SCE Clean Energy Optimization Pilot (CEOP)

December 11, 2025

Agenda

- Safety
- Overview
- Success Metrics
- Results
  - GHG Emissions Reductions
  - Performance Payments
- Evaluation Results
- SCE Recommendations
- Next Steps
- SCE Conclusions

Safety Moment: Give Safely

- Gifts and toys should inspire joy, not cause injuries. Thousands of children are seriously injured in toy-related incidents every year. Avoid safety hazards while gifting with these tips from the U.S. Consumer Product Safety Commission:
  - Toys are age-rated for safety, not for children's intellect and physical ability, so be sure to choose toys in the correct age range
  - Choose toys for children under 3 that **do not have small parts** which could be choking hazards
  - For children under 10, **avoid toys that must be plugged into an electrical outlet**
  - **Be cautious about toys that have button batteries or magnets**, which can be harmful or fatal if swallowed
  - When giving scooters and other riding toys, give the **gift of appropriate safety gear**, too; helmets should be worn at all times and they should be sized to fit
- To find out about holiday toy safety and recalls, check the U.S. Consumer Product Safety Commission website.

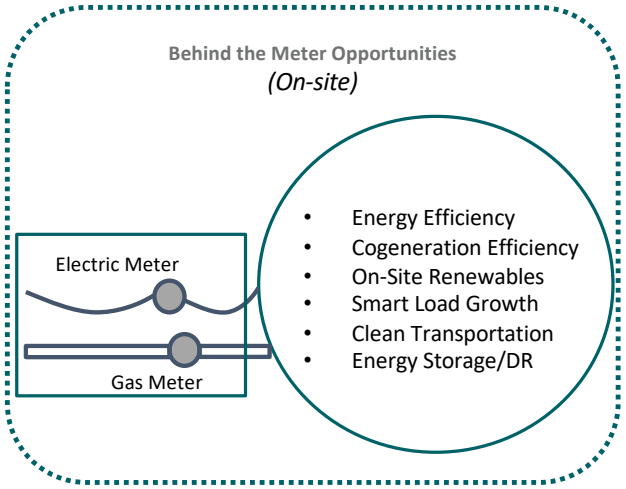
CEOP Overview

Background:

Part of SCE's pathway to enabling a clean energy future, focuses on helping our customers make cleaner energy choices. SCE is continuing to explore the development of programs that specifically focus on GHG emissions reduction that will allow customers to choose and implement technology solutions that best suit their needs, while helping California achieve its aggressive environmental goals.

Opportunity:

Incent and accelerate ***on-site, behind the meter*** opportunities.



Objective:

Through this pilot, SCE demonstrated how a utility can facilitate offerings that directly ***incent*** and ***accelerate*** on-site behind the meter GHG emissions reduction opportunities with large customers through a performance based GHG incentive.

GOALS	BENEFITS
• **Pilot an incentive framework to encourage customers to reduce GHG emissions**	✓ **Alignment with the State's and customers aggressive GHG reduction goals**
• **Determine the effectiveness and impacts of a performance based GHG incentive program**	✓ **Allows the flexibility to focus on multiple technologies**
• **Determine customer preferences of technology using performance based GHG incentive**	✓ **Incentive payouts are performance based**
	✓ **Allows for scalability of opportunities across multiple industry sectors**

Pilot Customer: UC Office of the President and California State University (UCI, UCI Med, UCLA Med, UCSB, UCD Vet Med, Cal Poly Pomona, CSUDH)

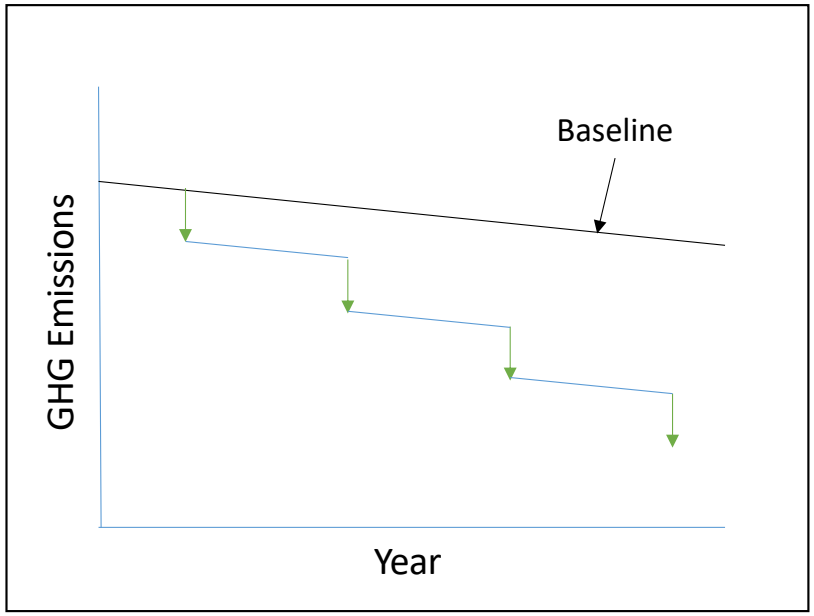
Timeline: 4 pilot years (paused for COVID)

Funding: GHG Cap and Trade Allowance Revenues ***(D. 14-10-033)***

Pilot Customers – UC and CSU

How the GHG Incentive Works

- **Step 1**: Inputs (all meters within the "fence line")
  - Electric Meter(s)
  - Natural Gas Meter(s)
    - Both co-generation and heating
- **Step 2:** Adjustments
  - Electricity used for Transportation
  - Control Factors – Weather and Square Footage
- **Step 3:** Conversion to GHG
- Output
  - **Baseline** GHG trajectory (bold line), or
  - **Performance** in GHG tons/sq. ft. (green arrows)



Incentive was based on Commission approved price for per metric ton of CO_2 reduction (IRP Proceeding).

Key Success Indicators

Success Metrics	Pilot Year 1[1]	Pilot Year 2	Pilot Year 3	Pilot Year 4	Pilot Total
GHG Emissions Reduction (MT CO_2)[2]	57,727	87,717	72,625	986	221,518
GHG Emissions Reduction (%)	3.3%	5.5%	3.7%	-3.8%	8.7%
Stakeholder Meetings Held	3	8[3]	4	4	20
Performance Payments Paid	$4,634,026	$8,206,504	$5,240,235	$0	$18,080,765
Performance Payments Earned	$4,634,026	$8,206,504	$7,715,513	$1,158,017	$21,714,060

[1] Based on 9 months of data due to shortened Pilot Year 1.
[2] Lifetime GHG emissions savings minus annual emissions for campuses with a net increase in GHG.
[3] Includes Stakeholder Meetings held during the pause of the Pilot.

GHG Reductions by Campus

Campus	Pilot Year 4 Total					Pilot Total	
	Baseline ($MT CO_2$)	Performance ($MT CO_2$)	Annual Savings[1] ($MT CO_2$)	GHG Emissions Reduction (%)	Lifetime Savings[2] ($MT CO_2$)	GHG Emissions Reduction ($MT CO_2$) Full Pilot	GHG Emissions Reduction (%) Full Pilot
Cal Poly Pomona	20,024	20,278	-254	-1.27%	-254	22,822	13.1%
Cal State Dominguez Hills	7,368	5,759	1,610	21.85%	10,505	50,618	70.17%
UC Davis Vet Med Center	706	760	-54	-7.71%	-54	1,213	7.96%
UC Irvine	89,618	94,793	-5,175	-5.77%	-5,175	66,695	5.04%
UC Irvine Med Center	22,721	23,680	-959	-4.22%	-959	48,094	21.99%
UCLA Med Center	16,698	17,771	-1,073	-6.34%	-1,073	-1,073	-14.83%
UC Santa Barbara[3]	49,809	51,813	-2,004	-4.02%	-2,004	33,149	2.36%
Total	**206,994**	**214,854**	**-7,909**	**-7.48%**	**986**	**221,518**	**8.7%**

[1] Values are Gross Campus GHG Emissions Savings (tonnes CO2e/yr) calculated by baseline minus performance. Gross Campus GHG Emissions Savings values are not discounted and are in line with standard methods of reporting GHG emissions. (Note: there may be slight differences due to rounding).

[2] Negative GHG emissions reductions (aka emissions increases) are shown as annual numbers because they are not assumed for seven years. Campuses must reduce beyond this amount to earn any additional performance payments in the future.

[3] UC Santa Barabara's GHG baseline was adjusted to account for two SoCal Gas EE savings projects associated with UC Santa Barbara that were inadvertently not accounted for in the Year 2 performance payment. The payment and approval of the SoCalGas projects occurred when CEOP was paused due to COVID-19, and there was a misunderstanding on how to handle these projects. The results in Pilot Year 3 & 4 capture and reflect the corrected savings.

Results - Performance Payments

Campus	Pilot Total	
	Performance Payments Earned[1] ($)	Performance Payments Paid ($)
Cal Poly Pomona	$2,086,849	$2,086,849
Cal State Dominguez Hills	$4,743,109	$3,585,092
UC Davis Vet Med Center	$97,164	$88,018
UC Irvine	$6,947,901	$5,234,360
UC Irvine Med Center	$4,690,379	$3,937,788
UCLA Med Center	$0	$0
UC Santa Barbara	$3,148,658	$3,148,658
Total	**$21,714,060**	**$18,080,765**

[1] CEOP ran out of performance payments in Year 3 and was only able to pay out a prorated portion to campuses for Year 3 and no payments in Year 4. Performance Payments Earned shows the amount that the campuses would have earned had there been sufficient funding. Performance Payments Paid shows the amount the campuses were actually paid. Not reflected in these numbers,

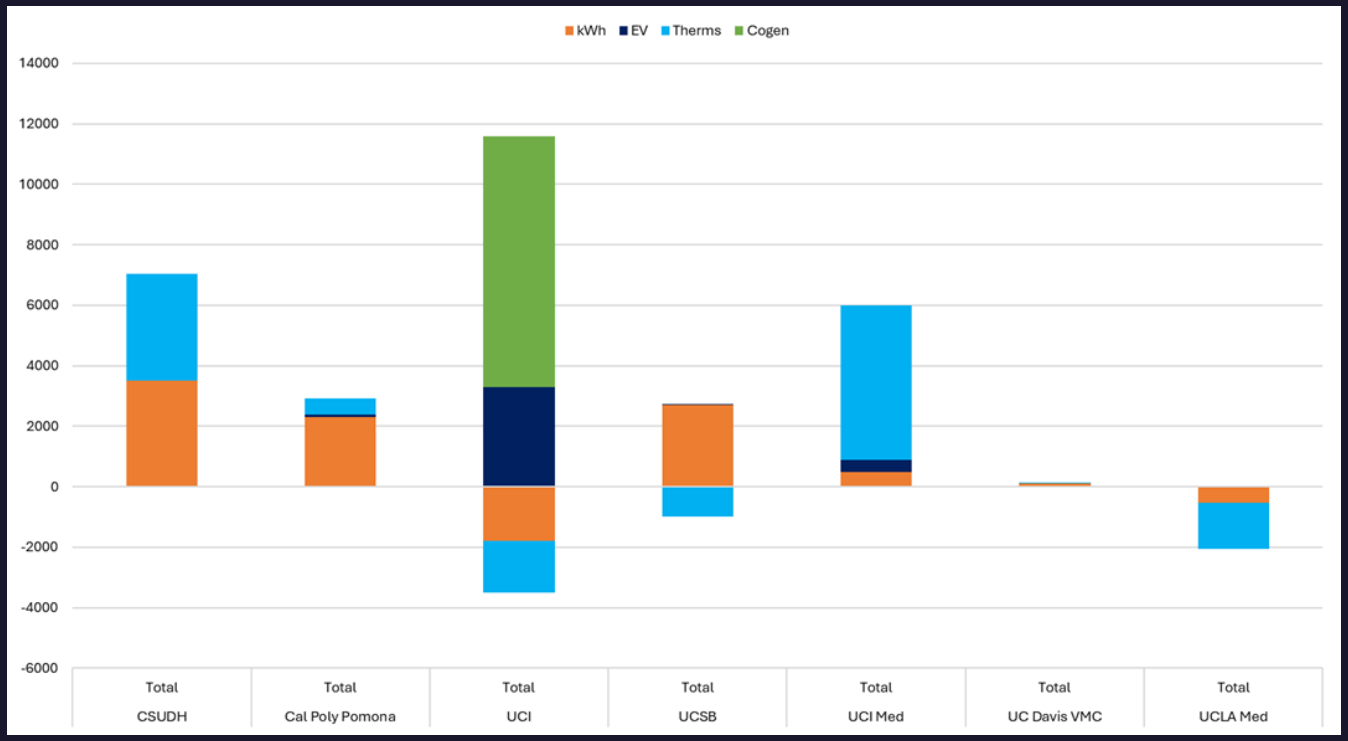
AEG
APPLIED ENERGY GROUP

SCE CEOP
Evaluation Results

Main Findings

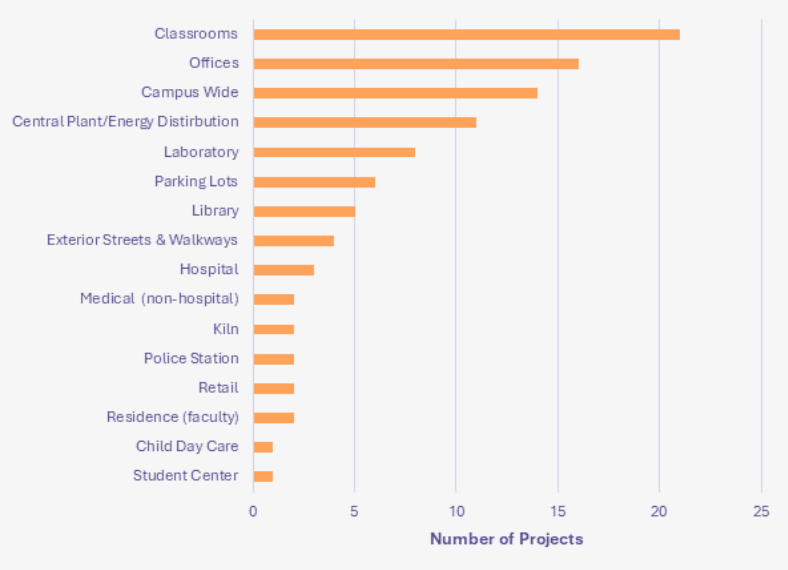
- Over 20,000 tonnes of first year CO2 have been saved in the four-year pilot.
- Overall emissions reduction for the CEOP relative to the Year 0 BAU baseline was 9%.
- Evaluated results totaled 129% of the calculated results over the total pilot.
- The pilot was cost effective achieving a TRC & PAC ratio above 1
- There is clear evidence that the CEOP accelerated GHG reductions.
- Overall, participants remain extremely satisfied with the pilot despite the challenges.
- Participants preferred the CEOP experience over traditional EE programs
- Participants were strong proponents of the Pilot and would like to see it become a program in the future

Total Pilot - tCO2e Reductions by Source

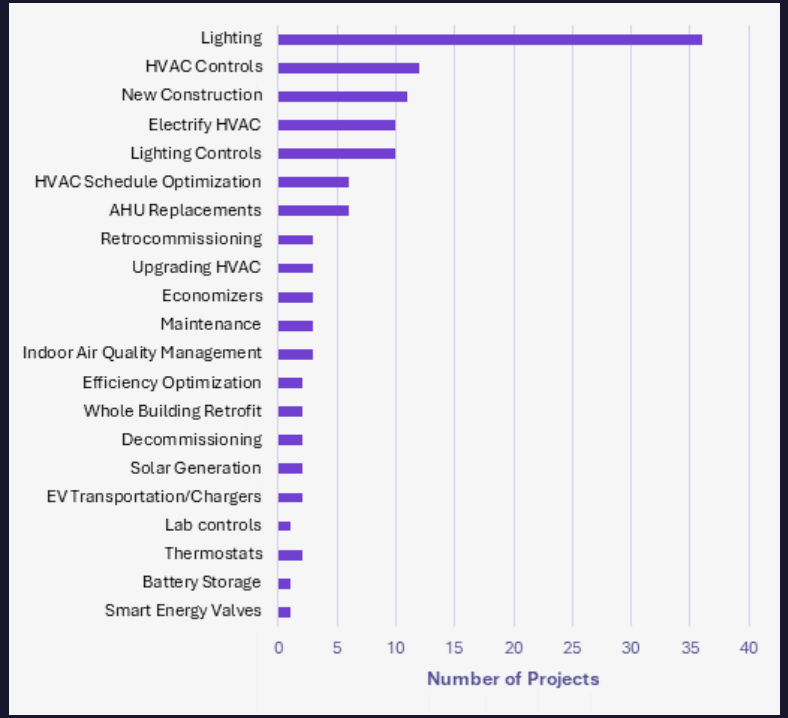


GHG Reduction Projects

Types of Buildings with GHG Reduction Projects



Types of Measures Installed to Reduce GHG



Pilot Cost Effectiveness

Pilot Cost Effectiveness - TRC

Campus	PY1	PY2	PY3	PY4	PY1-4 Combined	PY1-3 Combined
CSUDH	0.40	1.44	0.14	0.31	0.56	0.70
Cal Poly Pomona	0.39	1.63	-3.25	-0.98	-0.23	0.12
UC Irvine	0.59	-0.27	-1.97	5.84	-0.49	-0.53
UC Santa Barbara	1.34	4.19	-0.73	8.62	1.91	1.59
UCI Med Center	0.26	0.88	10.95	-0.47	3.08	3.79
UC Davis VMC	-3.80	-3.43	-38.76	-55.72	-26.70	-16.89
UCLA Med Center	0.18	0.21	-1.23	13.68	0.00	-0.43
Total	**0.46**	**0.85**	**3.52**	**-0.02**	**1.09**	**1.34**

Pilot Cost Effectiveness - PAC

Campus	PY1	PY2	PY3	PY4	PY1-4 Combined	PY1-3 Combined
CSUDH	2.60	2.34	4.27	18.50	2.92	2.44
Cal Poly Pomona	1.64	1.91	-100.20	-77.12	-0.77	0.28
UC Irvine	1.74	-8.49	-2.60	24.71	-1.56	-1.71
UC Santa Barbara	3.63	2.89	-32.96	75.41	3.40	2.73
UCI Med Center	3.16	1.79	42.75	-60.85	17.78	18.37
UC Davis VMC	-3.80	-3.43	-38.76	-55.72	-26.70	-16.89
UCLA Med Center	0.18	1.15	-4.93	13.68	0.02	-1.77
Total	**2.48**	**1.94**	**9.72**	**-0.98**	**4.26**	**4.34**

Total Pilot Emissions Reduction

Total Pilot First Year tCO2e Reductions: Evaluated Results vs. CEOP Calculator

Campus	Calculated PY1 – PY4 CEOP Annual Emissions Reduction	Evaluated PY1 – PY4 Annual Emissions (CNS)	Evaluated as a Percent of Calculated	Total Incentive Earned*
CSUDH	7,011	7,422	106%	$4,743,109
Cal Poly Pomona	3,035	887	29%	$2,086,849
UC Irvine	4,718	9,814	208%	$6,947,901
UC Santa Barbara	3,048	6,827	224%	$3,148,658
UCI Med Center	6,044	5,741	95%	$4,690,379
UC Davis VMC	139	73	53%	$97,164
UCLA Med Center	-1,073	-1,086	101%	$-
Total	**22,921**	**29,677**	**129%**	**$21,714,060**

*in PY3 the CEOP exceeded its budgeted incentive amount of $18.1 M. Participants were paid 67.77% of their earned incentive in PY3, and no incentives were paid in PY4.

Total Pilot First Year tCO2e Reductions: Year by Year Performance

Campus	Evaluated PY1 Annual Emissions Reduction(CNS)	Evaluated PY2 Annual Emissions Reduction(CNS)	Evaluated PY3 Annual Emissions Reduction(CNS)	Evaluated PY4 Annual Emissions Reduction(CNS)	Total Pilot Annual Evaluated Emissions Reduction (CNS)
CSUDH	3,097	3,643	83	598	7,422
Cal Poly Pomona	488	1,954	-789	-766	887
UC Irvine	1,811	-3,150	7,004	4,149	9,814
UC Santa Barbara	2,078	4,657	-256	348	6,827
UCI Med Center	1,692	1,684	3,059	-695	5,741
UC Davis VMC	0	80	-89	83	73
UCLA Med Center	-186	-152	-304	-444	-1,086
Total	**8,980**	**8,716**	**8,708**	**3,273**	**29,677**

Total Pilot Persisting tCO2e Reductions: Year by Year Performance

Campus	Evaluated PY1 Persisting Emissions Reduction(CNS)	Evaluated PY2 Persisting Emissions Reduction(CNS)	Evaluated PY3 Persisting Emissions Reduction(CNS)	Evaluated PY4 Persisting Emissions Reduction(CNS)	Total Pilot Persisting Evaluated Emissions Reduction (CNS)
CSUDH	21,786	25,328	585	4,296	51,995
Cal Poly Pomona	3,273	13,745	-5,656	-4,984	6,378
UC Irvine	12,317	-21,681	51,538	25,512	67,686
UC Santa Barbara	13,933	32,542	-1,666	2,938	47,747
UCI Med Center	11,452	11,756	21,859	-4,528	40,538
UC Davis VMC	7	554	-670	677	568
UCLA Med Center	-1,503	-1,051	-2,175	-2,972	-7,701
Total	**61,263**	**61,193**	**63,815**	**20,938**	**207,210**

Feedback and Recommendations

Participant Feedback

Pilot Influence

- *"Overall, CEOP helped accelerate the pace of project implementation."*
- *"CEOP has influenced many projects that have been completed."*
- *"We will explore other programs and incentive opportunities, but it's not likely that we will be able to do as much."*
- Most participants said they would not be able to do as many projects if the program was not offered.

Pilot Satisfaction

- *"CEOP is structured better than other programs. There are no forms to fill out, and measuring performance at the main meter makes it much easier administratively."*
- *"Having a defined multi-year program provides sufficient time for project planning and implementation. Having known quantifiable incentives really helps."*
- CEOP experience was preferred over traditional EE programs.

Suggestions for Improvement

Participants only had a few suggestions for improvement:

- Provide opportunities for satellite campuses to participate directly with future programs.
- Automate energy data uploads to the CEOP dashboard.
- Work on improving the program dashboard so it works for all participants.

Barriers to Implementing Projects

- Depleted incentive budget was a barrier to project implementation.
- Some participants were unaware of campus GHG reduction plans and were not engaged in the goals.

AEG Recommendations

- Calculate participant-specific project lifetimes. If unable to calculate participant-specific project lifetimes, the evaluators recommend utilizing an assumed 13-year asset life in future programs.
- Enhance data collection practices and ensure more consistent, complete data across all meters.
- Adjust the CEOP tool baseline methodology to more accurately reflect typical energy usage and realistic performance expectations.
- Collect natural gas and electric data from nonparticipants during the CEOP years to more accurately assess the influence of the Pilot.
- Provide success stories from Pilot participants to help future programs replicate those experiences.
- To enhance the accuracy and robustness of energy models, collect and provide more granular gas data.
- Ensure availability of EV charging data to ensure emissions reductions from all sources are accounted for.
- Revisit program incentive structure to ensure that the incentive budget is not exceeded.

SCE Recommendations

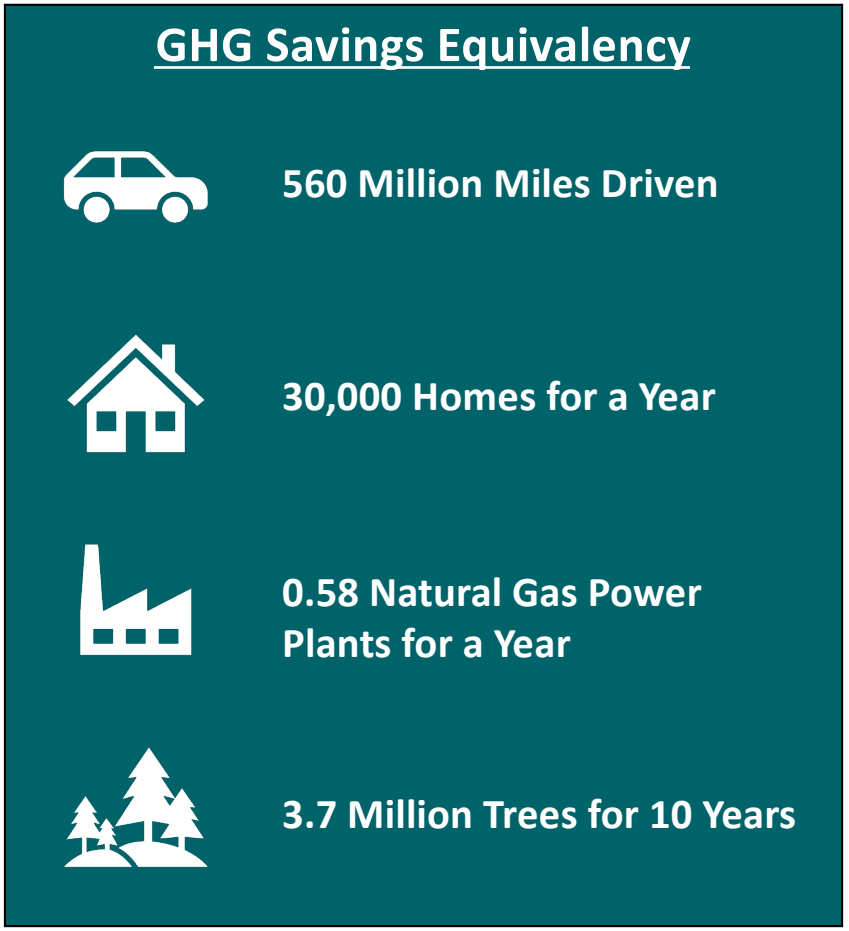
- **Baseline Methodology:** Adjustments due to COVID resulted in changing baseline methodology to focus on the best performing month. However, this resulted in an overly challenging baseline that did not reflect the real world. Per AEG recommendation, SCE recommends that the dynamic baseline consist of the best performing twelve consecutive normal operation months during the Pilot period instead of selecting the best performing months on a month-by-month basis across multiple years.
- **Weather Normalization (Heating Degree Days)**: The current method provides a simple adjustment for Heating Degree Days and Cooling Degree Days per month. While these normalization factors are refined using 7 years of historical energy usage information, the campuses natural gas usage was higher than the weather normalization would have suggested they should be. SCE will analyze the weather normalization method to determine if adjustments should be made for future program design.
- **Data Validation and Verification:** Collecting, analyzing, and validating data was a continuous challenge. Ensuring the accuracy and reliability of the data required significant effort and resources. This included cleaning, processing, verifying, and aggregating meter data to determine the metered data inputs. Collecting and ensuring changes in accounts along with navigating those changes was also a challenge.
- **Policy Support:** Advocate for supportive policies and regulations that incentivize clean energy adoption and remove barriers to implementation. Policy support is essential for creating a favorable environment for the growth of clean energy initiatives.
- **Implement Robust Monitoring and Evaluation:** Establish a robust monitoring and evaluation framework to continuously assess the performance of the CEOP. Regular evaluations can help identify areas for improvement and ensure that the program remains adaptive and effective.
- **Cogeneration Facilities:** Consider updates to calculation methodology to account for shutdowns of cogeneration facility due to maintenance or other unforeseen circumstance. The current method of having a ratcheting baseline account for unforeseen circumstances if the Pilot participants remain in the program, but could be susceptible to manipulation. For a permanent program, SCE recommends determining if potential changes to the calculation methodology or participant contract are warranted to account for this circumstance.

Next Steps

- Monitor Regulatory Proceedings
  - Evaluate potential impact of various regulatory proceedings on CEOP-type programs
- Leverage Pilot Results to Inform/Influence Future Program Designs and Adjust Existing Programs
  - Key Highlights:
    - GHG Metric
    - Campus-wide performance measurement
    - No pre-clearance of projects
    - Pay-for-performance

Conclusions

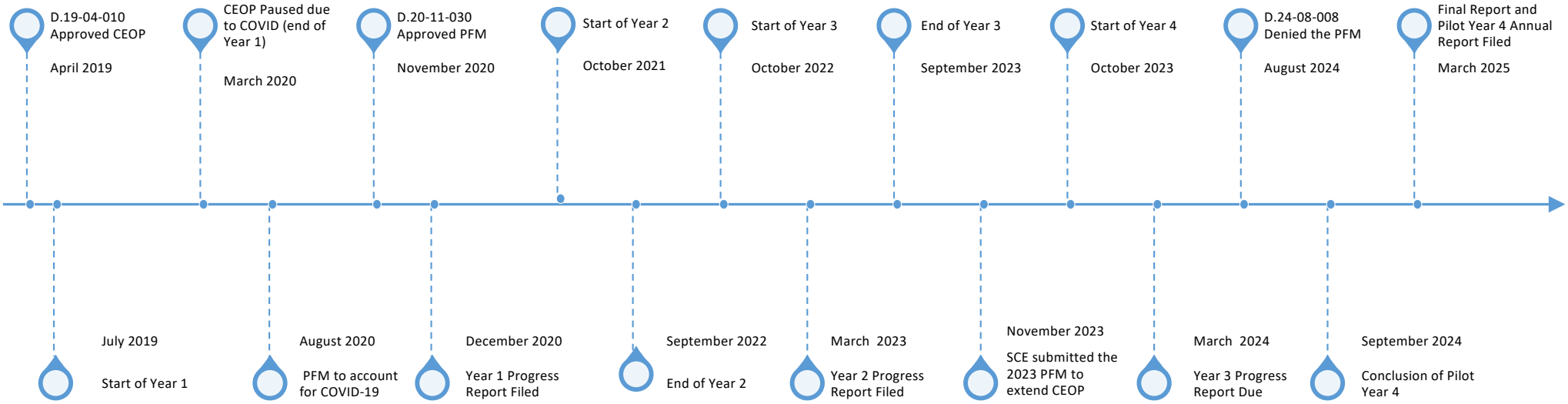
- CEOP was more successful than anticipated
  - Saved nearly 221,500 metric tons of GHG emissions
  - Paid Participants $18.1 million in performance payments
  - Participants earned $21.7 million in performance payments
- CEOP is a simplified program that participants like, delivered quality results cost-effectively, and has potential for a full-scale program for similarly situated customers



Thank You

Appendix

CEOP Timeline

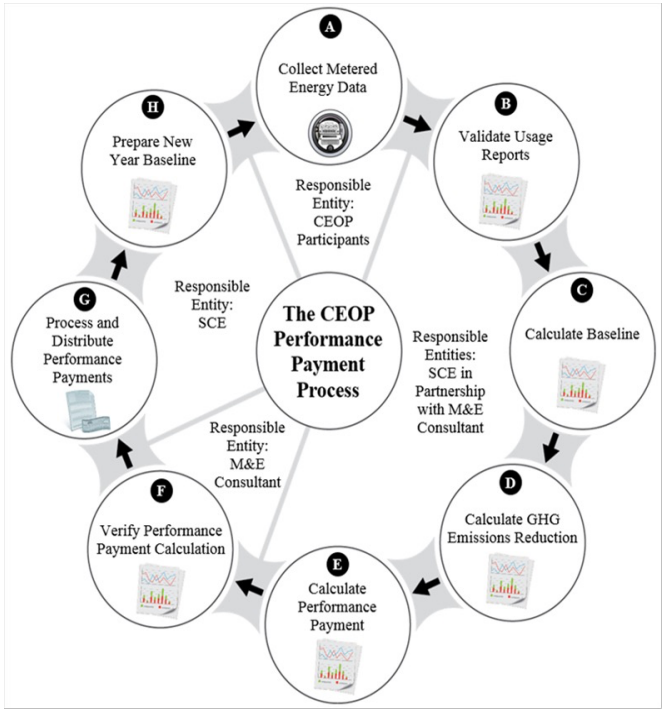


CEOP – First GHG Performance Based Pilot

- Test the effectiveness of accelerating carbon reduction through a streamlined performance-based carbon incentive
  - Incentivizes all energy related carbon reducing technologies
  - Uses a common carbon-based metric to identify the greatest impact that meets the participants needs
  - The goal of the new regulatory framework is to address customer needs in a comprehensive plan and in the most cost-effective manner
  - The new framework will also provide more customer certainty to support advancing new technologies and creative opportunities
  - The carbon incentive will be scalable to similarly situated customers in order to support state policy objectives.
- Create a methodology to value benefits of carbon emissions reduction
  - Benefits include grid impacts, carbon emissions reduction, and associated cap and trade cost reductions
- CEOP Incentives
  - Master-meter-based results provides compensation for GHG reduction
    - Hourly Emission Factors for Electricity implemented projects
    - Annual Emission Factors for Gas reduction projects
  - Performance payments focus on emission reductions (i.e. de-carbonization) vs. energy reductions

Performance Payment Process

- Step 1: Pilot Participants Collect Metered Energy Data
- Step 2: SCE Validates Usage Reports
  - Include items removed from baseline
  - Input into performance payment tool
- SCE Uses Performance Payment Tool for:
  - Step 3: Calculate Baseline
  - Step 4: Calculate GHG Emissions Reductions
  - Step 5: Calculate Performance Payment
- Step 6: M&E Consultant Verifies Performance Payment Calculation
- Step 7: SCE Processes and Distributes Performance Payments
- Step 8: SCE Prepare New Year Baseline



*Note: Baseline is dynamic and adjusts for prior performance & evolving grid emissions factors
Both baseline and performance are normalized for weather & square footage

Emission Factors By Source

- **Electric Grid Emissions Intensity:**
  - Used IRP's Clean Net Short Calculator for hourly emissions factors
    - Bucketed to TOU Periods and averaged by month
      - Newly adopted TOU periods (4-9 On-Peak)
- **Natural Gas Emissions Intensity:**
  - EIA Natural Gas CO_2 equivalent intensity of 0.0532 tCO2/MMBtu + Natural Gas Leakage Rate
- **Electric Vehicle Incremental Savings:**
  - CARB's Low Carbon Fuel Standard (LCFS) methodology

$$\left(\text{GHG Emissions Baseline } (tCO_2) - \text{GHG Emissions Performance } (tCO_2)\right) = \text{Net Campus GHG Emissions Performance } (tCO_2)$$

$$\text{GHG Emissions Baseline } (tCO_2) = \left(\sum_{n=\text{Month 1 TOU Period 1}}^{\text{Month 12 TOU Period 3}} \left[\text{Metered Electricity (kWh)}_{PYb(n)} \times \text{Grid Emissions Intensity } (tCO_2/kWh)_{PYa(n)} \times \eta_{\text{electricity}(n)} \right] + \left[\text{Metered Natural Gas (Th)}_{PYb} \times \text{Natural Gas Emissions Intensity } (tCO_2/Th)_{PYa} \times \eta_{\text{nat gas}} \right] + \left[\text{Metered CoGen Gas (Th)}_{PYb} \times \text{Natural Gas Emissions Intensity } (tCO_2/Th)_{PYa} \times \eta_{\text{Cogen gas}} \right] \right) \times \frac{\text{Sq. Ft}_{PYa}}{\text{Sq. Ft}_{PYb}}$$

$$\text{GHG Emissions Performance } (tCO_2) = \sum_{n=\text{Month 1 TOU Period 1}}^{\text{Month 12 TOU Period 3}} \left[\text{Metered Electricity (kWh)}_{PYa(n)} \times \text{Grid Emissions Intensity } (tCO_2/kWh)_{PYa(n)} \times \eta_{\text{electricity}(n)} \right] + \left[\text{Metered Natural Gas (Th)}_{PYa} \times \text{Natural Gas Emissions Intensity } (tCO_2/Th)_{PYa} \times \eta_{\text{nat gas}} \right] + \left[\text{Metered CoGen Gas (Th)}_{PYa} \times \text{Natural Gas Emissions Intensity } (tCO_2/Th)_{PYa} \times \eta_{\text{Cogen gas}} \right] - \left[\left(\text{Metered EV Electricity (kWh)}_{PYa} - \text{Metered EV Electricity (kWh)}_{PYb} \right) \times \text{GHG Savings from EVs } (tCO_2/kWh)_{PYa} \right]$$

*Note: Baseline is dynamic and adjusts for prior performance & evolving grid emissions factors
Both baseline and performance are normalized for weather & square footage

Explanation on Performance Based Incentives

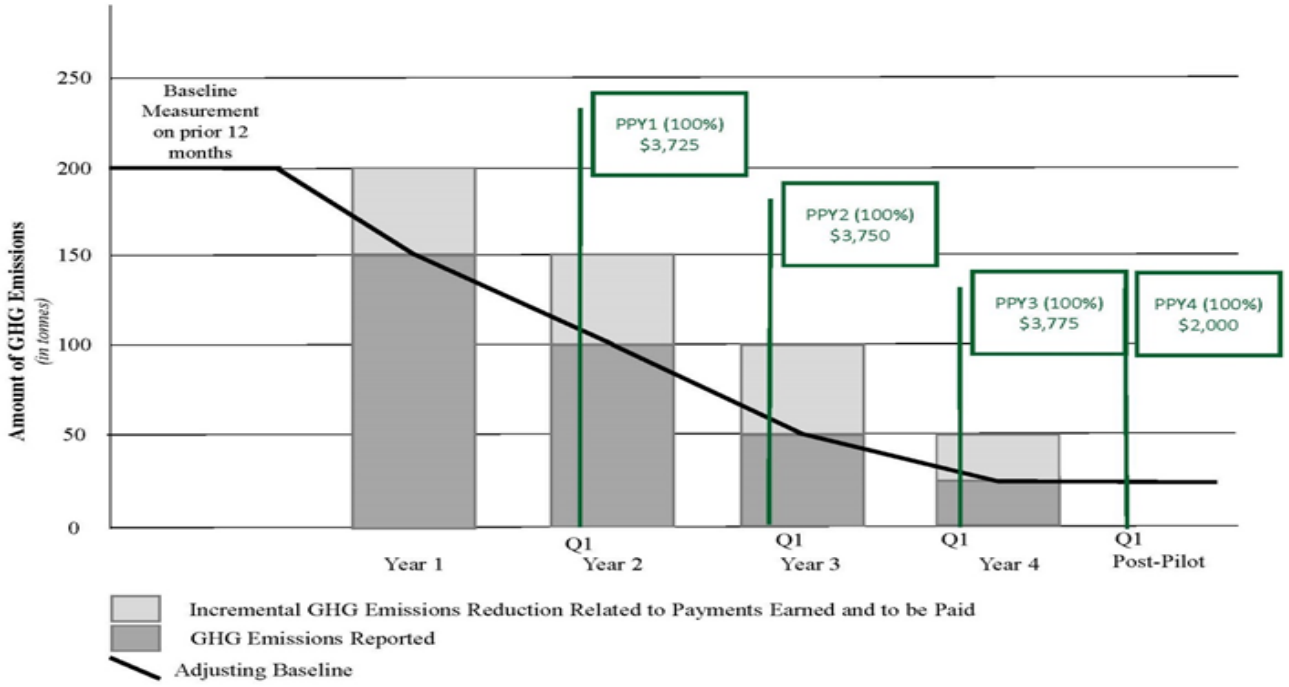
$$\left(\begin{array}{c}\text{Net Campus GHG Emissions Performance} \\ (tCO_2)\end{array}\right) \times \left(\begin{array}{c}\text{Program Incentive Rate} \\ (\$/tCO_2)\end{array}\right) = \begin{array}{c}\text{Performance Payment} \\ (\$)\end{array}$$

$$\left(\begin{array}{c}\text{Program Incentive Rate} \\ (\$/tCO_2)\end{array}\right) = NPV\left(\sum_{n=Asset\ Year\ 1}^{Asset\ Year\ 7} (\text{Annual GHG Value}_n\ (nominal\$/tCO_2)\right)$$

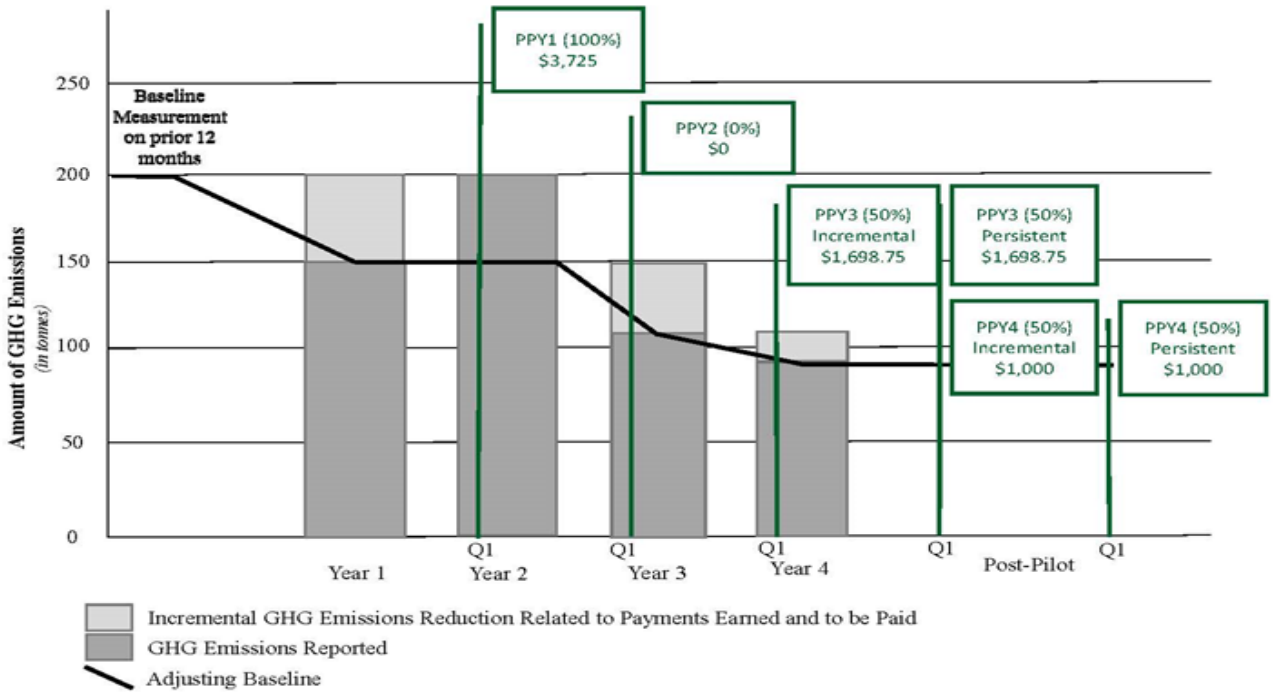
Program Year	2019	2020	2021	2022	2023
Program Incentive Rate ($/tCO2)	$479.58	$515.86	$552.14	$588.42	$624.70

- Performance Payments calculated annually based on net GHG emissions reductions
- Performance Payments are not allocated (reserved) by campus
  - Performance payments are awarded on a first-to-perform, first-to-be-paid basis
- Total pool of Incentives: $18M

Incentive Payment Structure – Optimal Performance



Incentive Payment Structure – Suboptimal Performance



Program Eligibility

- **Program Eligibility Guiding Principle:** "No Double-Dipping of Incentives"

Program Category	(1) Eligible Programs with no Exclusions	(2) Excluded Savings Programs	(3) Ineligible Programs
Energy Efficiency Programs			
Existing Incentive Applications		•	
UC/CSU Partnership[1]	•		
All other EE Portfolio Programs			•
HOPPS		•	
Emerging Technology Projects		•	
Demand Response Programs			
Automated Demand Response		•	
All other Business Customer DR Programs	•		
Pilots, Electric Vehicles, Distributed Generation, Other			
Charge Ready	•		
Local Capacity Requirement Contracts		•	
Self-Generation Incentive Program			•
Natural Gas Incentives/Rebates			
Non-SCE Utility Rebates		•	

[1] Only eligible for Workforce Education, & Training, not eligible for technical assistance or incentives.

Overview of Evaluation Plan

- Independent Evaluation of Pilot: separate from incentive calculations, specifically geared at the learnings needed by SCE, Stakeholders, and Participants.
- Evaluation Criteria
  - Acceleration of Carbon Reduction
  - Improvement in Customer Experience
  - Stakeholder (CPUC and others) Visibility and Engagement
- Evaluation Plan
  - **Impact Analysis:** Is the Pilot reducing GHG emissions?
    - GHG Reduction
      - Additional Detail: Where? What building types?
    - Local Grid Impacts and Other Associated Benefits
    - Cost Benefit Analysis
  - **Process Evaluation:** Evaluate the Pilot for Customer Experience, and to understand how incentive affects participant decision-making.
  - **Incentive Calculation Verification:** Independently verify data matching and incentive calculations were carried out correctly.

Pilot Evaluation - Detail

- **Quantitative:**
  - Meter-Based Analysis of GHG Impacts:
    - Detail, Statistical Rigor, and Granularity
    - Grouped by end-uses: Labs, Residences, Parking, EV's etc .
    - Time and Location-Specific Impacts
    - Naturally Occurring Emissions Reductions
  - Cost Effectiveness / Cost efficiency of GHG savings

- **Process Evaluation:**
  - Interviews, Meetings, Stakeholder Working Groups
  - Customer Experience and Satisfaction
  - Track Investment Plan Evolution
  - How is incentive driving change?
  - Scalability
  - Asset Life Analysis

Year 4 Campus Results

Pilot Participants have undertaken more GHG reduction projects in a variety of ways:

- Incentives received in the first and second year were primarily used for projects that were implemented or scoped in Pilot Year 3 and Pilot Year 4.
- The Pilot continues to influence participants to implement more projects, earlier than planned.
- Electrification was the most successful strategy.
- Traditional EE projects has declined and there was a larger focus on optimization, generation, and electrification in Pilot Year 4.
- Pilot Year 4 saw Participants struggle to reduce GHG emissions due to ratcheting baseline and project implementation taking longer then anticipated which didn't allow the full GHG benefit to be achieved in Year 4.
- Participants are extremely satisfied with the Pilot and the incentives, especially in the face of higher energy prices cutting into their budget

Cal Poly Pomona Key Projects

Cal Poly Pomona did not incrementally reduce GHG emissions and did not receive an incentive in Year 4. However, the campus did implement the following measures which helped to reduce GHG emissions:

- Campuswide Network DX Unit Thermostats
- Central Chilled Water Service Connection

CSU Dominguez Hills Key Projects

Cal State Dominguez Hills implemented the following measures in Year 4 and as a result earned an incentive of $1,158,017:

- Completed Heat Pump Wall at Central Plant
- Central Plant Operation Optimization
  - Turned off chillers
  - Sequencing Heat Pumps to displace the need for boilers
  - Sequence of operations updated for Central plant
- Implemented AI into EMS controls to further reduce operational needs for the campus

UC Irvine Key Projects

UC Irvine did not incrementally reduce GHG emissions and did not receive an incentive in Year 4. However, the campus did implement the following measures which helped to reduce GHG emissions:

- Building optimization: Upgraded the automation system and implemented standard reset systems in an office, classroom & dry and wet laboratories

UC Irvine Medical Center Key Projects

UC Irvine Medical Center did not incrementally reduce GHG emissions and did not receive an incentive in Year 4. However, the campus did implement the following measures which helped to reduce GHG emissions:

- Building 23 AHU replacement
- Building 63 VAV , DDC upgrades
- Exterior lighting – Orange Campus
- Santa Ana Clinic – lighting, water efficiency project all public bathrooms and exterior site lighting
- Installed 10 L2 dual EV charging stations

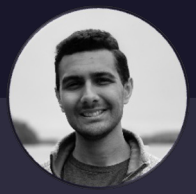
UC Santa Barbara Key Projects

UC Santa Barbara did not incrementally reduce GHG emissions and did not receive an incentive in Year 4. However, the campus did implement the following measures which helped to reduce GHG emissions:

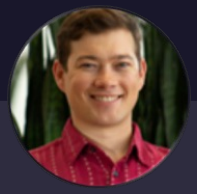
- Controls Upgrades
- Exhaust Stack Discharge Volume Reduction - Bren Hall

Evaluation Team on the Call

Barb Ryan
Director
Project Manager



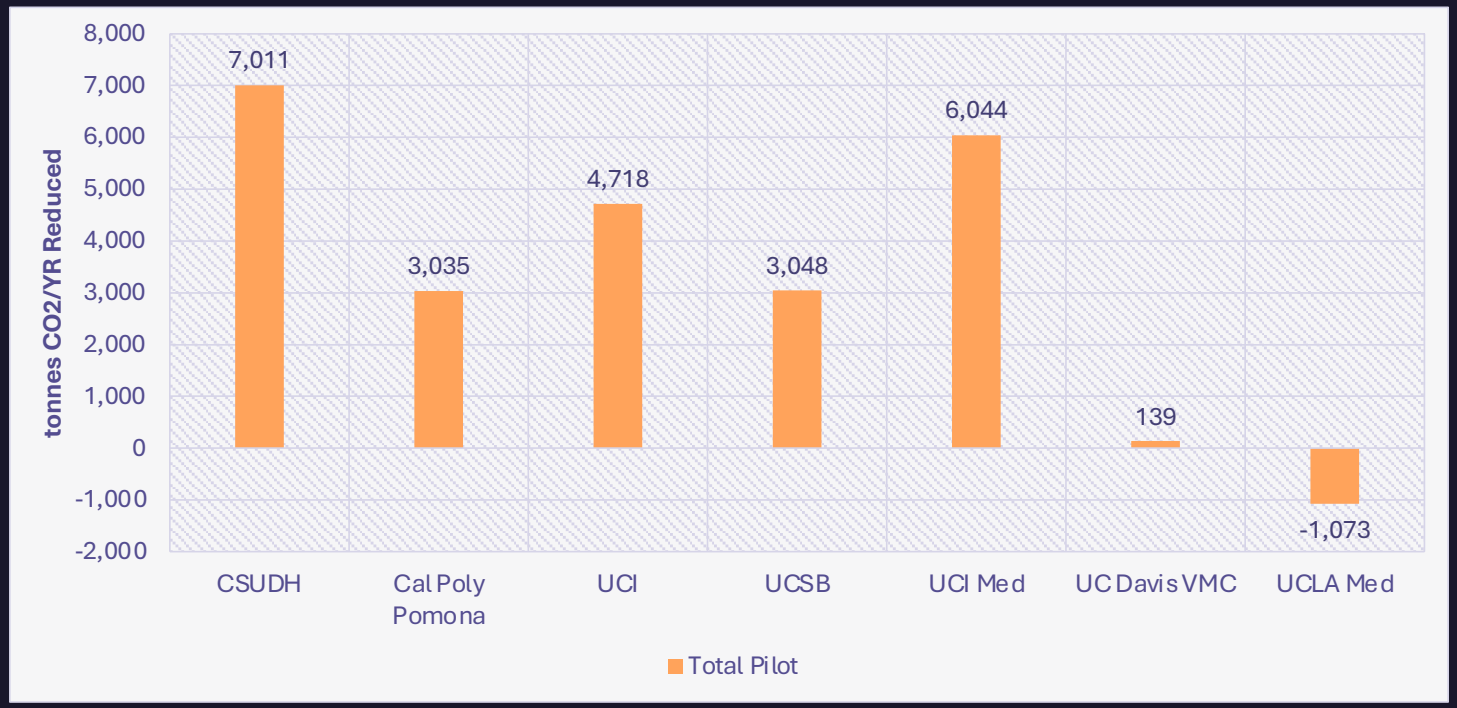
Aayush Parekh
Lead Analyst
Energy Modeling



Dylan Klomhaus
Lead Analyst
GHG Emissions

Kyle Carney
Lead Analyst
Local Grid Impacts

Total Pilot - tCO2e Reductions by Campus



Methodology – GHG Reduction

The AEG Team . . .

1. Created energy models for the baseline year (PY 3) and performance year (PY 4)
   i. Savings attributed to completed EE measures that received incentives through other EE programs were added back into the usage
   ii. Normalized for weather and square footage
2. Used the normalized energy models and marginal emission factors to calculate time- and location-specific GHG emission reductions. Three sources of marginal emission factors used:
   i. Clean Net Short (CNS)
   ii. The Clean System Power (CSP) Calculator
   iii. Avoided Cost Calculator (ACC)
3. Calculated natural gas emission using constant emission and loss factors.
4. Calculated the avoided emissions from EVs using methodology in the California Low Carbon Fuel Standard.
   i. Applied an EV charging load shape from the CNS calculator to the total EV charging consumption for each campus. The resulting load profile was applied to the hourly emission factors described above to calculate the hourly emissions associated with the EV charging.
   ii. Subtracted the emissions associated with electricity consumed to charge the EVs from the avoided gasoline emissions to provide the net EV emission reductions

Methodology – Incentive Verification

The AEG Team . . .

1. Completed a review of the Performance Payment Tools used to calculate the incentive payments for CEOP Year 4
   i. Determine if the inputs into the incentive payments are accurate
   ii. Verified the data inputs were supported by the appropriate sources
   iii. Verified the calculations made in the tool were done correctly
2. Review all hardcoded parameters including metered usage, weather data, square footage, projects implemented outside of CEOP
3. GHG emission reductions attributed to master meter electricity consumption, master meter natural gas consumption, Cogeneration plant gas consumption, and avoided emissions from EV charging* are all calculated in the CEOP Performance Payment Tool.

*No EV Charging data was available for PY4

Methodology – Local Grid Impacts

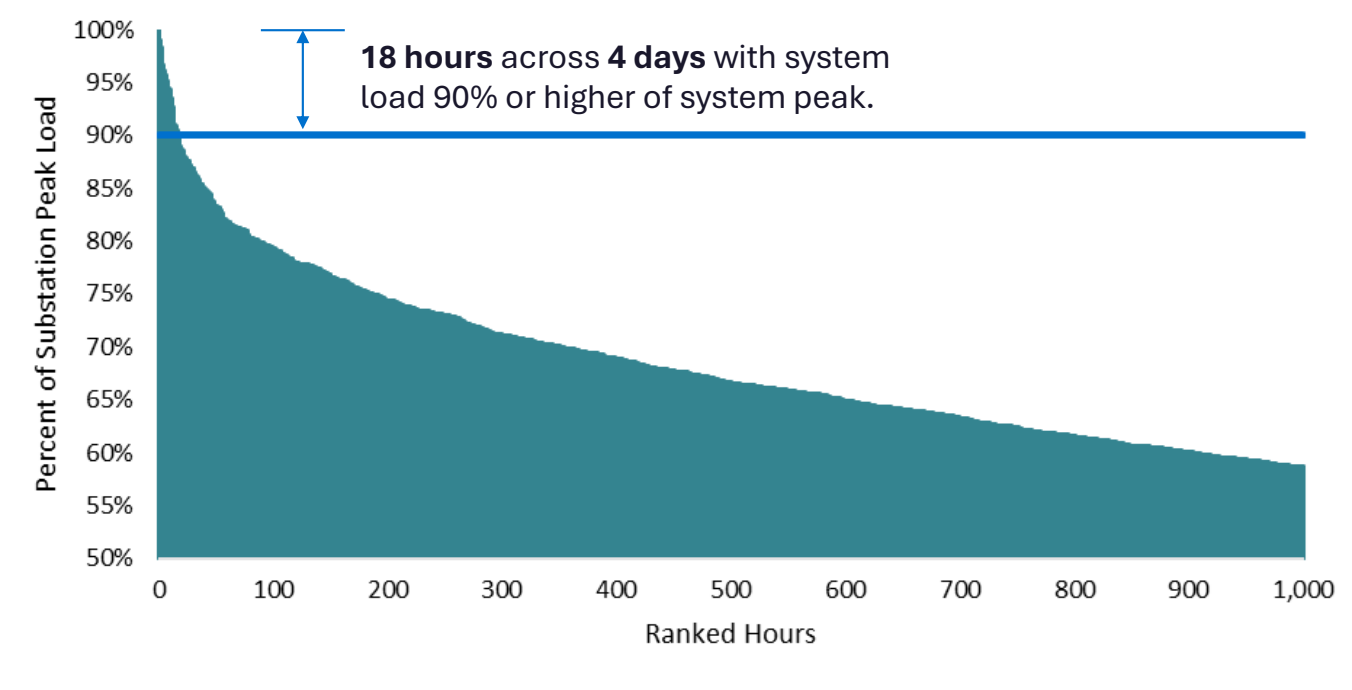
The AEG Team . . .

- ✓ Assessed how well load reductions coincide with system peaking conditions, avoided supply costs, and cost information.
- ✓ Determined the alignment of load reductions to system peaking conditions by using SCE system load data to identify the days during which the SCE system peaks throughout the year.
- ✓ Identified the magnitude by which the CEOP measures reduced load during the system peaks.
- ✓ Used forecasted economic cost data, as found in the 2024 CPUC Avoided Cost Calculator update, to estimate the avoided cost benefits for each Pilot participant.

Local Grid Impacts

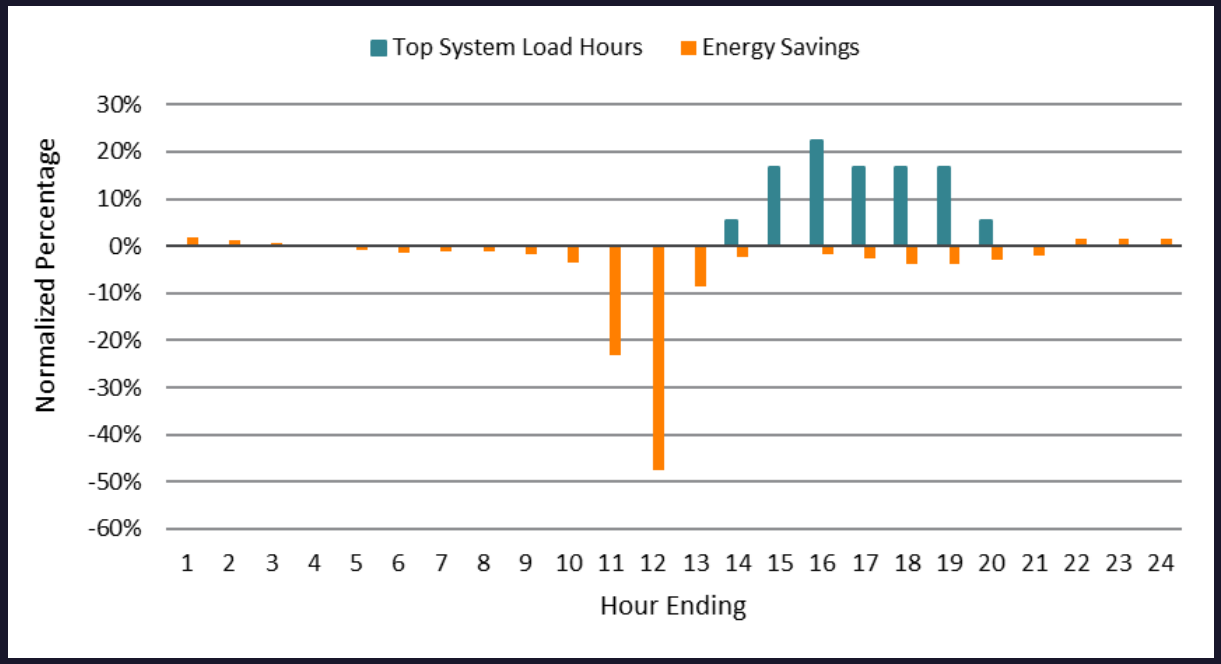
Local Grid Impacts

SCE System Load Duration Curve



Local Grid Impacts

Distribution of Top System Load Hours and Energy Savings



Local Grid Impacts

Campus	Number Peak of Hours	Unique Days	Peak Hour Savings (MWh)	Avoided Transmission Costs ($)	Avoided Distribution Costs ($)	Total T&D Cost Savings ($)
CSUDH	18	4	-2.3	-$13	-$1	-$14
Cal Poly Pomona	18	4	-0.0	$0	$0	$0
UC Irvine	18	4	-22.2	-$129	-$9	-$138
UC Santa Barbara	18	4	2.6	$15	$1	$16
UCI Med Center	18	4	-7.5	-$44	-$3	-$47
UC Davis VMC	18	4	-2.3	-$14	-$1	-$14
UCLA Med Center	18	4	0.2	$1	$0	$1
Total Evaluated	**18**	**4**	**-31.5**	**-$183**	**-$12**	**-$196**

PY4 Emissions Reduction

PY4 First Year tCO2e Reductions: Evaluated Results vs. CEOP Calculator

Campus	Calculated PY4 CEOP Annual Emissions Reduction	Evaluated PY4 Annual Emissions (CNS)	Evaluated as a Percent of Calculated	Earned Incentive
CSUDH	1,610	598	37%	$1,158,017
Cal Poly Pomona	-254	-766	302%	$0
UC Irvine	-5,175	4,149	-80%	$0
UC Santa Barbara	-2,004	348	-17%	$0
UCI Med Center	-959	-695	72%	$0
UC Davis VMC	-32	83	-257%	$0
UCLA Med Center	-1,073	-444	41%	$0
Total	**-7,888**	**3,273**	**-41%**	**$1,158,017**

PY4 Persisting CO2 Reductions Comparison: by Participant

Campus	Total tonnes CO2 Reduced ACC	Total tonnes CO_2 Reduced CSP	Total tonnes CO_2 Reduced CNS	Total tonnes CO_2 Reduced CEOP (CNS)
CSUDH	4,778	4,370	4,296	10,505
Cal Poly Pomona	-5,524	-6,709	-4,984	-1,987
UC Irvine	37,850	36,532	25,512	-40,724
UC Santa Barbara	3,149	1,681	2,938	-14,007
UCI Med Center	-4,993	-5,997	-4,528	-6,203
UC Davis VMC	798	627	677	-162
UCLA Med Center	-3,024	-3,743	-2,972	-7,497
Total	**33,035**	**26,760**	**20,938**	**-60,075**