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# Hanford Hybrid Plant Emissions Mitigation Guidelines

May 8, 2024



# Objective

- Seek Board of Directors adoption of the Hanford Hybrid Plant Emissions Mitigation Guidelines



# Background

**On April 26, 2024 the Executive Committee discussed a proposal for the emissions mitigation guidelines and provided input and recommendations.**

- In April of 2023, the Board adopted Resolution No. 2023-06 approving a 12-year power purchase agreement with Middle River Power for energy and reliability products from its Hanford Hybrid Natural Gas Power Plant and Battery Energy Storage System
- The resolution requires staff to develop a policy and/or guidelines to set aside funds to be used for programs and/or projects to help mitigate emissions associated with energy produced by the Hanford Hybrid Plant
- SVCE is proactive about ensuring its portfolio management activities leave a net positive impact on communities



# More on the Hanford Hybrid Plant's Location

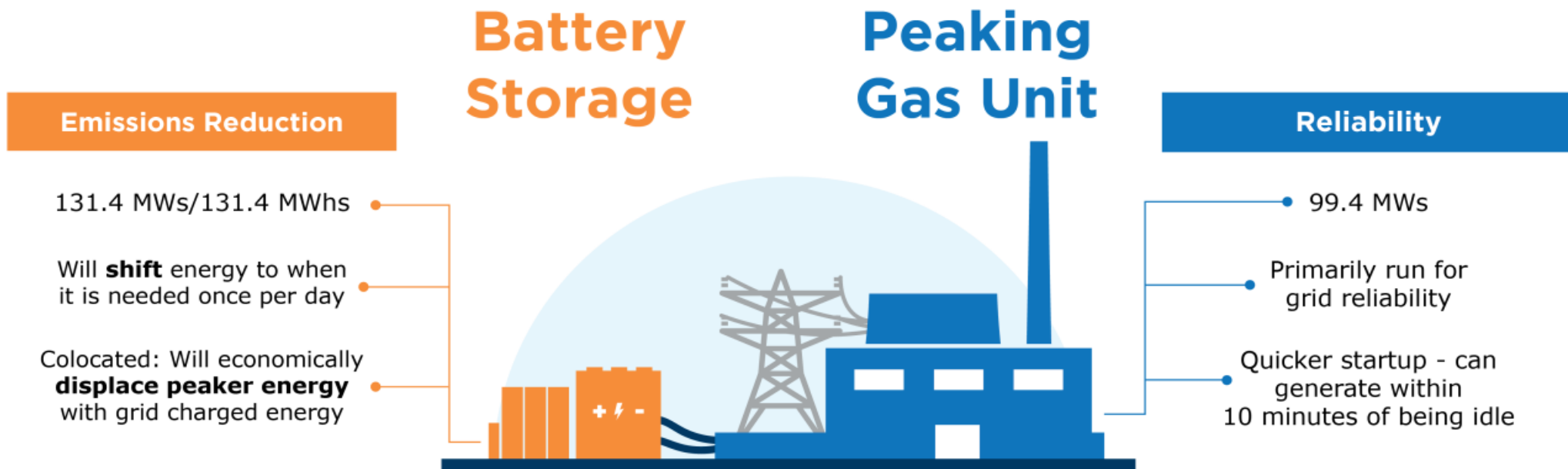


- Hanford is located Kings County, which is in the San Joaquin Valley
- The population in 2021 was 58,470
- Hanford's median household income for a family of 4 is \$43,200
- Hanford has been designated a disadvantaged community as defined by the 2022 version of CalEPA's CalEnviroScreen 4.0



# About the Hanford Hybrid Plant

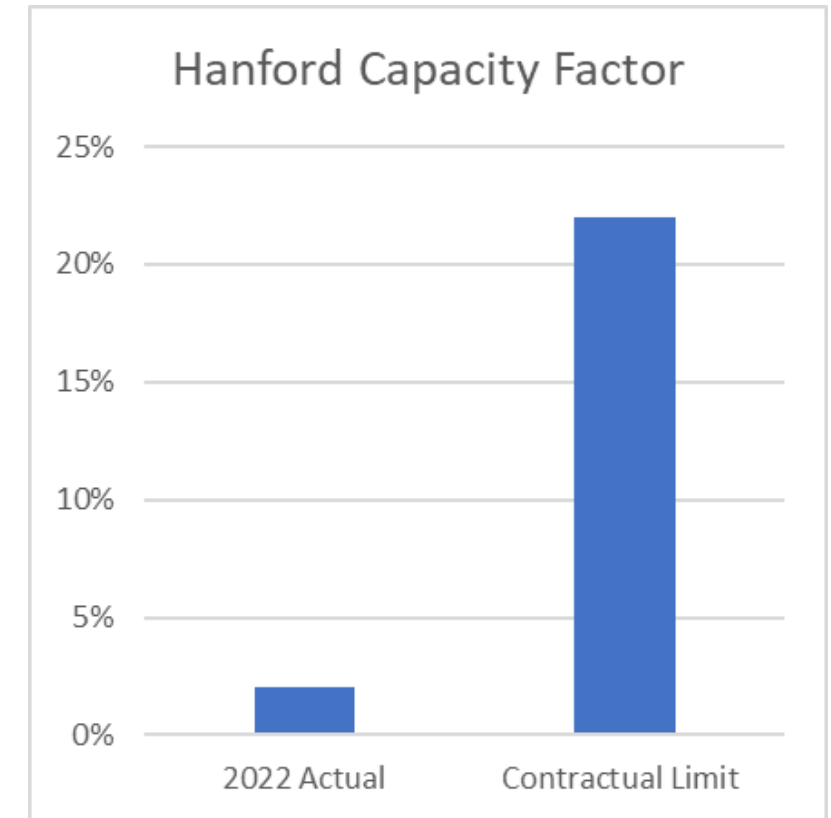
- The Hanford Hybrid Plant is a hybrid natural gas peaker power plant and battery energy storage system that SVCE contracted with for twelve years to ensure that SVCE can meet its Resource Adequacy (RA) program obligations.





# About the Hanford Hybrid Plant's Emissions

- Due to tight RA supply conditions, the Hanford plant is likely to have run through the end of the decade whether or not SVCE contracted for the unit
- The Hanford Hybrid Plant agreement is 12 years in duration, with the battery energy storage system and the natural gas peaker both starting October 1, 2024
- Projected energy dispatch expected to result in ~5,000 MT of CO<sub>2</sub>/year at start of contract period; the CPUC's electric sector GHG emissions target for 2030 is 25,000,000 MT of CO<sub>2</sub>
- SVCE's hybridization of the plant (i.e., addition of a battery energy storage system) is expected to decrease the utilization rate of the gas portion of the plant because the battery system will displace the peaker, likely resulting in yearly emissions decreasing over time





# Hanford Hybrid Plant Emissions Mitigation Guidelines Goals

**1 -**

Fund existing programs to help reduce emissions from greenhouse gases through electrification activities in disadvantaged or low-income communities in Kings County.

**2 -**

Recommend a funding amount range that could make a meaningful impact and is substantial enough to spend resources on.



# The Guidelines

	Key Elements
1	Establish the Hanford Hybrid Plant Emissions Mitigation Fund (“Hanford Fund”)
2	Specify that the Hanford Fund will be used to fund existing local programs to help reduce emissions from greenhouse gases through electrification activities in disadvantaged or low-income communities in Kings County
3	Recommend a one-time funding allocation of \$750,000 to \$1.8 million– for the entire duration of the Hanford contract (12 years) <ul style="list-style-type: none"><li>• This represents 0.6% - 1.5% of SVCE’s total Programs Budget Allocation</li></ul>
4	Specify that the Hanford Fund will be used to pay for activities led by organizations working in Kings County
5	Require the collection of feedback be used to determine best course of action for utilizing Hanford Hybrid Plant Emissions Mitigation funds as well as the final funding amount
6	Require SVCE staff to evaluate the effectiveness of fund disbursements and report on progress to the Board in the Board Information Packet on an annual basis following the first disbursement and until the entire Hanford Fund has been disbursed, if necessary
7	All funds in the Hanford Fund must be disbursed by June 1, 2036





# More on Stakeholder Input



- Stakeholder engagement process will allow us to receive feedback directly from Kings County community members
  - Understand types of emission reduction programs that would be most beneficial to Kings County residents.
  - What are the community's priorities?
- Guidelines require collected feedback be used to determine best course of action for utilizing Hanford Hybrid Plant Emissions Mitigation funds



# Conclusion

- The adoption of the Hanford Hybrid Plant Emissions Mitigation Guidelines will enable staff to meet the Board's directive to develop a policy and/or guidelines to set aside funds to be used for programs and/or projects to help mitigate emissions associated with energy produced by the Hanford Hybrid Plant.



# Recommendation

Adopt Resolution No. 2024-09 approving the Hanford Hybrid Plant Emissions Mitigation Guidelines, which provides for the following:

- Specifies the types of programs and projects that will be funded to help to mitigate the emissions associated with energy produced by the Hanford Hybrid Natural Gas Power Plant and Battery Energy Storage System during the 12-year term of the power purchase agreement;
- Establishes a fund of no less than \$750,000 to no more than \$1.8 million;
- Authorizes the Chief Executive Officer to disburse the funds; and
- Requires staff to report back to the SVCE Board of Directors on the effectiveness of the fund one year after the first disbursement and on an annual basis thereafter, if necessary.

# Authorize the CEO to Execute Agreement with CLEAResult

Board of Directors  
May 8, 2024



# Today's action – approve agreement with CLEAResult

## SVCE C&I Decarbonization Program

### Key elements of the Program

- Decarbonization training and workshops
- Site assessments, project analyses and prioritization
- Customer Incentives
- Impact tracking and reporting

### Key elements of contract

- Not-to-exceed amount of ~\$2.5M
- 3 1/2 year contract
- Pay-for-performance



# SVCE C&I Decarbonization Program Budget

## Implementation contract and customer incentives

### CLEAResult Contract

Category	Rate	Total not to exceed per category	Percentage of Budget
Start-up Milestone Fee	\$30,000	\$30,000	1%
Monthly Fixed Fee	\$1,000/participant /month	\$600,000	24%
Performance Fee	\$230 per MTCO <sub>2</sub> e	\$1,859,087	75%
Total Budget		\$2,489,087	100%

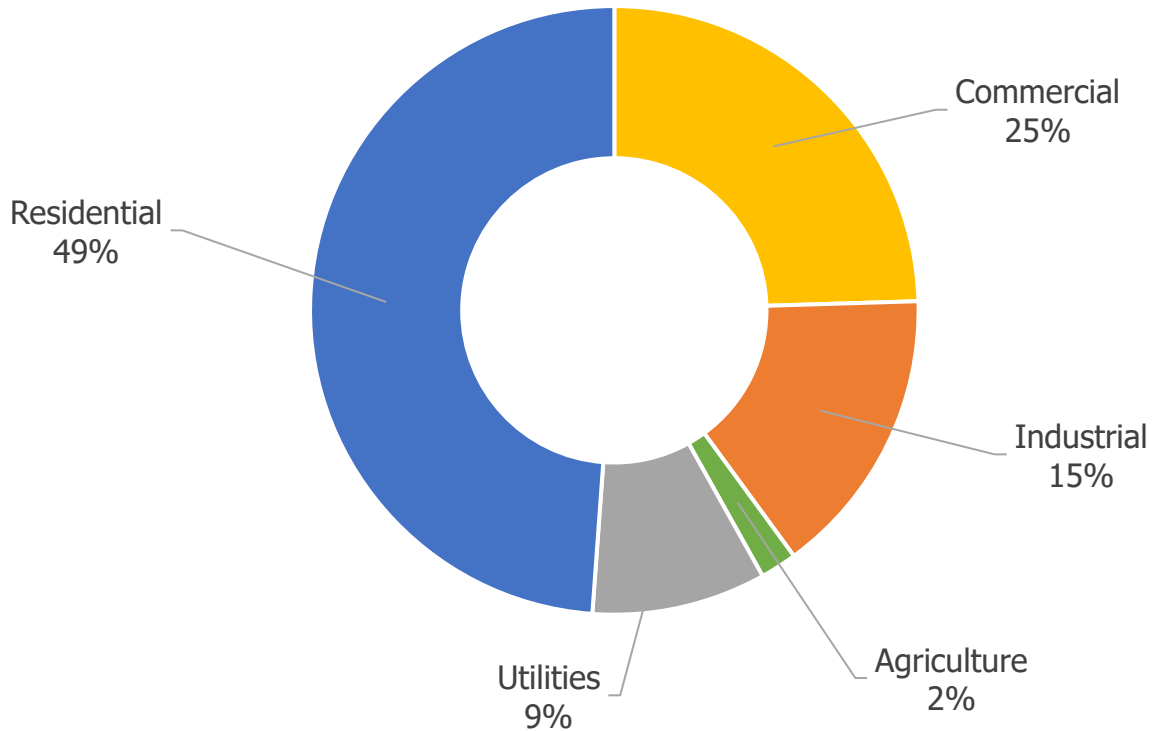
### Customer Incentives

- \$2,370,981 over contract term
- Grounded in \$/MTCO<sub>2</sub> avoidance
- Incentive design to-be developed prior to June program launch
- Will consider variable rates to support innovation, project cost considerations, etc.
- Will leverage external funding wherever possible



# Target Market – Large customers, annual usage >10 million kWh and 250,000 therms

2020 Natural Gas Usage by Sector



## C&I accounts

- 40% of total gas usage

## Top 20 C&I accounts

- 43% of total C&I gas usage
- 18% of SVCE gas usage



# New Program area for SVCE

Recap: SVCE Portfolio of Programs



Affordability



Ease



Workforce



Awareness





# Engaging C&I customers

C&I Customers tend to have unique operations, energy use and sustainability goals

## Learn about customers' priorities

- Start problem-solving by listening
- C&I customers are unique – so are the solutions

## It's not just the equipment, it's the energy service

### Traditional program

- What are the specs on the end-use load?

### What if we asked

- What is being pumped?
- Is it heated? Where is the heat coming?
- Is it running more often than it needs to be?





# Building on Strategic Energy Management (SEM)

Incorporating a carbon focus into a successful program model



## Goal Setting

Document customers targets for energy reduction, cost savings, and environmental impact



## Workshops

Educational modules on energy management, peak load shifting, and electrification



## Treasure Hunts

Site visits to assess current building operations, energy usage, operational practices, and identify opportunities



## No/low-cost O&M Projects

Implement low/no cost behavioral, retro-commissioning, and operation measures



## Capital Projects

Implement custom capital EE upgrade projects and electrification

Ongoing Technical Support  
and Coaching



# Electrification vs efficiency vs conservation

Focus on emissions avoidance, not on how it happens



## Industrial Decarbonization Roadmap

DOE/EE-2635  
September 2022

### DOE's Four Pillars of Industrial Decarbonization

- Energy Efficiency
  - *Strategic energy management approaches to optimize performance of industrial processes at the system-level*
- Electrification
  - *Electrification of process heat using induction, radiative heating, or advanced heat pumps.*
  - *Electrification of high-temperature range processes*
  - *Replacing thermally-driven processes with electrochemical ones*
- Low carbon fuels and feedstock
- Carbon capture, utilization and storage



# Building trust and collaboration with customers

## C&I Customers

- Have aggressive ESG and carbon goals, need support in achieving them
- Seeking unbiased support and coaching
- Incentives

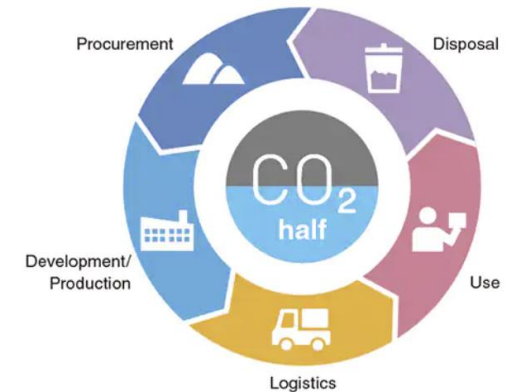
## SVCE

- Opportunity to build SVCE brand as a trusted partner
- Opens the door to deeper collaboration
  - GreenPrime, custom products
  - Demand Flexibility



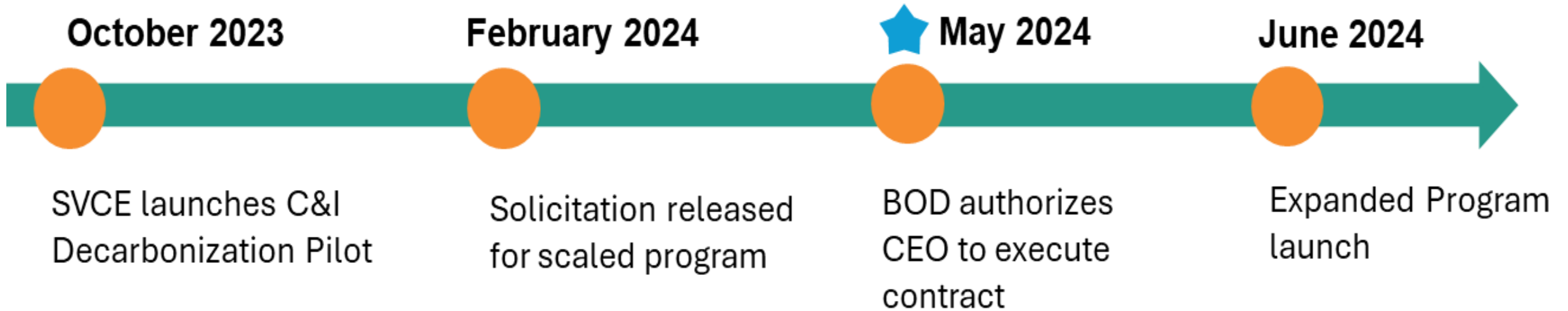
Meet Science-Based Targets

Achieve Scope 1, 2 and 3 emissions reduction targets validated by SBTi.





# Timeline and next steps





# Recommendation

Authorize the Chief Executive Officer (CEO) to execute the agreement with CLEAResult with non-substantive changes approved by the CEO and subject to final review and approval by General Counsel, from the date of contract execution through December 31, 2027 and for an amount not to exceed \$2,489,087.



# Appendix



# Why is this program model successful?

Foster a culture of energy and carbon management

## Program model provides structure for action

### Participation

- 2 year cycle with customers
- Set goals, rank opportunities, take action, track progress, celebrate wins

### Get in front of potential barriers

- Who makes decisions, based on what criteria?
- What is included in the budget? What team oversees the budget? ROI or payback thresholds?

### Customer centric, start to finish

- Customers rarely need to be “sold” on their actions
  - Projects are the actions that *they* identified as logical, feasible, within budget

## Building an Energy or Carbon Team

### Executive Sponsor

- Sets clear expectations
- Provides direction/resources
- Communicates/rewards wins

### Carbon Champion

- Regular meetings with coach
- Gathers and shares data
- Coordinates among other team members
- Updates executive management

### Carbon Team Members

- Interface w/their departments
- Subject matter experts
- Identify, prioritize and implement projects





# CLEAResult's Decarbonization and SEM Experience

## 2023 Impacts

Decarbonization

- 8,800 metric tons CO2e
- 9,700,000 kWh
- 1,100,000 therms
- 252,000 chilled water savings (ton-hrs/yr)
- 11,399 oil savings (gal/yr.)

SEM

- 201,046 tons CO2e
- 250,492,172 kWh
- 5,705,845 therms

Total Combined

- 209,846 tons CO2e
- 260,191,172 kWh
- 6,805,845 therms



**1965**

Organizations engaged



**1.6+**

Million tons GHG saved



**93+**

Million therms saved



**1.7+**

Billion kWh saved

Current

North America / California



**82 / 16**

Specialized team members



**470 / 91**

Active organizations



# The measure mix for decarbonization

## What might projects look like?

### Behavioral, retro-commissioning, operational

#### Process heating / boiler plant

- De-scale boiler tubes to improve heat transfer through the boiler.
- Improve feedwater management to optimize boiler feedwater chemistry.
- Repair steam leaks. Set this up as a recurring maintenance activity.
- Improve boiler sequencing, particularly summer operation. A boiler that cycles off and on at low load suffers an additional 20-30% efficiency reduction versus its typical low fire performance. Minimize the amount of boiler capacity left on hot standby.
- Reduce steam pressure to minimum needed (and/or temperature).

### Capital Projects

#### Cost-intensive retrofits, or new equipment

- Waste heat recovery
- Low Global Warming Potential (GWP) Refrigerants
  - Refrigeration system retrofits or full system replacement
- Space Heating
  - Heat pumps
  - Electric boilers
- Water heating
  - Heat pump water heaters (temp constrained)
- Industrial/Process
  - Electric ovens, furnaces
- Methane capture

\*supplemental grant funding may be important



# Customer Journey

A personalized approach to training, educating, and implementing projects



## Individualized Kick-off Meetings

Introductions and program expectations



## Educational Modules

Peer-to-peer learning on GHG management topics



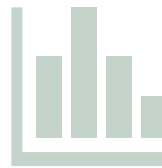
## On-site Treasure Hunt

Identify opportunities and populate opportunity register



## Monthly Customized Support

Goal development, employee engagement, energy map creation, data collection, persistence strategies, and updates to key activities



## Savings Calculations

Engineering calculations from completed projects that align with IPMVP



## Carbon Accounting

Identify and quantify Scope 1, 2 & 3 emissions for each organization to track reduction in GHG emissions



## Technical support

Identify, scope, and implement projects

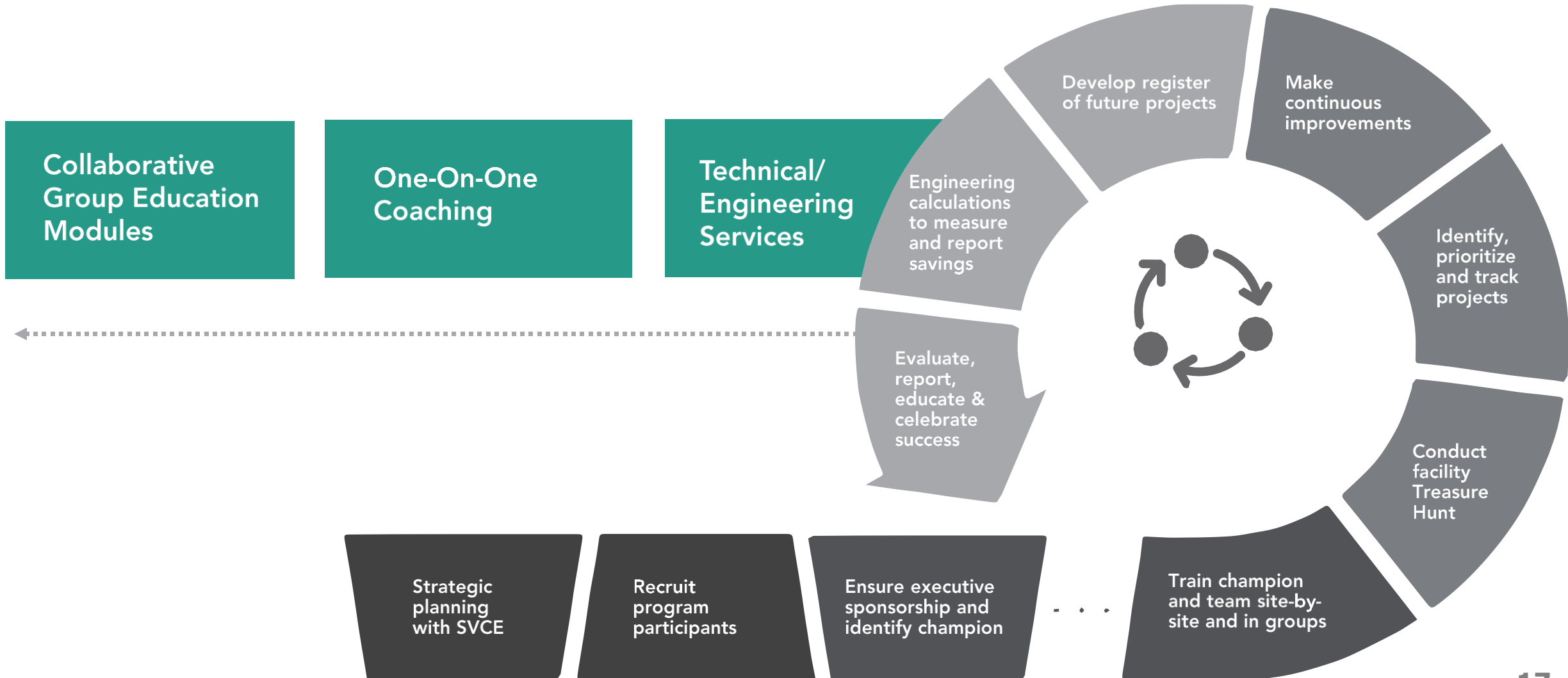


## Reporting

Customer – ESG ready GHG reports



# C&I decarb engagement is a continuous cycle





# Recap: SVCE portfolio of programs

This program is focused large C&I customers



Affordability



Product Availability



Workforce



Awareness



Ease