

Powering the Future: Cost-Saving Energy Efficiency Projects for Local Governments

**Thursday, August 17, 2023
10:30 am – 12:00 pm**

THANK YOU FOR JOINING

Webinar Host & Moderator

Nikita Sinha

Program Manager

Institute for Local Government



TODAY'S AGENDA

Welcome, Logistics & Introductions

Presentations from:

Daniel Johnson, California Energy Commission

Justine Chao, Southern California Edison

Rondah Zeleke, CLEAResult

Brendan Havenar-Daughton, Contra Costa County

Q&A

Wrap Up

HOW TO ASK A QUESTION

- All webinar participants will be on MUTE during the entire call.
- Please TYPE any questions into the question box at any time during the webinar.
- The moderator will read your questions during the question period at the end of the webinar.



ILG IS NON-PROFIT, NON-PARTISAN & HERE TO HELP

- ILG is the non-profit training and education affiliate of three statewide local government associations
- Together with our affiliates, we serve over 2,500 local agencies – cities, counties and special districts
- We provide practical and easy-to-use resources so local agencies can effectively implement policies on the ground



**California Special
Districts Association**
Districts Stronger Together

OUR PROGRAMS AND SERVICES

Program Areas

Leadership & Governance

Civics Education & Workforce

Public Engagement

Sustainable & Resilient Communities



Services

Education & Training

Technical Assistance

Capacity Building

Convening

Our mission is to help local government leaders **navigate complexity**, **increase capacity & build trust** in their communities

WHAT IS THE BEACON PROGRAM?



The Beacon Program provides a framework for local governments to **share best practices** and be **recognized** for voluntary efforts to take climate action in ways that make sense for their communities.

BEACON: CELEBRATING LOCAL LEADERS



TODAY'S PRESENTERS

Daniel Johnson
Associate Energy Specialist
California Energy Commission



Justine Catherine Chao
Senior Project Manager
Southern California Edison



Rondah Zeleke
Customer Relationship
Manager
CLEAResult



Brendan Havenar-Daughton
Energy Manager
Contra Costa County





California Energy Commission

Title: California Building Energy Benchmarking Program

Presenters: Daniel Johnson, Troy Dorai

Date: August 17, 2023



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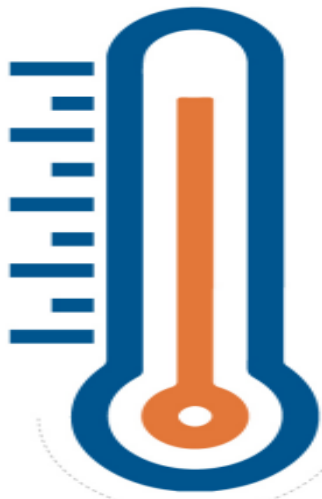


Benchmarking and Climate Goals

The Climate Imperative



In the summer of 2020, Californians experienced the damaging effects of climate change as never before: a historic siege of wildfires and smoke, and a record-breaking heat wave. Scientists worldwide agree that without bolder mitigation measures, climate-related disasters will recur with increasing frequency and greater devastation.



BY 2100

***AVERAGE ANNUAL MAXIMUM
DAILY TEMPERATURE***

IS PROJECTED TO INCREASE BY

5.6–8.8°F

Depending on greenhouse gas emissions reductions. The greatest increase is seen with business-as-usual emissions levels.

Source: California's Fourth Climate Change Assessment



AB 802 Regulations



- **50k square feet or larger buildings.**
- **Campuses of multiple buildings totaling 50k square feet or more.**
- **Submitted to CEC annually by June, 1.**



Building Energy Benchmarking Program

What is building energy benchmarking?

Obtaining information on the *energy used* in an *entire building* for a specific period to enable that usage to be tracked and compared against other buildings.

- Energy Use Intensity (kBtu/ft²)





Why EUI data is important!

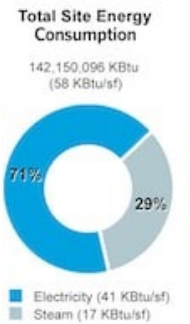
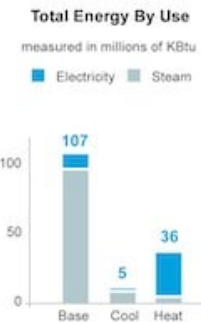
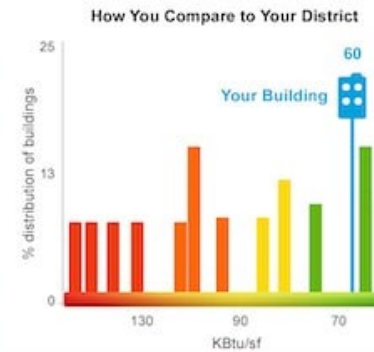
Benchmarking provides a baseline.

- Compare building's year by year performance
- Compare to other buildings
- Determine where to make energy efficiency and decarbonization investments

Owner: Building Owner
Year Built: 1987
Square Footage: 6,666 sf
Analysis Period: 12/1/2006 - 12/1/2007



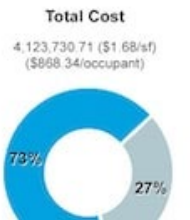
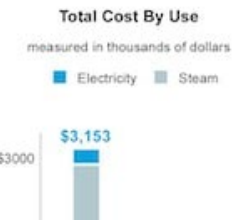
Annual Site Energy Consumption



Annual Carbon Emissions



Total Annual Energy Cost





Efficiency and Decarb Synergy

Efficiency and decarbonization work best when done simultaneously.

- **Efficiency loading order for electrification/net zero emissions.**
- **Electrification/decarb financial savings realized**
- **Reduction in GHG emissions**





Local Benchmarking Ordinances

Berkeley – 15k sq.ft.

Brisbane – 10k sq.ft.

Chula Vista – 20k sq.ft.

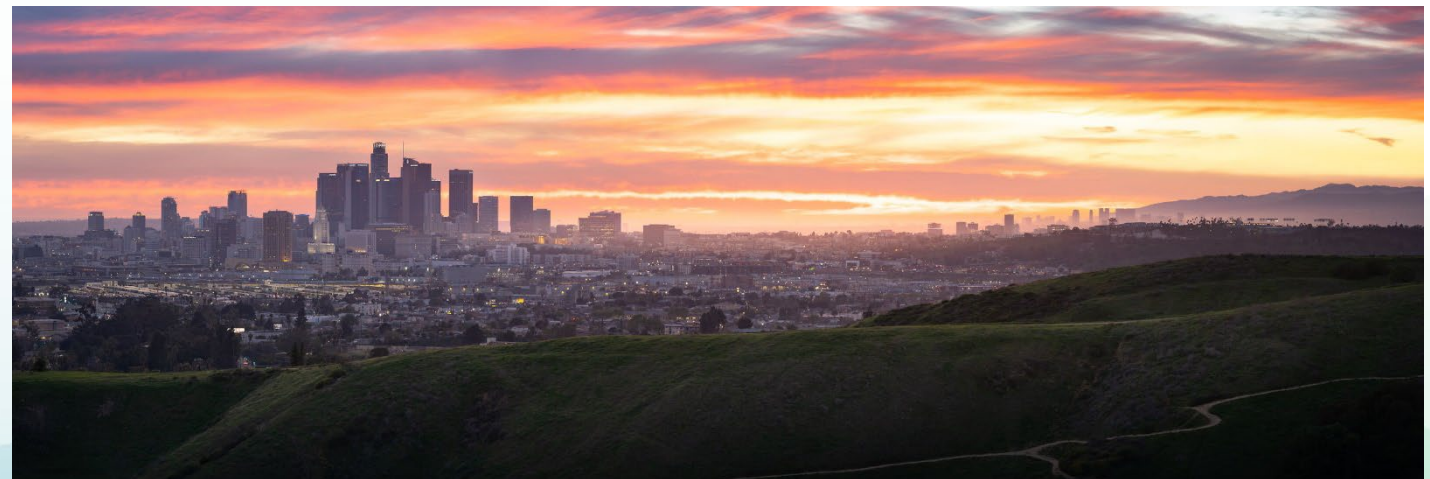
Los Angeles – 20k sq.ft.

SF- non-res 10k sq.ft. res 50k

San Jose – 20k sq.ft.

San Diego – 50k sq.ft.

***Your city here* – xk sq,ft**





Resources

- [How to use ESPM](#)
- [How to Benchmark a Campus](#)
- [The CEC's Benchmarking Site](#)
- [Resources for Commercial Buildings](#)
- [Benchmarking Program FAQs](#)





Contact Information

- Daniel Johnson, Associate Energy Specialist
 - Daniel.Johnson@energy.ca.gov
 - 916-237-2516
- Benchmarking Program Email and Hotline Phone Number
 - Benchmarking@energy.ca.gov
 - 855-279-6460



How to Comply (1 of 2)

- 1) Create ENERGY STAR Portfolio Manager account.
- 2) Enter each disclosable building into account.
- 3) Request energy use data from utilities.
- 4) Enter energy use data for each building.

The screenshot shows the ENERGY STAR Portfolio Manager website. At the top, there is a navigation bar with links for 'ABOUT ENERGY STAR' and 'PARTNER RESOURCES', and a search bar. Below this is the ENERGY STAR logo and the tagline 'The simple choice for energy efficiency.' The main navigation menu includes 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. The breadcrumb trail indicates the user is in 'Home > Buildings & Plants > Owners and managers > Existing buildings > Use Portfolio Manager'. The page title is 'Buildings & Plants' with a 'portfolio manager login' button. A secondary navigation bar lists 'Owners and managers', 'Service providers', 'Program administrators', 'Tenants', 'Tools and Resources', and 'Training'. The main content area features a 'Use Portfolio Manager' section with a sub-header 'The most-used energy measurement and tracking tool for commercial buildings.' Below this, there is a 'Use Portfolio Manager' section with a sub-header 'You've heard it before: you can't manage what you don't measure. That's why EPA created ENERGY STAR Portfolio Manager®, an online tool you can use to measure and track energy and water consumption, as well as greenhouse gas emissions. Use it to benchmark the performance of one building or a whole portfolio of buildings, all in a secure online environment.' A 'Benchmark any type of building' section follows, with a sub-header 'You can use Portfolio Manager to manage the energy and water use of any building. All you need are your energy bills and some basic information about your building to get started.' Below this is a 'Are you designing a new commercial building?' section with a sub-header 'You can also use Portfolio Manager to set your energy use target and see how your estimated design energy stacks up against similar existing buildings nationwide.' The bottom of the page shows two screenshots of the Portfolio Manager interface, one for 'My Scorecard' and one for 'My Performance'. On the right side, there is a 'Get help' section with a sub-header 'Looking for Portfolio Manager technical support? Visit our help center.' and a 'Register now' button. At the bottom right, there is a 'What is the 1-100 ENERGY STAR score and certification for buildings?' section.



How to Comply (2 of 2)

- 5) Run automated data checking tools.
- 6) Correct errors.
- 7) Click appropriate reporting link on CEC's benchmarking page.
- 8) Submit report from ENERGY STAR Portfolio Manager to CEC's account.

The screenshot shows the ENERGY STAR Portfolio Manager website. At the top, there is a navigation bar with 'ABOUT ENERGY STAR' and 'PARTNER RESOURCES' links, and a search bar. Below this is a banner with the ENERGY STAR logo and the text 'The simple choice for energy efficiency.' followed by categories: 'ENERGY EFFICIENT products', 'ENERGY SAVINGS at home', 'ENERGY EFFICIENT new homes', and 'ENERGY STRATEGIES FOR buildings & plants'. A breadcrumb trail reads: 'Home > Buildings & Plants > Owners and managers > Existing buildings > Use Portfolio Manager'. The main navigation bar includes 'Buildings & Plants' and 'portfolio manager login'. A secondary navigation bar lists: 'Owners and managers', 'Service providers', 'Program administrators', 'Tenants', 'Tools and Resources', and 'Training'. A sidebar on the left under 'Existing buildings' lists various links, with 'Use Portfolio Manager' expanded to show options like 'How Portfolio Manager helps you save', 'The benchmarking starter kit', 'Identify your property type', 'Enter data into Portfolio Manager', 'The data quality checker', 'How Portfolio Manager calculates metrics', 'Interpret your results', 'Verify and document your savings', 'Share and request data', 'Updates to ENERGY STAR® metrics with new market data', 'Get help accessing your utility data', 'Scorecard', and 'Track waste and materials'. The main content area features a 'Use Portfolio Manager' section with a sub-header 'The most-used energy measurement and tracking tool for commercial buildings.' and a description: 'You've heard it before: you can't manage what you don't measure. That's why EPA created ENERGY STAR Portfolio Manager®, an online tool you can use to measure and track energy and water consumption, as well as greenhouse gas emissions. Use it to benchmark the performance of one building or a whole portfolio of buildings, all in a secure online environment.' Below this is a 'Benchmark any type of building' section with a description: 'You can use Portfolio Manager to manage the energy and water use of any building. All you need are your energy bills and some basic information about your building to get started.' and another paragraph: 'Are you designing a new commercial building? You can also use Portfolio Manager to set your energy use target and see how your estimated design energy stacks up against similar existing buildings nationwide.' At the bottom of the main content area, there are two screenshots of the Portfolio Manager interface. To the right of the main content area, there is a 'Get help' section with the text: 'Looking for Portfolio Manager technical support? Visit our help center.' and a 'Register now' button. Below that is a 'Log in' section with fields for 'username' and 'password', and a 'LOGIN' button. At the very bottom, there is a section titled 'What is the 1-100 ENERGY STAR score and certification for buildings?'.

Overview: Third-Party Energy Efficiency Programs and Charge Ready Transport

ILG Webinar

August 17, 2023

Third-Party Energy Efficiency Programs

Energy for What's Ahead®



Third-Party Energy Efficiency Programs in SCE's Service Territory

SCE has contracted with third-party companies to design and implement various energy efficiency (EE) programs that can help residential and business customers save energy and contribute to a clean energy future.¹

Programs offer EE education, assessments, and incentives for qualifying Residential, Commercial, Industrial, and Agricultural SCE customers.

SCE customers can directly contact a third-party company (i.e., not affiliated with SCE) for many of these programs.

To learn more about third-party EE programs in SCE's service territory and how they may be able to help conserve energy and lower energy costs, please visit SCE's [Third-Party Energy Efficiency Programs webpage](#).

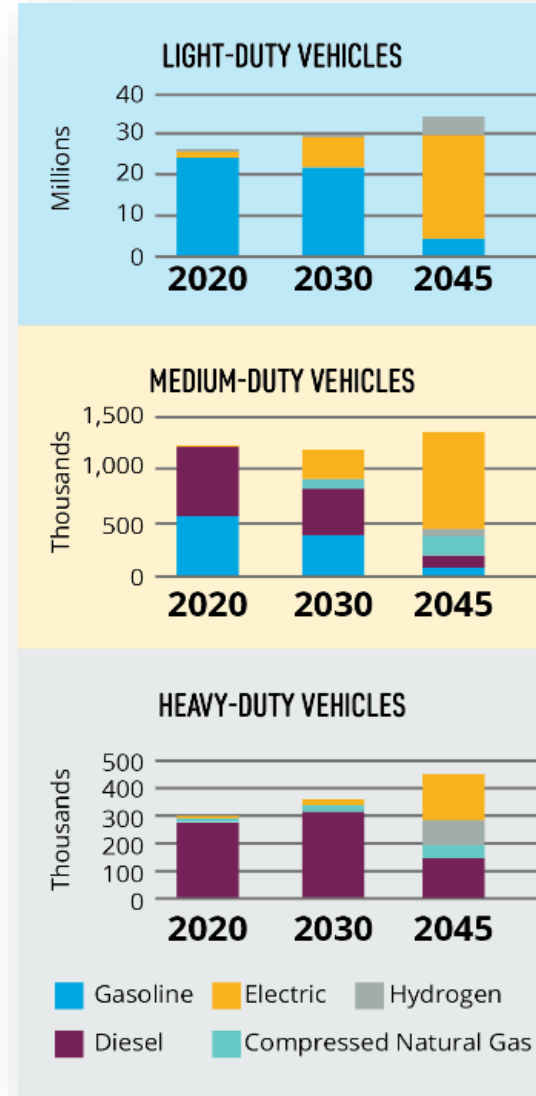
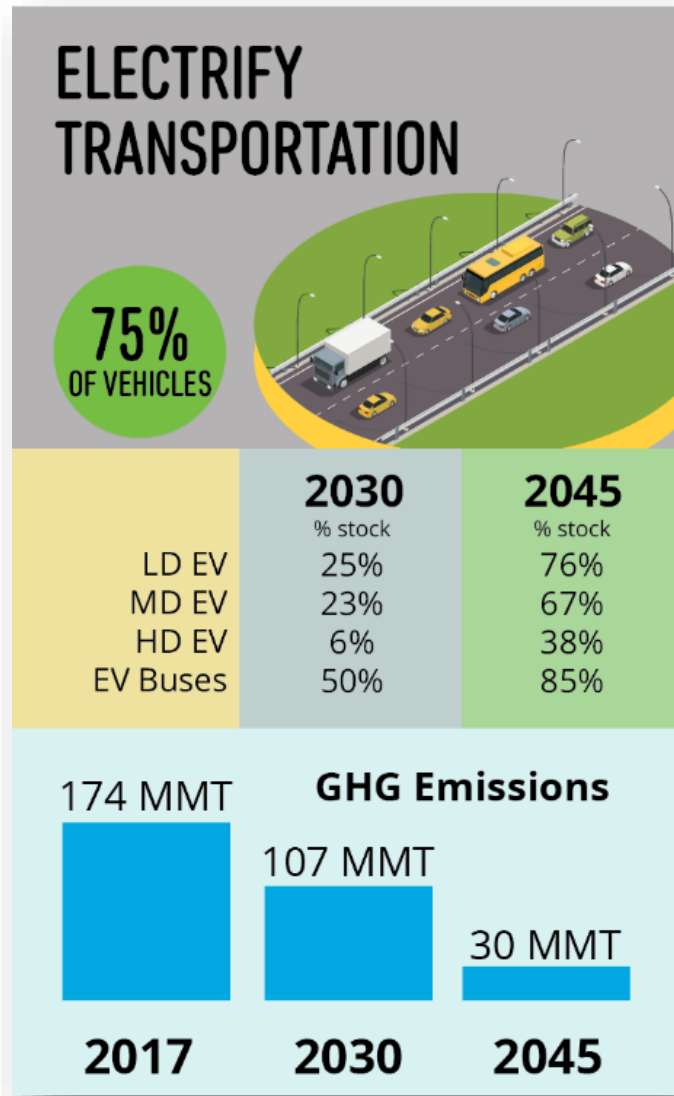
1. Customers who opt to participate in a third-party EE program will enter into a contract with the applicable third-party. SCE is not a party to, or guarantor of such contract and customers should thoroughly review the terms and conditions of the contract with the third-party to know your rights and obligations before contracting. SCE does not recommend, endorse, qualify, guarantee, or make any representations or warranties regarding any third-party EE program and SCE shall not be liable for any actions or inactions of any third-party EE program.

Charge Ready Transport

Energy for What's Ahead®



Edison's Pathway 2045: The Road to Carbon Neutrality



SCE's Charge Ready Transport Program

Charge Ready Transport is helping California achieve its GHG reduction goals by providing infrastructure to support **medium- and- heavy-duty fleet electrification**

Program will **design and build make-ready electrical infrastructure** on both the utility-side and customer-side of the meter for qualifying SCE customers procuring or converting at least 2 MDHD EVs

Charging Equipment Rebate available for **transit/school buses** and for eligible Participants installing charging equipment at sites located in disadvantaged communities where the Participant is not a Fortune 1000 company

Charge Ready Transport launched in 2019 and is striving to provide support the electrification of **8,490 MDHD vehicles**



Charge Ready Transport

More Information:

- www.sce.com/crt
- chargereadytransport@sce.com



An aerial photograph of a city skyline at sunset, with a large red diagonal overlay on the right side. The skyline features several prominent skyscrapers, including the Transamerica Pyramid. The foreground shows residential buildings and trees. The sky is a mix of orange, pink, and blue.

CLEAResult[®]

Strategic Energy Management (SEM)

Program Introduction



Program Overview

- ✓ CLEAResult Energy Efficiency programing provides technical assistance, and incentives to the public sector including **K-12, city/county/federal governments/special districts, tribal entities, public and private universities** throughout **California**
- ✓ The program acts as a **hub** for public sector customers, leveraging resources and funding sources
- ✓ We offer a **comprehensive approach** based on customer needs and opportunities
- ✓ Incentive Pathways
 - **SEM (holistic approach)**
 - **Deemed (prescriptive)**
 - **Custom (calculated)**
 - **Metered (meter-based)**



CR Program Options

Strategic Energy Management

- ✓ Holistic, whole facility approach
- ✓ Low/no cost measures
- ✓ Expert energy coaching and technical services
- ✓ Custom projects with existing baseline condition

Deemed Projects

- ✓ Smaller projects
- ✓ Shorter timelines
- ✓ Rates vary, can provide table

Custom Projects

- ✓ Larger projects
- ✓ Longer timelines
- ✓ More technical services

Metered Projects

- ✓ Large, multifaceted projects
- ✓ Rare

Strategic Energy Management (SEM)





SEM Benefits

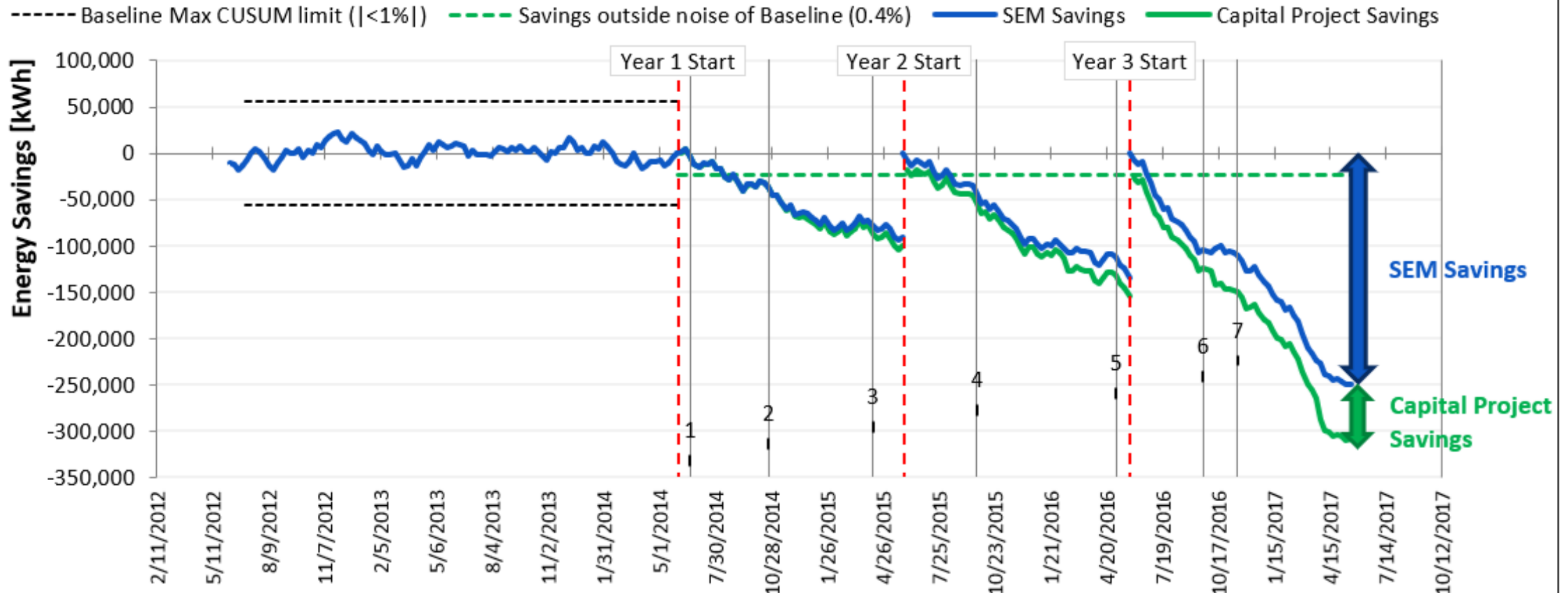
- ✓ “Low/No Cost” Savings:
 - Target: 5% annual energy use
 - Exceptional: 10% annual energy use
- ✓ Energy savings directly reduce overhead costs: 17 cents/kWh
- ✓ Incentives: Per kWh saving, plus up to \$10,000 for simply participating
- ✓ CLEAResult Engineers, Coaches, and Analysts - extending your team
- ✓ Cohort collaboration, workshops
- ✓ Make progress on energy conservation goals & GHG reductions
- ✓ Positive perception with community, employees, and students





CUSUM of Residual Energy

A downward ↓ CUSUM slope shows energy savings



| ID# | PROJECT ID | PROJECT DESCRIPTION | DATE COMPLETED | NOTES |
|-----|------------|---|----------------|---|
| 1 | ECM:01 | Compressed air leak repairs | 6/19/2014 | Started compressed leak repairs in department 01 |
| 2 | ECM:02-495 | Fixed economizer louvers | 10/23/2014 | Fixed broken economizer - department 02 AHU 495 |
| 3 | ECM:05.1 | HVAC optimization | 4/9/2015 | Temperature setbacks - total plant |
| 4 | ECM:04-005 | Trimmed impeller | 9/24/2015 | Right sized pump impeller - department 04 pump 5 |
| 5 | ECM:03 | Expansion of compressed air leak repair program | 5/5/2016 | Expanded program into department 03 |
| 6 | Problem | BAS system malfunction | 9/22/2016 | Found faulty control module |
| 7 | ECM:05.3 | BAS system tuning and repairs | 11/17/2016 | Fixed control module and optimized BAS system - total plant |



The SEM Approach

- ✓ **Structure**
 - Executive sponsor, energy champion, energy team, energy policy
- ✓ **Metrics**
 - Baseline energy model, goals, tracking method
- ✓ **Improvement Process**
 - Tools, techniques, and practices
- ✓ **Technical and Implementation Support**
 - Dedicated coach, engineer and data team resources
- ✓ **Support**
 - Accountability and encouragement





Program Commitments



No cost to the customer, non-binding agreement



Signing PEP Enrollment Agreement

- Participant agrees to provide “energy driver” data; usage, occupancy, etc.
- Participant agrees to attend and participate in workshops
- No penalty for early withdrawal or non-participation, other than not receiving incentives



Requires investment of time, typically around 2-3 hours per month

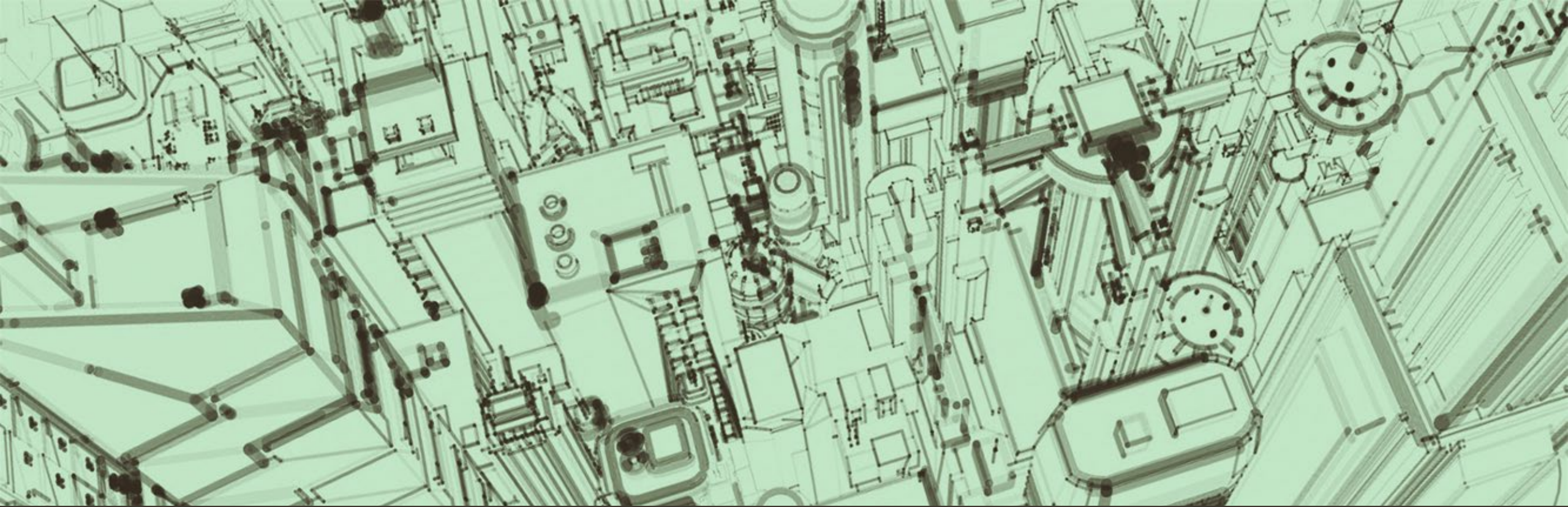


Thank you!

Solutions to Help You Save Money and Use Less Energy

We have a menu of programs available throughout California, for a full list of available programs or inquiries please email Rondah.Zeleke@CLEARresult.com





Contra Costa County

Strategic Energy Management Program



Presentation Overview

- County Strategic Energy Management Program Overview
- Energy Efficiency is an Important Starting Point
- Why are We Doing this Work?
- Demand Response
- Solar PV
- Battery Storage
- EV Charging
- In Summary

County Strategic Energy Management Program Overview

| Energy Efficiency | Demand Response | Solar | Battery Storage | EV Charging |
|-------------------------------|------------------------------|------------------------------------|--|---|
| Equipment Upgrades | Scheduling Changes | Rooftop, Canopy, Ground-Mounted | 500 kW units at large facilities | 150+ ports, 25 sites |
| Persistent Savings | One time Savings | PPA (3 rd party) | Battery Services Agreement (3 rd party) | Total Cost of Ownership Savings for Fleet |
| Six-Figure Savings (100,000+) | Four-Figure Savings (1,000+) | Eight-Figure Savings (10,000,000+) | Six-Figure Savings (100,000+) | Seven-Figure Savings (1,000,000+) |

Energy Efficiency is an Important Starting Point

Why:

- EE opportunities = elimination of unnecessary energy use
- EE typically provides great ROI in a relatively short amount of time
- EE projects free up electrical capacity for building electrification or EV charging
- EE efforts can align with general maintenance and replacement activities, generating savings while addressing failing or problematic equipment

Where to begin:

- Understanding where you use energy – (e.g. largest buildings/operations)
- Understanding how you use energy – (e.g. gas vs electric divided by square footage = Energy Use Intensity)
- Communicating with Facilities staff

Why are We Doing this Work?

- Financial Savings? (economic)
- Carbon Reduction? (environmental)
- Maintenance Relief? (workforce capacity)
 - Consider this: In the recent past, EE actions had a high correlation with carbon emission reductions (when there were less renewables on the grid).
 - Today in California there are times in middle of the day when the grid is mostly fed with renewable energy, which reduces the carbon reduction impact of EE activities.
 - EE is an important enabler for other more impactful carbon reduction tactics

Demand Response

- Reducing energy use during peak times (e.g. 4p-9pm) when the grid is over-burdened (CAISO Flex Alert)
- The electricity brought onto the grid to meet peak demand during a Flex Alert is often derived from the most carbon intensive sources
- Cost-effective DR tactics typically require Building Management Systems (centralized HVAC controls) and medium to large electrical loads
- Air Conditioning schedule changes (e.g precooling + early shutdown)
- While Local Government participation is not always possible, DR can be understood as an emergency response action for the health of the electric grid (preventing rolling black-outs)
- Utility programs pay 5 times the retail value of electricity for curtailment to encourage DR program participation (the cost of “peaker plants” is high and the source fuel is typically non-renewable)

Solar PV

- Power Purchase Agreements (PPA) are your friend
 - They limit risk (no-out of pocket cost, no maintenance, etc)
 - Savings are instant, day one
 - If you have large parking lots, engage solar developers to explore feasibility of larger canopy systems
 - Make sure that there is no electricity cost escalation over the term of the contract
 - Note: the more EE you do, the less PV you need

Battery Storage

- Very expensive, leverage SGIP funding and other utility programs that subsidize equipment and install costs
- Most projects do not provide dedicated backup power when grid is down. This scope is often complex for existing facilities and adds significant cost
- Can be operated to maximize cost savings or carbon reduction
- We are building a battery project and linking it to a planned bank of EV chargers (to provide EV charging when the grid is down)

EV Charging

- Analysis shows that our County's Total Cost of Ownership (TCO) is lower for an EV vehicles compared with an ICE vehicles for our light duty fleet
- Fleet electrification is driven by County policy requiring all new and replacement vehicles to be Zero Emission
- Established internal funding for Level 2 EVSE projects at two-dozen facilities across County
- Leveraging 3rd party funding programs to subsidize cost (e.g. utilities, air district, etc.
- Seeking Federal grants for level 2 and DCFC

In Summary

- Begin to understand your energy usage in order to eliminate or reduce unnecessary usage
 - Benchmark with EUI (total energy use / square footage)
 - Tackle the largest users with the highest EUIs
- If you have a BMS or smart thermostats, investigate the opportunity to participate in DR programs
- If you have large parking lots associated with a campus or a large facility, investigate feasibility of a PPA contract
- Remain open to battery storage projects if programs like SGIP will cover the full cost
- Consider how to position your agency to win Federal and State grant funding for EVSE

Contact Information

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QUESTIONS & DISCUSSION



HOW TO JOIN BEACON



Visit ca-ilg.org/BeaconProgram

- Fill out an online application
- Submit a resolution from your governing body

JOIN OUR WIDESPREAD NETWORK OF LOCAL GOV'T LEADERS



58 Counties

482 Cities

2,500+ Special Districts

20,000+ Local Agency Leaders

www.ca-ilg.org/stayinformed



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Institute for Local Government



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THANK YOU!



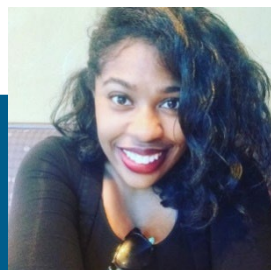
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**Thank you
for joining us!**