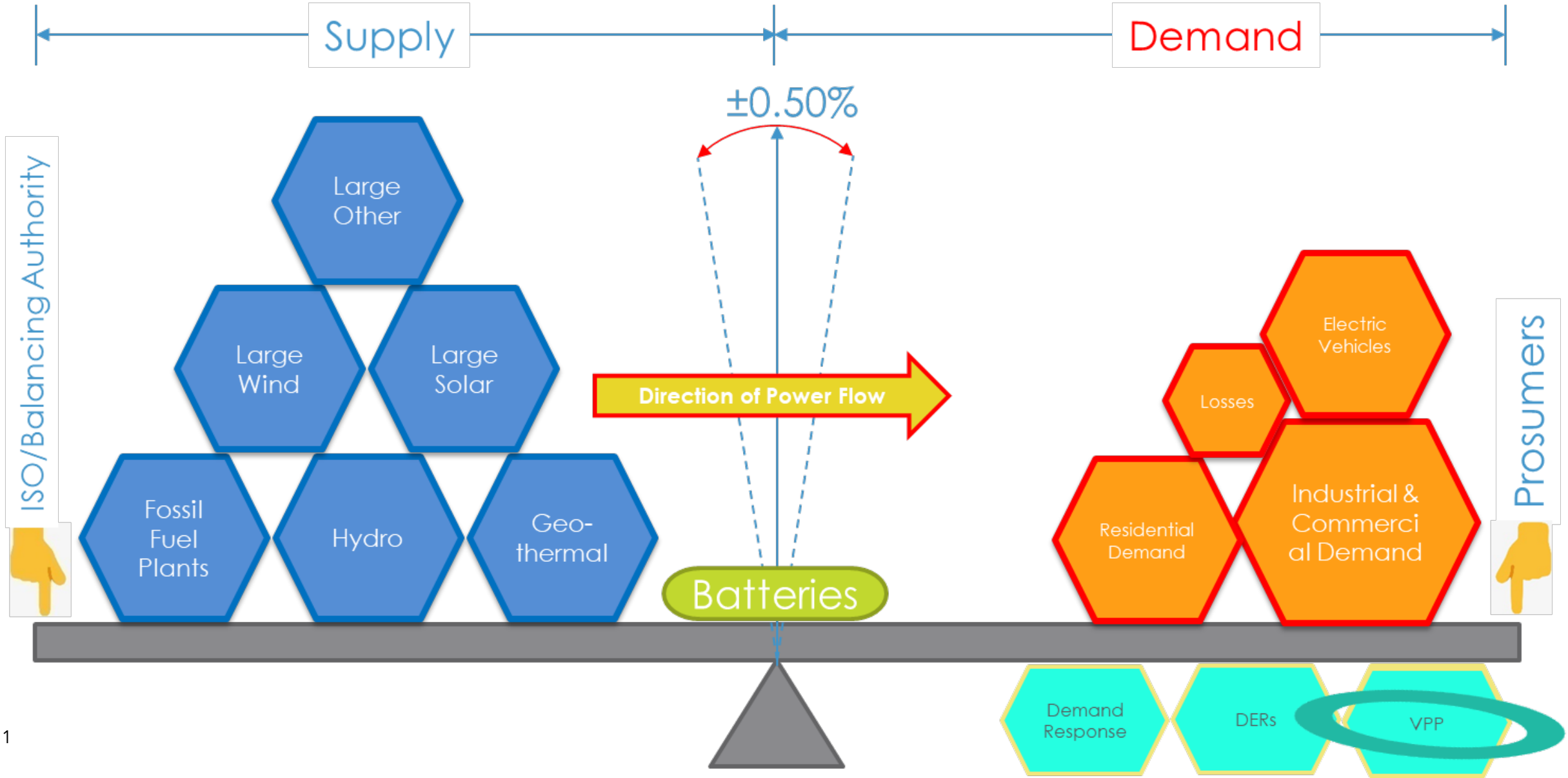
## Zero-Net Carbon Homes for First-Time Lower-income Home Buyers

- Social impact bond to acquire sites for rehabilitation to build inter-generational wealth
- Homes sold below market value with no resale restrictions

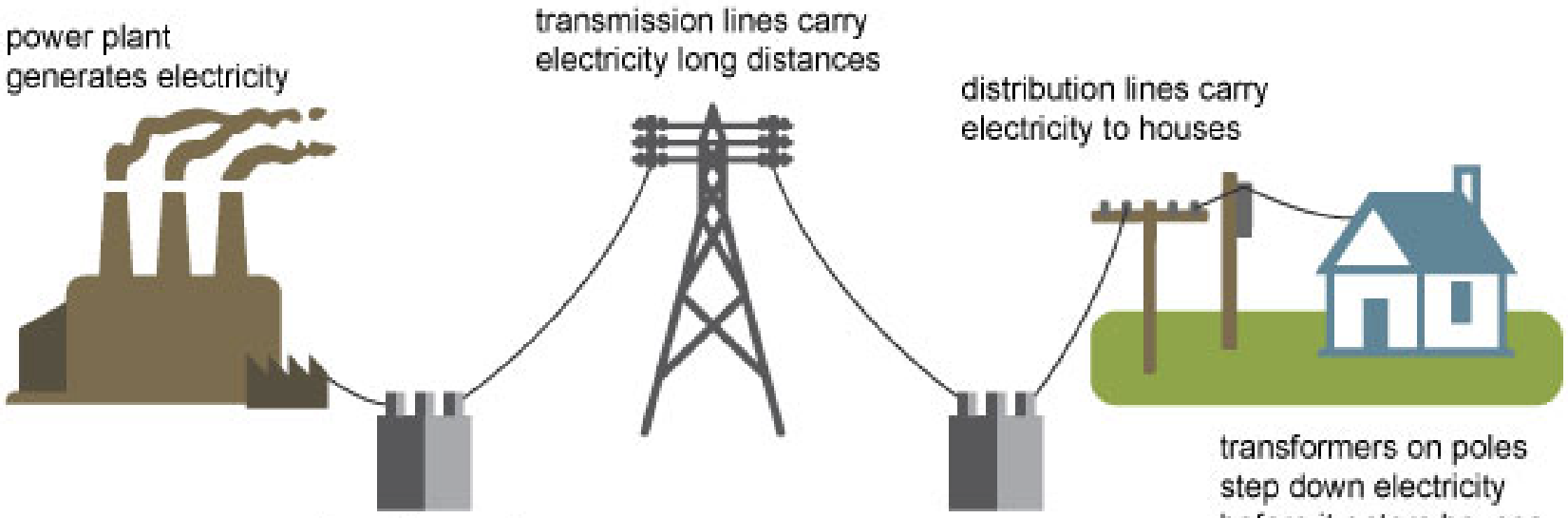
## Existing Eligible Homeowners

- Solar + DERs for income-qualified households
- No- to low-cost DERs for participation, made possible through various funding sources


# Benefits of a Virtual Power Plant



# Role of a Power Plant




## Constrained by Physics

A powerplant is limited by:

- Where it is located
- What it is connected to
- Type of plant

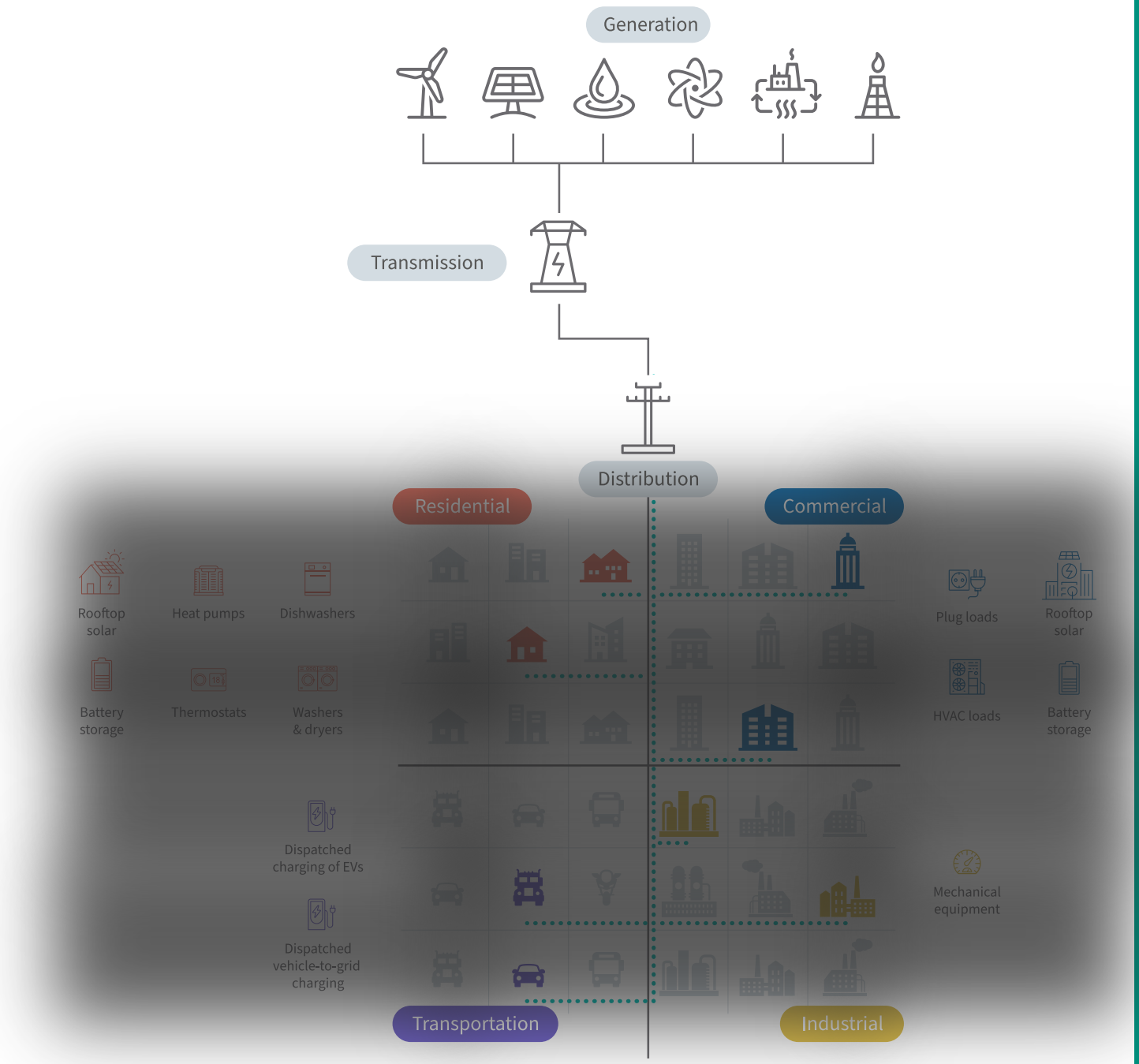
- Market rules
- Regulatory constructs
- System topology
- …and other factors

## Dispatched on Economics

A powerplant dispatched based on:

- Fuel cost
- Energy price & Contracts
- …and many other factors

Source: Adapted from National Energy Education Development Project (public domain)

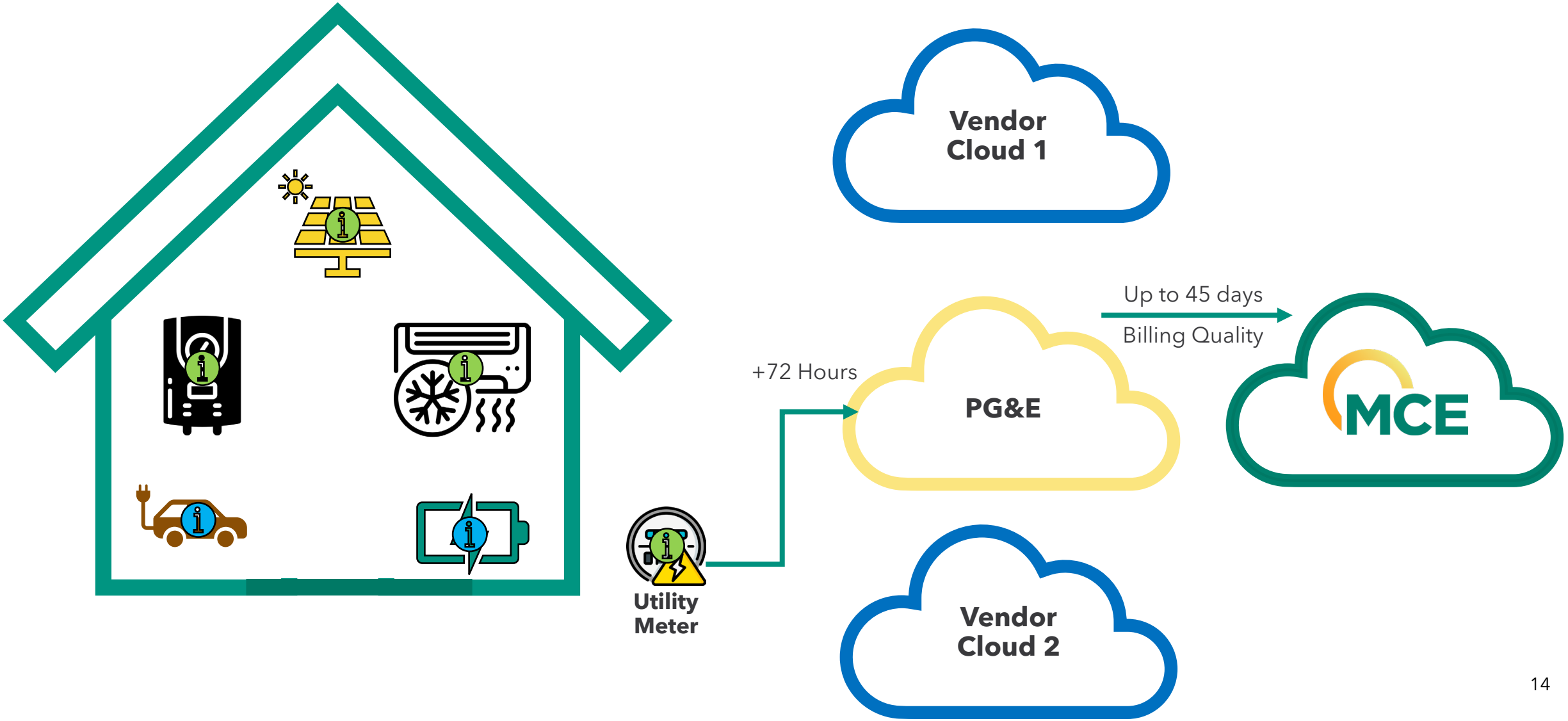



Source: Adapted from Virtual Power Plants, Real Benefits report 2023 from the Rocky Mountain Institute

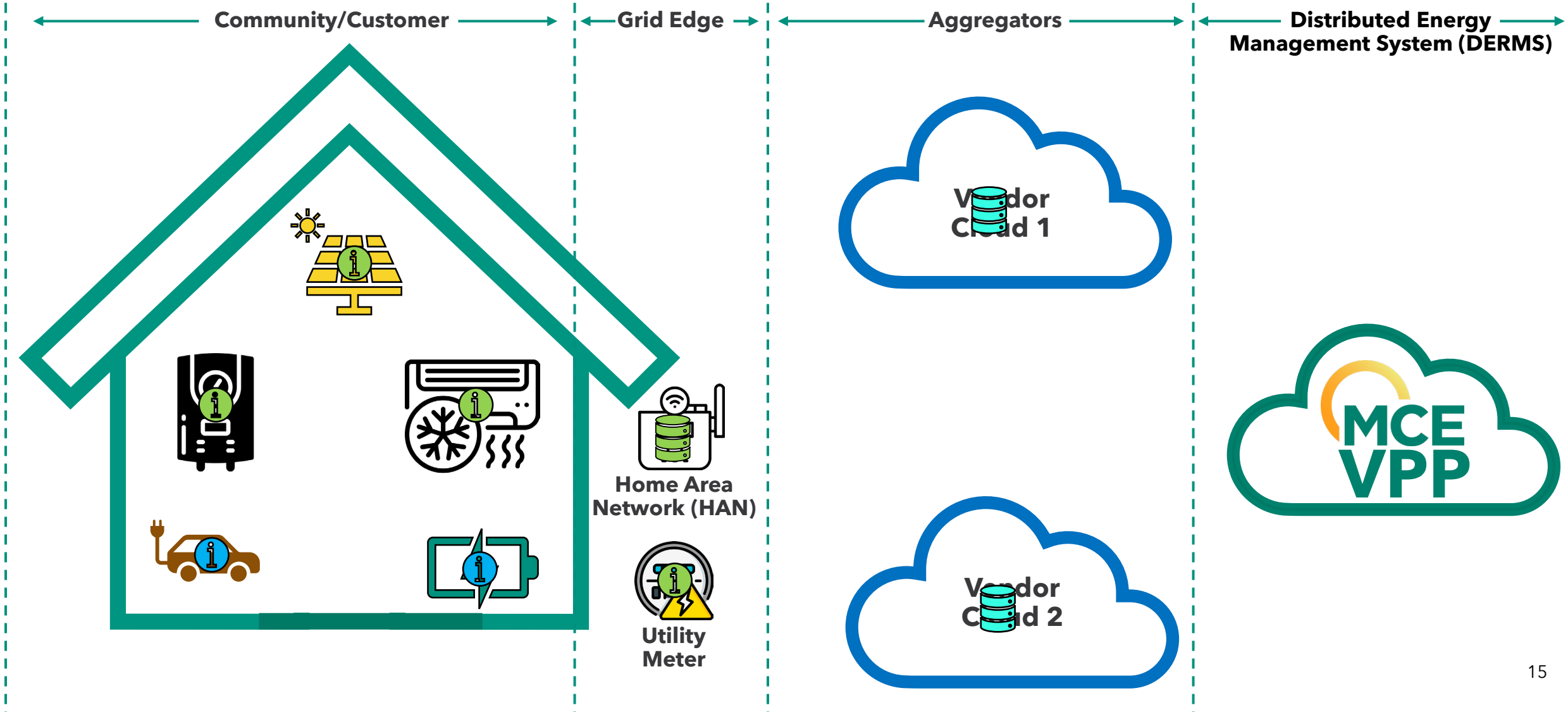
# Hidden Capacity

- Safety & reliability are of primary importance to the grid
- Without real-time situational awareness, the grid usually runs at a much lower capacity than it is capable of
- There is capacity in the distribution grid; we just can't see it
- Accessing this capacity will allow the grid to run more efficiently
- VPPs allow us to access this capacity

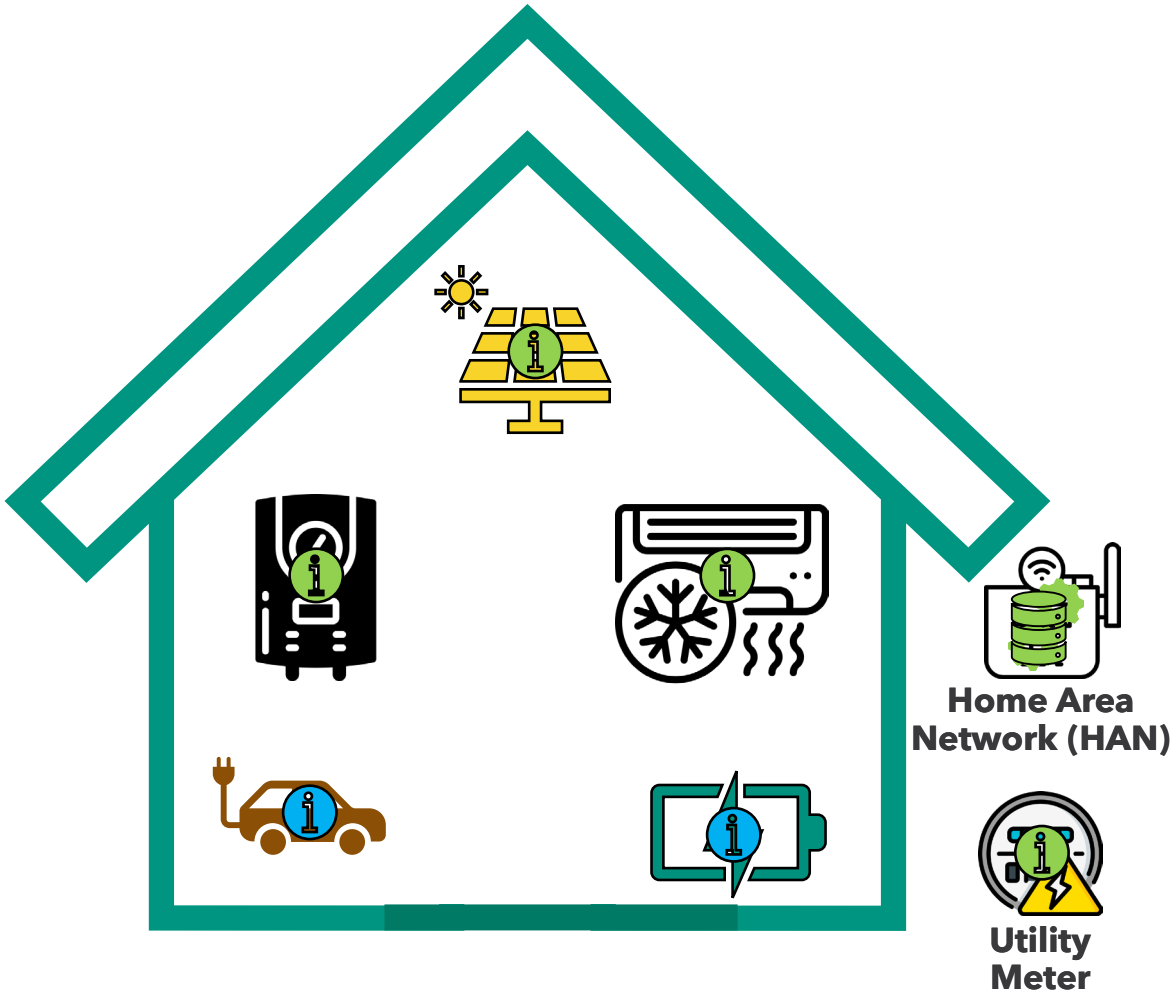
# What Happens Today

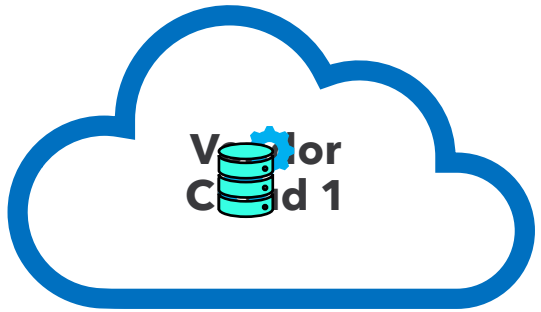


# Realtime Situational Awareness

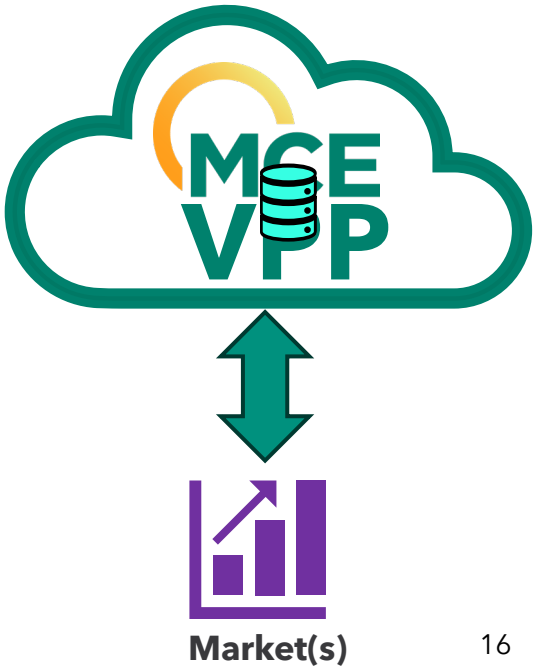


# Realtime Action







# Different Ways to Shape Load

Automatically shift usage depending on what is needed for the grid.

## Use Case 1 Daily Peak Shift

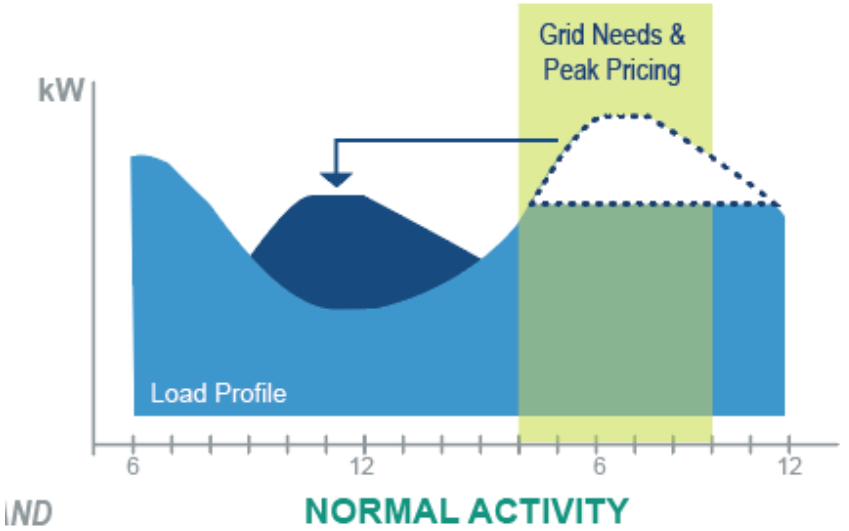
- Off-peak charging from on-site solar
- On-peak discharging (4-9pm)

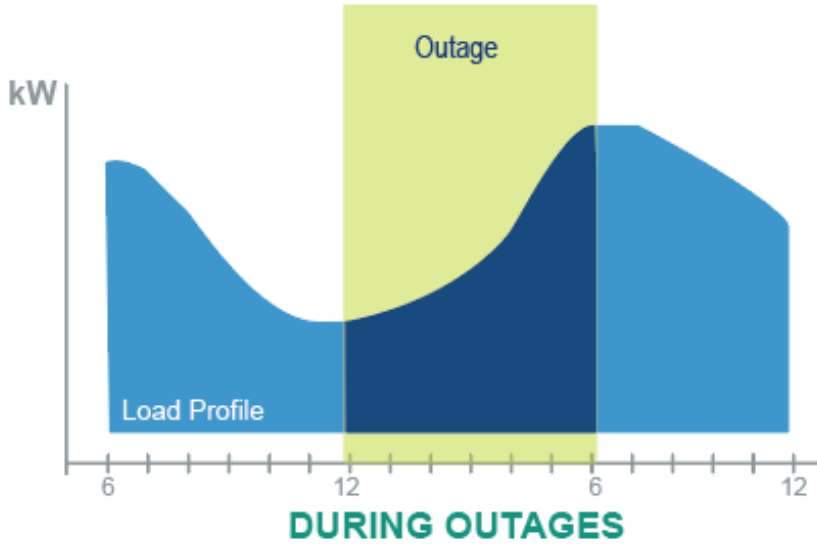
## Use Case 2 Market Participation

- Schedule devices in energy blocks for the CAISO markets
- Adjust day-ahead and day-of energy procurements

## Use Case 3 Outages

- Battery charges to full capacity at time of notification
- Examples: Public Safety Power Shutoffs, eclipse, storms or unusual weather



# Growth Opportunity

MCE Peak: 1200 MW

85,000 solar customers / 400 MW

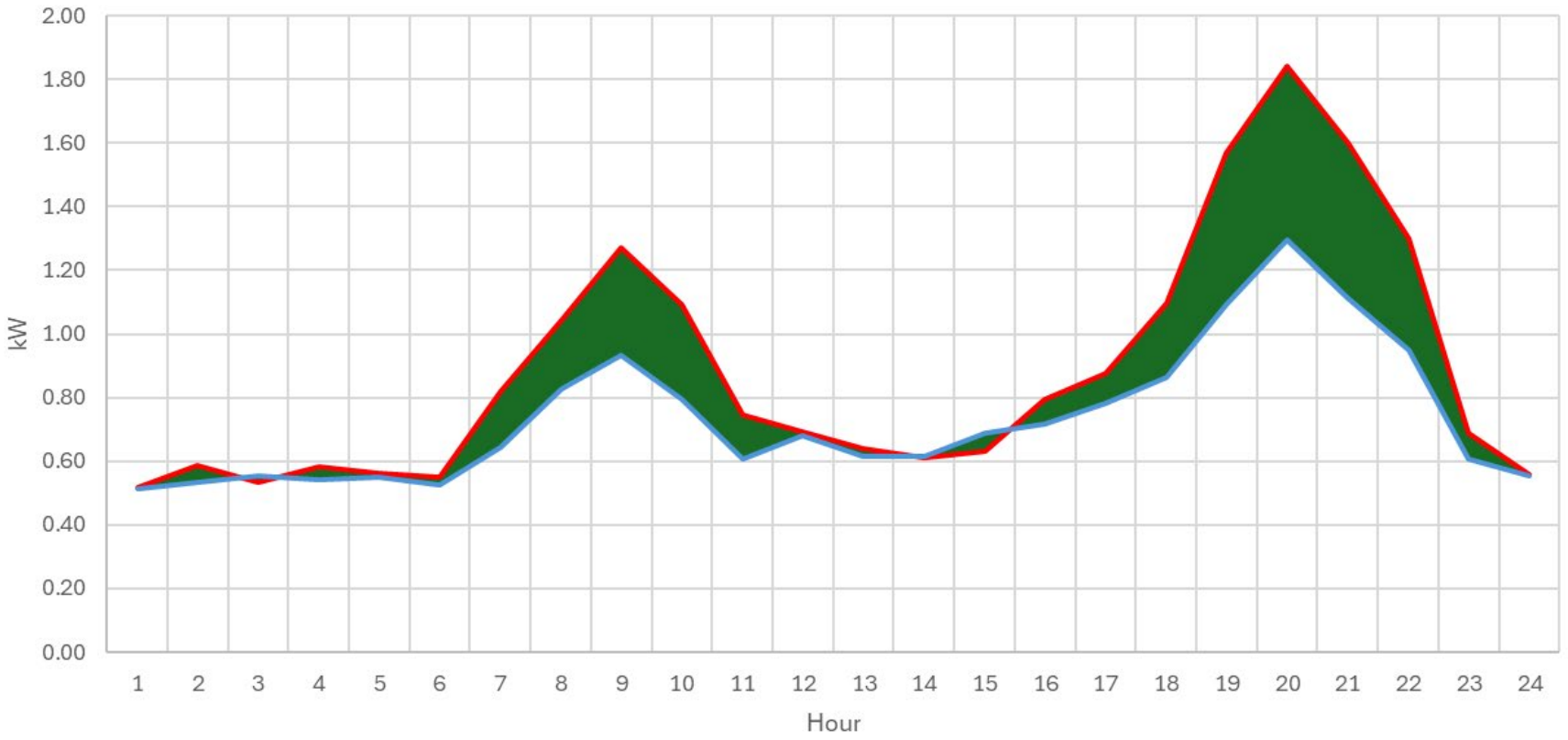
- Organic growth rate of 1.28% / month

19,887 battery customers / 100 MW

- 21.5% of NEM/SBP customers have a battery
- 1,299 in MCE's Solar + Storage program
  - 17% Tesla
  - 10% Enphase
  - 10 other OEMs, less than 10% each

101,830 EVs by 2026 / 500 MW

# Projected vs. Actual




- Devices can be made smarter if they can communicate with MCE's Distributed Energy Resource Management System (DERMS).

Recent DERMS test:

- Red - what customer would have done without intervention
- Blue - shifted load
- Green - the kWh difference

# From Pilot to Scale

- The Richmond Pilot defined the VPP proof of concept. Successes:
  - Communication of new devices
  - Registration of assets in Demand Response Registration System
  - Test events of installed devices
  - Integration of Open Source DERMS platform for CCAs

- VPP FLEX is explicit about its objective for efficiency & scale. It targets a 3MW load shift and a measurable Return on Investment.

# VPP Scaling Approaches

Adapt existing Customer Programs for VPP

Deploy new flexible capacity at commercial, agricultural & public facilities

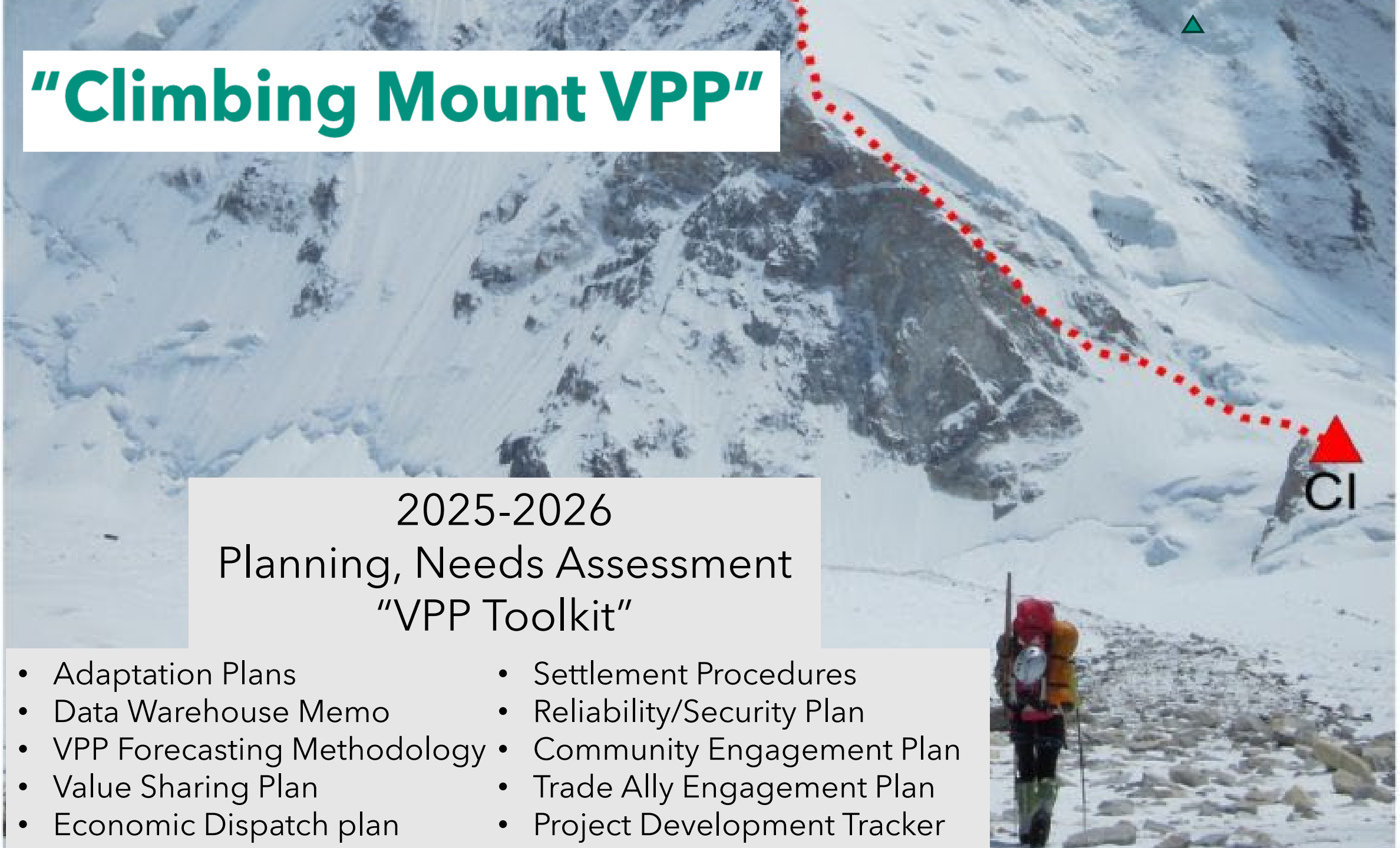
Integrate existing DERs into VPP with Pay for Performance model

Build open-source eDERMS and engage with CAISO

# Goals/Objectives

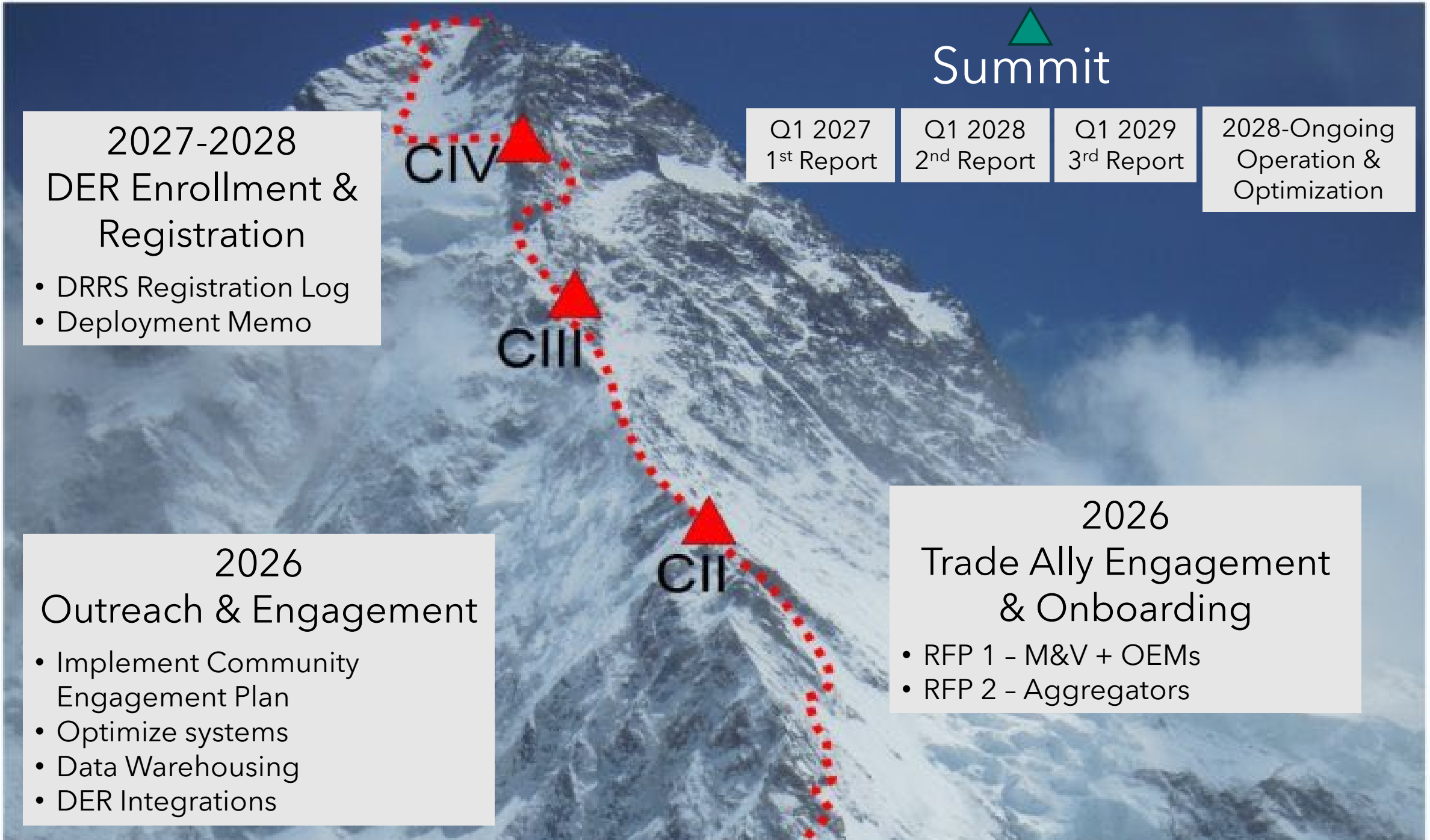
1. **Develop** an updated eDERMS package that is **OpenADR 3.0 certified**
2. **Implement a value sharing plan** that includes a pay-for-performance component
3. **Expand VPP** eligibility to all MCE communities
4. **Adapt MCE Programs** to be VPP-Ready and expand contracted Trade Allies
5. **Integrate the VPP with CAISO markets** to demonstrate new CCA revenues
6. **Achieve a 3 MW load shift** through strategic deployment and optimization of DER installations
7. **Demonstrate at least 20% cost recovery** of the proposed VPP **within four years**

# "Climbing Mount VPP"




## 2025-2026
## Planning, Needs Assessment
## "VPP Toolkit"

- Adaptation Plans
- Data Warehouse Memo
- VPP Forecasting Methodology
- Value Sharing Plan
- Economic Dispatch plan
- Settlement Procedures
- Reliability/Security Plan
- Community Engagement Plan
- Trade Ally Engagement Plan
- Project Development Tracker


Summit
Q1 2027
1st Report
Q1 2028
2nd Report
Q1 2029
3rd Report
2028-Ongoing
Operation &
Optimization
2027-2028
DER Enrollment &
Registration
• DRRS Registration Log
• Deployment Memo
CIV
CIII
CII
2026
Outreach & Engagement
• Implement Community
Engagement Plan
• Optimize systems
• Data Warehousing
• DER Integrations
2026
Trade Ally Engagement
& Onboarding
• RFP 1 – M&V + OEMs
• RFP 2 – Aggregators

# Monthly Customer Credit: Phase 1

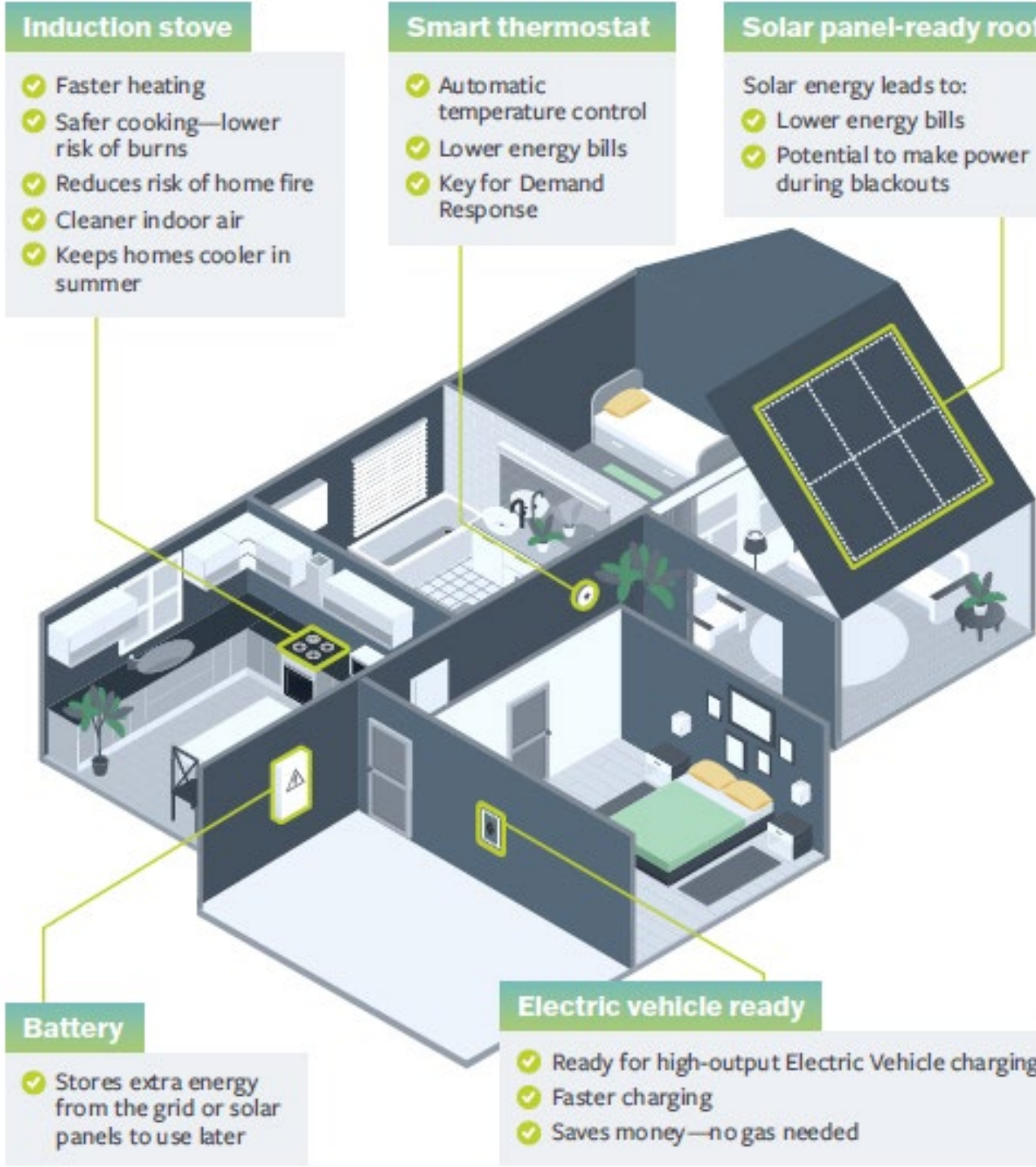
The VPP provides monthly bill credits in exchange for remote control and dispatch capability, with exceptions made for outage events:

- **Residential:** Credits vary on number and type of DERs installed ($2-20/device/month), capped at either $40 or $50 monthly.
- **Commercial and Industrial:** Monthly credits capped at $300 for commercial and $750 for industrial customers, with a true-up of their actual value to MCE reconciled and paid annually.

**Costs can be offset, in whole or in part, by reduced cost of procured energy by MCE.**

# Eligible Devices & Credits

- $2/month per smart appliance
- $5/month per
  - HAN/Smart Gateway
  - Smart thermostat
  - Mini-split air conditioner
  - Heat pump hot water heater
- $10/month per
  - Level 2 EV charger
  - Battery under 20 kWh
- $20/month per
  - Bi-directional L2 EV charger
  - Battery over 20 kWh



# Long-Term Vision

- Share this with all MCE communities to empower residents, increase renewable energy, and harmonize supply and demand
- Consistently responsive systems of real-time data with validated loads that can be bid and settled with the CAISO
- Be an industry leader by create a roadmap for other CCA's using open-source data
- Develop the data so CCAs can partner with IOUs inform distribution system investments
- Tap into other financial opportunities and revenue streams, e.g., resource adequacy
- Unique MCE approach – sharing the wealth with customers through on-bill credit structures


California Independent System Operator

# Thank You

mceCleanEnergy.org
info@mceCleanEnergy.org

# The Power of Deep Green

**$18.7 million**
spent or committed toward EV charging and EV instant rebates

**$1.4 million**
spent or committed toward heat pump water and space heating

**$363,875**
spent on low-income solar installations

**$395,000**
spent or committed toward community housing grants

## Local Renewable Energy and Program Development Fund

Half of the Deep Green premium of 1.25¢ per kilowatt hour is allocated to this fund. By choosing Deep Green, MCE customers are going above and beyond, choosing 100% renewable electricity and local reinvestment.

## Community Housing

In 2023 MCE started offering additional funding for energy efficiency and electrification measures at community housing facilities. These facilities are typically emergency housing and shelters, serving a vulnerable population in need of immediate support.

**$412,000** spent & **$530,000** allocated

## Low-income Solar

Provided $363,875 to help 688 households install over 1,400 kilowatts of solar. The program launched in 2013 and concluded in 2017.

## Heat Pump Program

Combines with CPUC dollars earmarked for the installation of heat pump water and space heaters and associated wiring, construction, and any necessary remediation for the Home Energy Savings, Multifamily Energy Savings, and Flex Market Projects. It also supports installations through MCE's Emergency Water Heater Loaner program.

**$819,000** spent & **$540,000** allocated

> *"I decided to participate because you have a great program and because I don't want to use more gas so as to not further contaminate the planet. I will reduce my electricity bill, I won't be using more gas, and [I have] a magnificent air conditioner!"*
>
> — Teresa, Pittsburg Resident and Home Energy Savings customer

## EV Charging and EV Instant Rebate

**$13,411,000** spent & **$5,310,000** allocated

### EV Instant Rebate

Increases clean vehicle access for lower-income customers and those living in historically under-represented or pollution-burdened communities. The program makes it easy for eligible customers to receive up to $3,500 off the purchase or lease of an EV by providing point-of-sale rebates. This reduces the upfront cost of going electric, making EVs an easier choice.

- $2.6M in point-of-sale EV rebates in 2025
- Almost 2,000 rebates distributed
- 85% of surveyed participants reported they would not have been able to purchase an EV without MCE's rebate

> *"I recommend getting a rebate from MCE. I just love my car – it's fast and a better driving car. I love the way it maneuvers. It's really easy to charge. With all the assistance MCE gives you, it's a great deal and well worth it!"*
>
> — Sandra, EV rebate recipient

### EV Charging Rebate

In California, 50% of emissions come from the transportation sector. MCE's EV charging program offers rebates to multifamily properties and workplaces for installation of EV charging stations. Studies show that drivers are six times more likely to purchase an EV if they have access to charging at work, and lack of access to charging at home represents a major barrier for multifamily residents. Customers can access up to $4,500 per port through MCE's program, along with technical assistance to support the planning of charging stations.

- 1,300+ ports installed to date
- Funding reserved for an additional 1,000 ports

The Meadows of Terra Linda
San Rafael, Marin County

Contra Costa County Offices
Martinez, Contra Costa County

# Reinvesting in Our Communities


**$400 million**
spent or allocated for our member communities

**$161 million**
spent or committed directly to customers

**$ 75 million**
spent to directly support customers

MCE's commitment to clean energy equity is deeply rooted in community reinvestment. We know that historically marginalized communities are left behind when resources are not intentionally allocated to support specific needs.

Our investment strategy focuses both on equality and equity. Customer programs are targeted toward communities and populations that are most in need. From our EV instant rebate, to our community sponsorship dollars, a **priority is made for vulnerable populations including: low-income individuals, state-designated Disadvantaged Communities, English as a second language customers, underserved individuals looking to enter the green workforce, and communities impacted by the fossil-fuel industry.**

## Percentage of Customers by County

**57%** Contra Costa

**17%** Marin

**10%** Napa

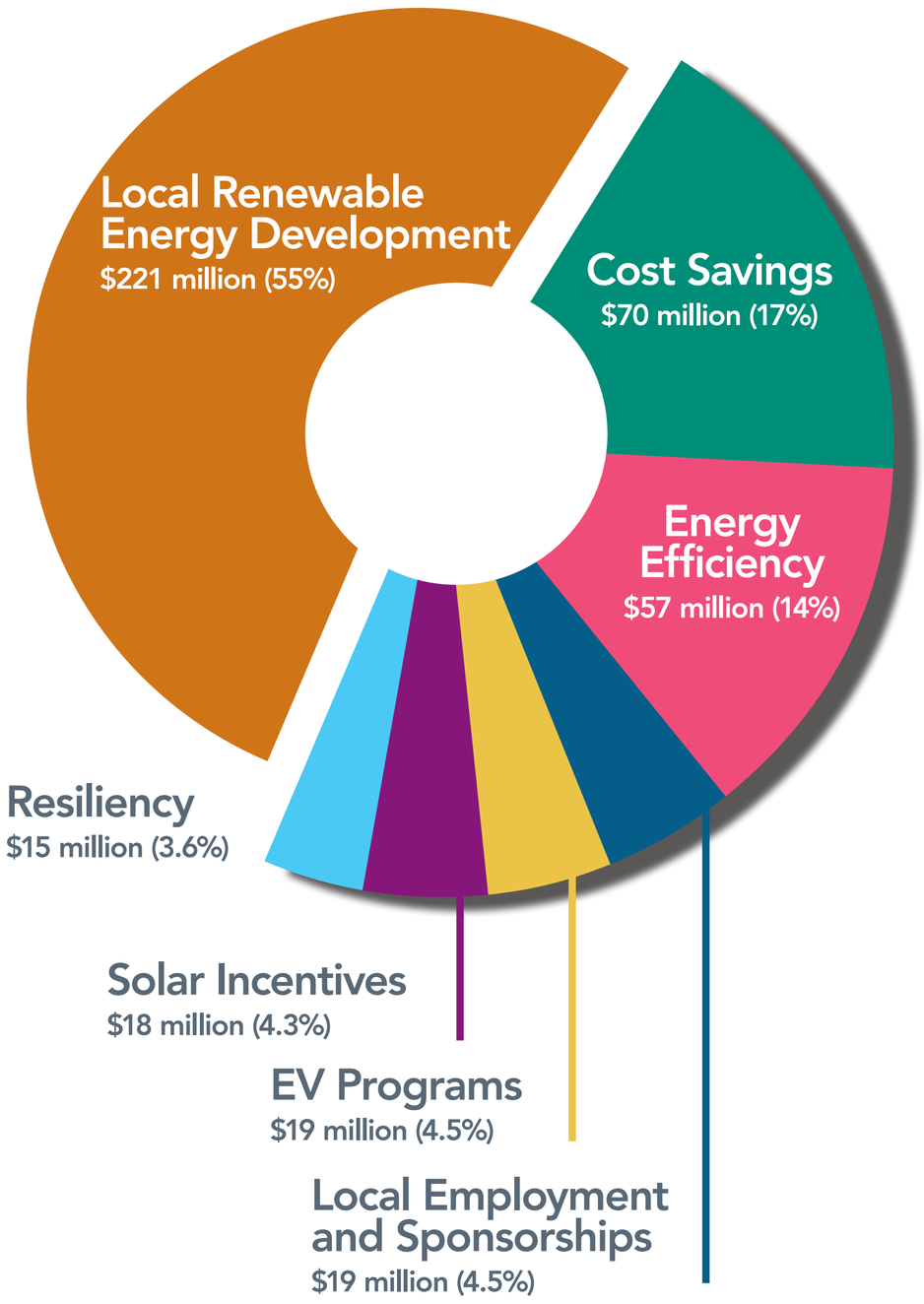
**17%** Solano

## Community Partnership Program

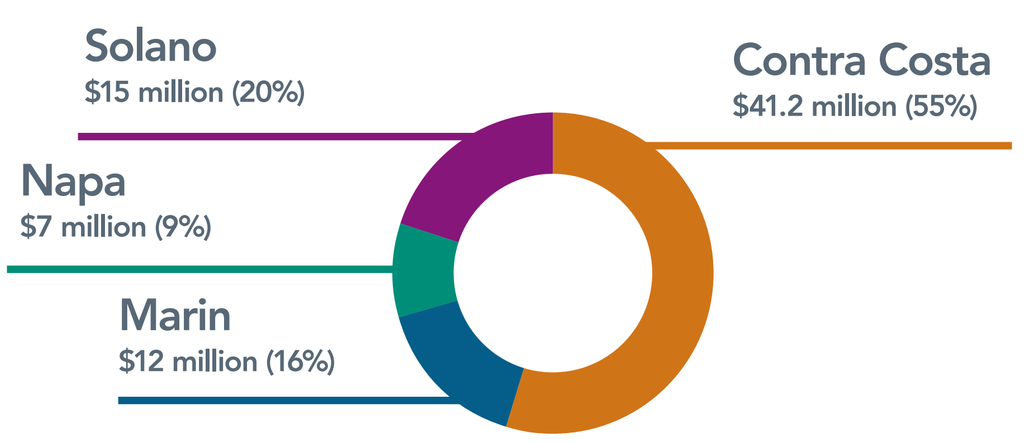
In 2024 MCE launched our first solicitation for our Community Partnership Program, offering contracts to local partners for supporting MCE's mission through community outreach. MCE contracted with six partners to support education in underserved communities including low-income, Spanish speaking, and as part of our Small Business Energy Advantage program. The solicitation also selected partners for our transportation electriciation programs.

- Canal Alliance: $30,000
- North Marin Community Services: $30,000
- San Pablo Economic Development Corporation: $12,500
- Vallejo Main Street: $10,000
- Solano Economic Development Corporation: $10,000
- City of Pinole: $7,500
- Transform: $40,000
- Cool the Earth: $40,000

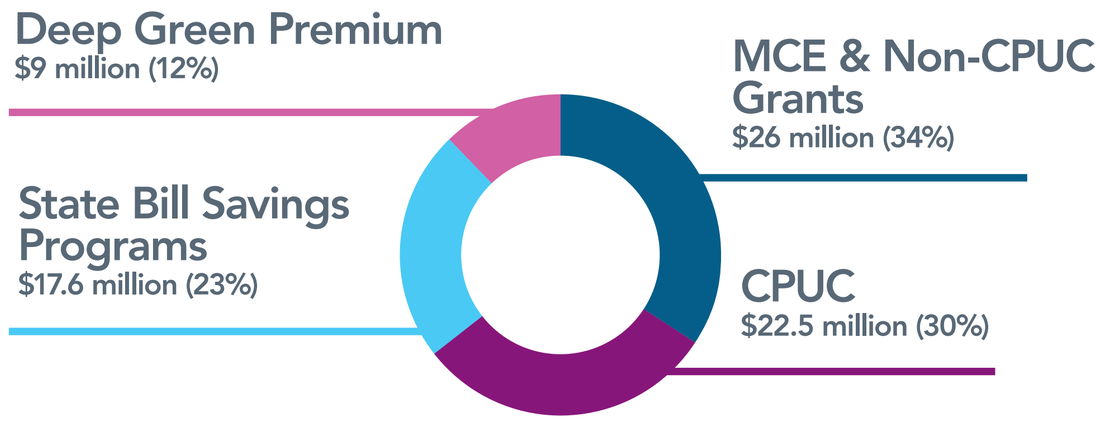
## Spent and Committed Since Inception



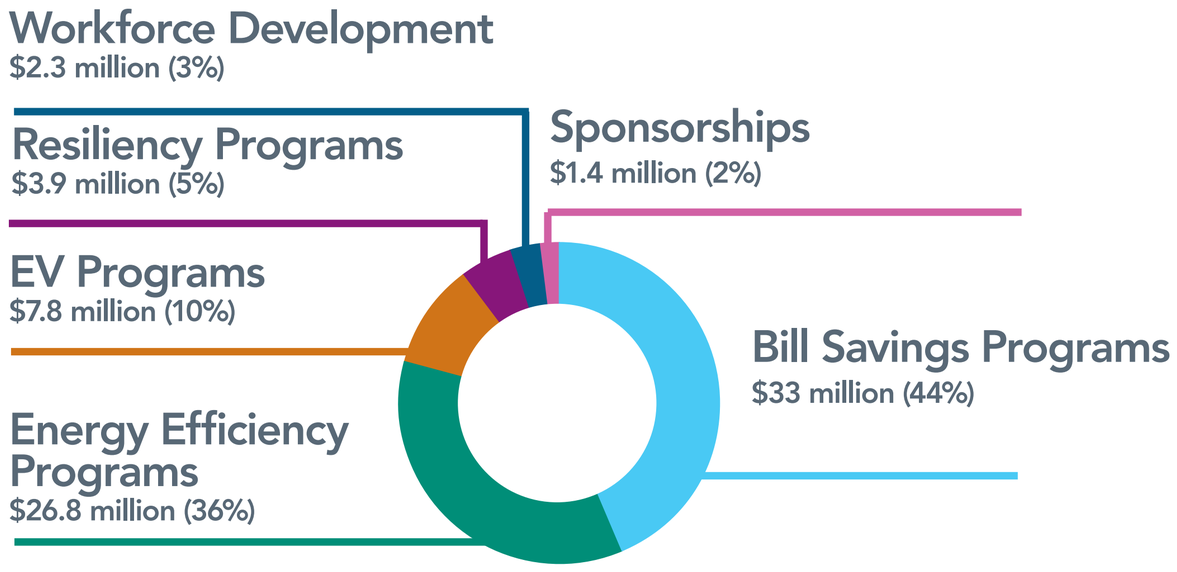

## Investment by County Since Inception




## Investment by Funding Source Since Inception




## Investment by Program Type Since Inception




## Local Renewable Energy and Program Development Fund

MCE's Local Renewable Energy and Program Development Fund is supported by half of the Deep Green premium of 1.25¢ per kilowatt hour. To date, $9 million worth of investments have been funded out of this program specifically for EVs, community housing support, heat pump water heaters, and low-income solar (program concluded).

# Advancing Environmental Justice

MCE is committed to advancing environmental justice by ensuring that all communities, particularly those historically overburdened by environmental harms, have a meaningful voice in shaping clean energy solutions. We believe that strong, intentional partnerships with environmental justice focused community-based organizations are essential to achieving this goal.


## Environmental Justice Tiger Team

Launched in 2025 to engage directly with local partners to listen, learn, and integrate their perspective into both internal processes and public programming on a going-forward basis. MCE researched and met with key partners to identify shared opportunities, understand the priorities of each group, discuss barriers to progress, and explore ways we can support one another's work. Partners included: Asian Pacific Environmental Network, Communities for a Better Environment, Urban Tilth, and the California Environmental Justice Alliance. Based on these conversations MCE is:

- Targeting grant efforts toward shared workforce and policy goals
- Amplifying partner voices through joint speaking opportunities
- Adding environmental justice maps into MCE's customer database to better focus outreach efforts

### Key Themes

**Culturally Competent Messaging**
Partners need direct dialogue with MCE staff and culturally responsive messaging for their constituents that reflects their unique experiences and needs.

**Creating Pathways for Economic and Youth Empowerment**
Workforce development, green jobs training, and youth leadership programs were identified as essential pillars for long-term community resilience and equity.

**Leveraging Land as a Community Resource**
MCE is encouraged to shape policies that enable renewable energy development in areas historically surrounded by refineries and other heavy industry and revitalize land to create workforce opportunities in agriculture and other green fields.

**Many environmental justice partners will be speaking at MCE's upcoming Community Power Coalition Sympoisum at the Concord office on November 14, 2025.**

## Charged By Public Power

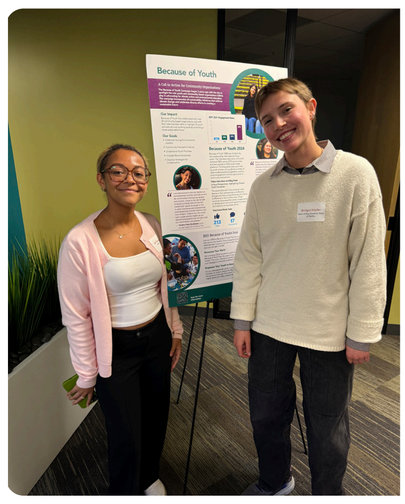
Developed in response to longstanding inequities in how transportation infrastructure decisions are made and implemented in underserved state-designated Disadvantaged Communities (DACs). The program aims to create a more equitable process for community input and decision-making to ensure that investments in clean transportation reflect the needs and priorities of the people most impacted. **MCE hosted 11 focus groups across 8 priority communities, engaging 130 residents in both English and Spanish.**

## Because of Youth

MCE's first Because of Youth Festival was held at Contra Costa College on March 30, 2025 as a way to inspire youth ages 16-25 to take part in climate action initiatives. 16 organizations including GRID Alternatives, Rich City Rides, 4th Second Solano, and Rising Sun came out to table on a rainy Sunday. These organizations shared opportunities available for youth in Napa, Solano, Contra Costa, and Marin County.


## Community Power Coalition

**MCE's Community Power Coalition represents over 170 organizations across our service area.** We host 6 Community Power Coalition meetings a year with the goal to create bi-directional pathways for community partners to engage in climate crisis conversations and partnerships while amplifying the voices of underrepresented groups and better understanding the needs of all communities.





## Expanding Language Access

In 2024, nearly one in three calls to MCE's service center were received in Spanish. Spanish is the most prevalent language among non-English speakers in MCE's area, followed by Chinese and Vietnamese. This insight prompted the launch of a comprehensive language assessment which revealed valuable insights about the diverse languages spoken by our customers. The assessment determined that:

- Roughly 8% of households in MCE's service area are linguistically isolated.
- Working with local partners, including nonprofits and community organizations, is an effective strategy to build trust especially with non-English speaking communities.

The results of this study are helping MCE better serve people who face language barriers by working alongside local partners to reach non-English speaking customers and people with diverse abilities

# Building a Green Workforce

**$4.5 million**
committed to workforce development

**1.9 million**
total union labor hours through renewable energy development

**7,100**
jobs supported with clean energy projects

**616**
workers trained though workforce development partnerships

MCE supports sustainable and fairly compensated job opportunities in the energy industry through workforce training and pre-apprenticeship programs. Our Sustainable Workforce and Diversity policy outlines specific efforts to prioritize workforce development through MCE's Feed–In Tariff program, energy efficiency projects, contracts for services and supplies, and hiring of MCE staff. We partner with community–based, education, and employment organizations and use strategic recruiting and hiring practices such as targeted job postings, attending job recruitment fairs, and blind resume reviews.

Our Commitment:

- Inclusive hiring practices
- Quality training and apprenticeships
- Fair wages and equitable opportunities

## California Jobs First Initiative

MCE is submitting an application to GO-BIZ which would bring almost 30 regional Bay Area partners together to deliver hands-on electrification training to entry-level workers. The proposal seeks to train 240 graduates over two years, encouraging graduates to apply for union apprenticeships or placing them in entry-level contractor roles. Contractor partners will receive training, technical assistance, and certification support. This is an expansion of MCE's Green Workforce Pathways program, bringing together more partners to streamline job training in the Bay Area and directly addressing workforce shortages and the need for scalable electrification. Partners include:

- Future Build
- East Contra Costa Healthy Homes
- Contra Costa County
- Workforce Alliance of the North Bay
- Marin County Office of Education
- Emerald Cities Collaborative
- Bay Area Air Quality Management District
- The Marin Builders Association
- Efficiency First California

## Internship Program

MCE's paid internship program offers hands-on experience in the renewable energy field, creating entry-level opportunities for local community members — especially those who may face barriers entering the industry. Since its launch in 2021, 67 interns — 78% from MCE's service area — have worked across departments on projects to help MCE advance its mission. Several interns have driven such a high impact for MCE that their terms have been extended or they have secured fellowship or full-time positions with the agency. The program continues to foster lasting career pathways and build a more inclusive clean energy workforce.

## Training the Next Generation

Since launching the Training the Next Generation initiative in 2024, MCE has removed barriers and increased retention for young adults entering the green construction industry in Marin County, particularly BIPOC (Black, Indigenous and People of Color) and low-income individuals. As Marin's decarbonization efforts expand, so does the need for a local pipeline of trained candidates in green construction. **The program so far has:**

- **Served 18 students, 88% of which identified as BIPOC**
- **Helped 7 graduates place into local jobs with an average wage of $28/hour**
- Increased visibility of Marin's workforce development efforts, partnerships, and funding opportunities through strategic collaboration.

> *"I think renewable energy is something that we as a community can work on. I think at first it is going to be a hard transition but I liked how she explained all the benefits to switching to electric rather than relying on gas."*
>
> — Traning the Next Generation Program Participant

## Supplier Diversity

MCE leads annual workshops known as "Certify and Amplify" to connect our local businesses to the State of California's Supplier Diversity Clearinghouse. Eligible businesses can apply to certify through this utility contracting program to amplify their business. Current eligibility extends to woman–owned, disabled veteran–owned, LGBTQ–owned, and minority–owned businesses. In 2024 MCE spent:

- $4.1 million on 12 diverse businesses
- $47 million on 108 local businesses
- $883,296 on 11 certified small businesses

> *"Our mission [as] a top, female-owned lobbying firm in Sacramento, is to provide our clients with innovative and out of the box strategic government relations services and counsel... At the encouragement of MCE, and to demonstrate our firm's commitment to equality and diversity, we were motivated to become a certified business through the CPUC. This certification has opened doors for us and has helped us to continue our relationships with organizations that value supplier diversity"*
>
> — Emily Pappas, Partner
> Niemela Pappas & Associates

MCE