



We change the way  
people use energy™

# Implementation Plan - Commercial Strategic Energy Management (SEM)

July 2, 2024

Implemented By  
CLEARResult

Administered By  
SoCalGas

## Table of Contents

<b>Program Overview</b>	<b>3</b>
<b>Program Budget and Savings</b>	<b>3</b>
1. Program and/or Sub-Program Name	3
2. Program / Sub-Program ID number	3
3. Program / Sub-program Budget Table	3
4. Program / Sub-Program Gross impacts table	3
5. program / Sub-Program Cost Effectiveness (TRC)	3
6. program / Sub-Program Cost Effectiveness (PAC)	3
7. Type of Program / sub-program implementer	3
8. Market Sector(S)	3
9. program / Sub-program Type	3
10. Market channel(S) and intervention strategies, Campaign Goals, and Timeline	3
<b>Implementation Plan Narrative</b>	<b>3</b>
1. Program Description:	3
2. Program Delivery and Customer Services:	4
3. Program Design and Best Practices:	7
4. Innovation	10
5. Metrics:	10
6. For Programs Claiming To-Code (To Standard Practice) Savings:	12
7. Pilots:	12
8. Workforce Education and Training:	12
9. Workforce Standards:	13
10. Disadvantaged Worker Plan:	13
11. Additional Information:	14
<b>Supporting Documents</b>	<b>14</b>
1. Program Manuals and Program Rules	14
2. Program theory and program Logic Model	14
3. Process Flow chart	15
4. Incentive Tables, Workpapers, Software Tools	17
5. Quantitative Program Targets	20
6. Diagram of Program	21
7. Evaluation, Measurement & Verification (EM&V)	21
8. Normalized metered energy consumption (NMEC)	29

## Program Overview

The Commercial SEM Program will provide strategic energy management services, technical assistance and incentives to the commercial sector within the SoCalGas service territory. The Program will target commercial organizations, especially those in industries with the highest use of gas, such as the restaurant industry, healthcare, offices, retail and laundry sub-segments using a downstream market approach and leveraging the SEM savings platform to deliver cost-effective energy savings.

## Program Budget and Savings

### 1. PROGRAM AND/OR SUB-PROGRAM NAME

Commercial Strategic Energy Management (“SEM”) Program

### 2. PROGRAM / SUB-PROGRAM ID NUMBER

SCG3939

### 3. PROGRAM / SUB-PROGRAM BUDGET TABLE

Please refer to the California Energy Data and Reporting System (CEDARS) for the following program details.

### 4. PROGRAM / SUB-PROGRAM GROSS IMPACTS TABLE

Please refer to the California Energy Data and Reporting System (CEDARS) for the following program details.

### 5. PROGRAM / SUB-PROGRAM COST EFFECTIVENESS (TRC)

Please refer to the California Energy Data and Reporting System (CEDARS) for the following program details.

### 6. PROGRAM / SUB-PROGRAM COST EFFECTIVENESS (PAC)

Please refer to the California Energy Data and Reporting System (CEDARS) for the following program details.

### 7. TYPE OF PROGRAM / SUB-PROGRAM IMPLEMENTER

Third-party delivered

### 8. MARKET SECTOR(S)

Commercial

### 9. PROGRAM / SUB-PROGRAM TYPE

Resource – Resource Acquisition

### 10. MARKET CHANNEL(S) AND INTERVENTION STRATEGIES, CAMPAIGN GOALS, AND TIMELINE

Downstream; Incentive, Finance, Audit, and Technical Assistance.

## Implementation Plan Narrative

### 1. PROGRAM DESCRIPTION:

The Commercial SEM Program will provide strategic energy management services, technical assistance and incentives to the commercial sector within the SoCalGas service territory. The Program will target commercial organizations, especially those in industries with the highest use of gas, such as the restaurant industry, healthcare, offices, retail and laundry sub-segments

using a downstream market approach and leveraging the SEM savings platform to deliver cost-effective energy savings. Strategic Energy Management (“SEM”) is a holistic, whole facility approach that normalizes metered energy consumption with dynamic baseline model to determine energy savings from all program activity at the facility, including capital projects, custom and deemed calculated retrofits, maintenance and operation, and retro-commissioning projects. SEM Program for the commercial sector requires a multi-year customer commitment to participation in multiple cohort-type training workshops, individual or cohort energy analysis site and Measurement and Evaluation (“M&V”) activities based on information and characteristics of the facility’s specific operations.

The Commercial SEM program targets customers across the commercial sector and delivers savings to diverse building types owned by public/private entities.

The objective of the design is to use SEM to establish a foundation on which to acquire measurable energy efficiency savings, through helping customers develop a systematic approach to managing energy. The Program’s targeted, yet flexible approach, coupled with streamlined processes and robust quality management will yield a cost-effective program that serves commercial sector customers.

The Program will adhere to all guidance outlined in the most recent version of the California SEM Design<sup>1</sup> and M&V Guides<sup>2</sup>.

Although the contract for the SoCalGas Commercial Strategic Energy Management Program has an initial delivery term of less than six years, SoCalGas and CLEAResult intend to provide customers opportunities to participate in the SEM program for at least six years consistent with Section 2.1 of the California SEM Design Guide For: Cycle 1, 2, and 3., if they so choose.

## 2. PROGRAM DELIVERY AND CUSTOMER SERVICES:

The program will educate commercial customers about managing facility energy use, increasing participation and energy conservation through quick wins, relationship building, and long-term engagement.

### **Program Strategies/Tactics:**

The program employs a cohort structure to engage with customers (aka participants) and is a key strategy for SEM to deliver sustainable savings. Participants interact with the implementer regularly but also build professional networks with other participants in the cohort. This networking is a unique feature of SEM which leads to more and faster savings. As described in the California SEM Design Guide, the SEM program is delivered to a participant through a progression of educational modules and site-specific activities that take place over each of the two-year cycles. The progression of educational modules and site-specific activities build upon each other within and between the cycles.

This long-term approach enables the program to continually develop the participant’s understanding, skills, and capabilities relative to energy while consistently delivering energy savings. The six-year duration also allows the program to achieve an energy culture change within the participant’s organization. For example, participants are trained on specific energy saving activities (e.g. treasure hunts, energy maps, employee awareness) in such a way that they gradually become well established and defined participant business practices; the participant is encouraged to continue these activities without program support once their SEM engagement has ended. This approach means that the ability of a participant to manage their energy by the end of the program’s sixth year should be much improved from their ability to manage energy at the beginning of the first year.

The primary objectives of the SEM program design, looked through the six-year lens, are:

1. To cost-effectively acquire measurable energy efficiency savings by,
2. Helping customers develop a systematic approach to managing energy while,
3. Ensuring the customer can manage the system they have developed and continue saving energy after program completion

An additional consideration is that for many customers, “managing energy” will not necessarily mean only managing “energy efficiency”, or energy consumption. Customers, especially as they mature through the SEM program, can and should use their energy management business practices as a means to manage all the energy-related objectives that might be important to them, such as energy consumption reduction and energy-related GHG emissions reductions, among others. Hence, secondary objectives of the SEM program design are to:

1. Integrate education on using energy management business practices to manage broader energy-related objectives

<sup>1</sup> [https://pda.energydataweb.com/api/view/2647/CA\\_3\\_CYCLE\\_SEM\\_Design\\_Guide\\_V1.01.pdf](https://pda.energydataweb.com/api/view/2647/CA_3_CYCLE_SEM_Design_Guide_V1.01.pdf)

<sup>2</sup> [https://pda.energydataweb.com/api/view/2648/CA\\_SEM\\_MV\\_Guide\\_v3.02.pdf](https://pda.energydataweb.com/api/view/2648/CA_SEM_MV_Guide_v3.02.pdf)

2. Provide options for activities that give customer support for integrating those objectives into energy management business practices so that,
3. Customers can strategically implement a wide variety of energy saving opportunities.

Targeted customers will be recruited to participate in SEM cohorts, which deliver cost-effective savings to commercial institutions that oversee and maintain large building and infrastructure portfolios. Customers will be targeted based on their energy consumption and location. SEM savings will be measured utilizing methods in alignment with California SEM M&V Guide and California SEM Design Guide For: Cycle 1, 2, and 3 guidelines as recognized best practices for commercial applications.

### Hard to Reach and Disadvantaged Communities

In traditional downstream program designs, direct program outreach and technical assistance in hard-to-reach (HTR) and disadvantaged communities (DAC) is often costly because many of these customers are located in smaller, rural communities spread out across SoCalGas's service territory. Rural and DAC areas offer unique barriers to participation, and to overcome these to make the program accessible, the Program will use webinars and virtual peer-to-peer learning events to reach remote locations and help participants feel connected. This virtual capability minimizes travel and increases the number of events we can deliver.

The Program offers a pathway to reach diverse communities and organizations with high levels of service and rapid realization of low/no cost energy savings. This model encourages a collective increase of enthusiasm for energy efficiency and a recognition that gains in efficiency are available to all customers. In addition, including these smaller communities within the program cohorts helps not only reduce the cost of serving each customer, but also reduces the savings delivery risk for the program by spreading the contribution of savings across a more diverse group of participants. The Program will focus on recruitment of entities across the spectrum of the program's target customers and will determine the total number of participants based on the anticipated baseload of each customer, with a commitment to ensure we have diversity across cohorts in-line with overall program goals. Recruitment efforts include direct to customer outreach to educate the customer about the short and long term benefits of participation. The Program will enroll on a first come, first served basis, and will determine the final number of participants based on the potential savings of the total baseload.

For projects implemented within HTR customers and within DACs the program will offer support by seeking alternative funding and grants these communities may be uniquely qualified for. The Program will also leverage our coaches' and auditors' professional networks to identify prospects using a Diversity, Equity, and Inclusion (DEI) lens and to have targeted conversations with local stakeholders about how to increase representation from diverse communities.

The Program will utilize a regional targeting approach to identify participant candidates in the top quadrant of HTR and DAC communities, through identifying zip codes with a CalEnviroScreen score of 4.0. CLEARResult's analysis of the CalEnvironScreen 4.0 Draft data estimates approximately 40 percent of SoCalGas's customers reside in a DAC.

Over the course of the program, CLEARResult will include tracking of projects located in HTR and DAC in terms of quantity of projects, energy savings, and incentives paid. These KPI's will be monitored and our approach to recruiting and serving these customers will be evaluated and adjusted in accordance with our overall process of continuous improvement.

Through targeted outreach based on energy consumption and market insight from CLEARResult's experience in the commercial space, the Program will raise awareness of opportunities for customers in DACs. These strategies will enable the program to increase the value of program participation for customers that might otherwise lack the awareness or resources to participate, ultimately driving currently untapped savings.

The program will be focused on two key strategies:

1. Curriculum Enhancement: The program will embed workforce education and training into the existing SEM curriculum with the objective of connecting course content directly to participating organizations. These enhancements will further educate participating organizations on community reach, sharing of success stories of other similar organizations experiences in internship offerings, community involvement and other strategic wins directly impacting HTR and DAC communities.
2. Rural and DAC Cohorts: CLEARResult has recruited hundreds of organizations across sectors and both within and outside metropolitan areas across many SEM programs. Rural and DAC areas offer unique barriers to participation, such as physical separation from urban areas and lack of resources, and CLEARResult has successfully leveraged existing local relationships and enlisted the help of participants to help recruit others in these scenarios. The program

will use webinars and virtual peer-to-peer learning events to reach remote locations and help those participants feel connected to a community in their journey to greater efficiency. The program will use virtual contacts effectively so participants feel heard and seen and have opportunities for whole-hearted participation, minimize travel, increase the number of events that can be delivered, and keep participants with distance barriers engaged and involved so their program participation is successful for their facility.

### **Strategic Energy Management:**

SEM programs have proven to be a successful approach to significantly reduce energy consumption across a wide array of sectors, including commercial entities. The CLEAResult SEM team is well versed in delivery of SEM programs and working with participants to work through the challenges of implementing a robust energy management system.

The Program will offer participants educational modules in a combination of formats (e.g. online or face-to-face) ; delivery modes (e.g., live, pre-recorded, interactive or a mix); participants (i.e. cohort-style, 1 on 1, or mixed) the number of activities (e.g., one session or multiple sessions), and the length of each educational activity. This approach allows for flexibility in program implementation that can be tailored to different sectors and customer cohorts.

The SEM program has a subset of objectives in addition to the overall program objectives. The primary objectives of the SEM offering design, which align with the California SEM Design Guide, are:

- To cost-effectively acquire measurable energy efficiency savings by helping participants develop a systematic approach to managing energy while ensuring the participant can manage the system they have developed and continue saving energy after program completion.

Secondary objectives of the SEM offering design are to:

- Integrate education on using energy management business practices to manage broader energy-related objectives and provide options for activities that give participants support for integrating those objectives into energy management business practices so that participants can strategically implement a wide-variety of low/no-cost energy saving projects.
- Introduce commercial sector participants to additional clean energy opportunities in water efficiency, demand response, renewable energy, project financing and carbon emissions mitigation.

Additional objectives that support the primary and secondary objectives above include:

- Implement energy efficiency projects and save energy, with a focus on Behavioral, Retro-Commissioning and Operational Improvements
- Establish a robust, continuous Energy Management System (EnMS) at the facility that impacts company culture in a positive way. The EnMS is simply the tasks, practices, procedures and processes the participant uses to manage its energy. The existing EnMS at a participant's site may be formal or informal, may or may not be documented, may or may not involve specific software and hardware. One of the goals of SEM is to encourage enhancing the existing EnMS and eventually documenting it sufficiently so that it is sustainable. There is no requirement around software or other purchases to improve the EnMS.
- Quantify and report facility-wide energy performance.
- Getting peers to talk to one another - participants learn more by hearing from, and talking to, their peers.
- Achieving a balance between saving energy and building EnMS practices.

To achieve energy savings goals, the Program will use a cohort or individual organization format that includes training workshops per the California SEM Design Guide For: Cycle 1, 2, and 3, and individual one-on-one and onsite activities. A dedicated SEM coach supports each participant site from beginning to end of the program to help them meet SEM offering objectives and their own goals. The California SEM Design Guide provides flexibility for delivering SEM to participants either via a cohort or as an individual entity. The Program's primary method will be to recruit multiple customers to participate in cohorts. However, CLEAResult will maintain the ability to support sites in an individual way as long as that support helps meet overall program savings goals.

Site activities include conducting an energy opportunities Treasure Hunt and recording findings in an Opportunity Register. CLEAResult's energy coach and engineering staff will help identify and provide technical project management support for implementation of behavioral, retro-commissioning and operational, as well as capital, custom and deemed energy efficiency projects.

SEM Services Provided:

Participants who choose to participate in the program will be guided and coached by the CLEAResult SEM team. Participants will assign key roles and responsibilities to support energy management. These roles include:

- Data Owner - Responsible for ensuring that a plan is created for collecting energy data and relevant variable data, that the plan is followed, and that data is properly screened and documented.
- Energy Champion - Responsible for the success of the SEM program at the site. This individual is responsible for coordinating both with the SEM Coach and internally with any site staff, including the Energy Team, Data Owner, and Executive Sponsor.
- Energy Team - Typically a cross-functional team (i.e. management, production, procurement, maintenance, HR) that meets regularly to manage and develop any energy management-related business practices and activities.
- Executive Sponsor - Should be the highest-level manager available at the site and is responsible for ensuring the Energy Team has the resources it needs to succeed during the SEM program.

Participants pursuing the SEM pathway will be treated with the following services in alignment with the California SEM Design and M&V guidelines:

- Individual kick-off meeting to lay out clear program expectations
- Cohort or individual facility workshops with clearly defined learning objectives and well facilitated peer-to-peer learning that include strategies on:
  - Developing SEM
  - Identifying and Implementing Energy Savings Projects
  - Employee Engagement
  - Persistence of Savings
  - Tracking Energy Performance through Energy Modeling or alternate measurement and verification methodologies
  - Designing and Implementing an EnMS
- Onsite and/or virtual energy Treasure Hunt to identify energy waste and savings opportunities. The identified opportunities will be captured in an Opportunity Register.
- Onsite and remote support for: goal development, employee engagement, energy map development, energy data collection and data logging, project savings persistence strategies, as well as annual updates to key activities.
- Development of an energy savings regression model and annual updates to meet the requirements of the CA SEM M&V guidance.
- Implementation of an Energy Management System Assessment to assess progress on customer Energy Management System (EnMS) and plan future improvements.
- Identify, scope and provide technical support for project implementation.
- Where appropriate, supporting the customer in defining and implementing an Energy Management Information System (EMIS) to better track, report, and make decisions on energy data.

### 3. PROGRAM DESIGN AND BEST PRACTICES:

Table 1 below details how the Program will minimize the barriers to participation through the following strategies and tactics.

**Table 1. Market Barrier, Risks, and Risk Management Strategies**

Market Barriers	Mitigation Strategies, Output and Outcomes
Wide Range of Technical Expertise and Organizational Maturity, Lack of	<p><b>Strategy:</b></p> <p>Targeted SEM recruitment and tailored program services such as audits, virtual assessments, engineering support. Cohort workshops introduce proven, highly refined tools and process for EnMS. Tools include: an energy map to select Significant Energy Uses</p>

<p>Tools and Expertise</p>	<p>(SEUs), Tip-Sheets that summarize key operational aspects of SEUs and related energy saving projects, an energy model which tracks energy performance improvements over time, methods and techniques to improve employee engagement, and the opportunity register which lists potential projects and assists the participant to sort and prioritize based on potential savings and degree of effort to implement.</p> <p><b>Output/Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Program services and value propositions for participants</li> <li>• Champions identified, strategy defined and participation authorized</li> <li>• Onsite activities provide highly skilled engineering services to map energy use and identify energy-saving opportunities</li> <li>• Tracking and M&amp;V to build robust models of gas use</li> <li>• Train participants to use and maintain models</li> <li>• Facilitate peer-to-peer learning</li> <li>• Additional participants mature to SEM-capability. Energy Action Plan timelines accelerated.</li> <li>• SEM cohort Alumni engage in continuous improvement</li> </ul>
<p>Rigid financing and procurement hurdles</p>	<p><b>Strategies:</b></p> <p>Integration of On-Bill financing (OBF), alternative funds sourcing, and direct incentives</p> <p><b>Output/Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Flexible participation options adapted to policy constraints and producing net positive economic benefits</li> <li>• Deemed and Custom incentives paired with OBF drive measure-based equipment retrofits</li> <li>• Meter-based incentives unlock savings potential unavailable through deemed and custom pathways.</li> <li>• Alternative sources of project funding can include complimentary programs that implement cleaner technologies. Other sources of funding can also include local bond funds, federal grants, or third-party financing. Establishing the need and applicability of alternative sources of funding is project by project; subject to location of facility, size of project, types of measures to which alternative sources could apply, and propensity for a public facility to utilize a debt instrument to facilitate the project. CLEAResult will help each project identify alternative funding applicable to fit its specific need.</li> </ul>
<p>Security and Access Restrictions</p>	<p><b>Strategies:</b></p> <p>Personnel &amp; subcontractor pre-screening and robust CLEAResult IT security policies</p> <p><b>Output/Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Physical and digital access granted for Site Audits and Virtual assessments</li> <li>• Energy use monitored to measure performance</li> </ul>
<p>Lack of organizational commitment to</p>	<p><b>Strategies:</b></p>



<p>strategic energy management</p>	<p>CLEAResult's process ensures that participating organizations have a full understanding of what participation entails and are committed to the process</p> <p><b>Output/Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Screening and recruiting customers</li> <li>• Training for the executive sponsor</li> <li>• Regular meetings with executive management, including reviewing Energy Scan results, gaining their input and approval on project lists and priority</li> <li>• Establishing and engaging communication and coordination across customer functions (i.e., maintenance, production, purchasing, accounting, etc.) to ensure understanding and participation across the organization</li> </ul>
<p>Commitment of resources</p>	<p><b>Strategies:</b></p> <p>Peer interactions through cohort workshops strengthen commitment. Onsite activities engage multiple stakeholders within the organization</p> <p><b>Output/Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Tracking and M&amp;V show clear progress and benefits across multiple business objectives</li> </ul>
<p>Changes in site personnel or facilities</p>	<p><b>Strategies:</b></p> <p>The Program will mitigate this risk by ensuring:</p> <ul style="list-style-type: none"> <li>• Two or more personnel at each customer facility attend each workshop</li> <li>• Establishing and maintaining executive sponsor contact</li> <li>• Well documented work products</li> <li>• Establishing succession plans for key roles on an energy team</li> </ul> <p>Facilities can also experience changes, depending on the nature of operations, as they go through the program. The SEM approach is flexible, and when facility use changes, SEM coaches and staff can help support the facility with these changes while still capturing saving activities.</p> <p><b>Output/Outcome:</b></p> <ul style="list-style-type: none"> <li>• Improved transfer of knowledge within the participating organization, program recommendations established as institutional policy and standard practice</li> </ul>
<p>Frustration with standard offerings</p>	<p><b>Strategy:</b></p> <p>Skillful facilitation of workshops to maximize engagement and participation. One-on-one coaching and support customized to meet participant needs</p> <p><b>Output/Outcome:</b></p> <ul style="list-style-type: none"> <li>• Streamlined future participation in incentive programs by introducing clear documentation and measurement practices.</li> <li>• More educated, empowered customer – the Program provides the process, the skills and the knowledge for customers to move forward.</li> </ul>

## 4. INNOVATION

While the Program will strictly follow the SEM Design and SEM M&V Guides, the Program will offer the following innovative solutions to recruiting, program activities, and curriculum:

- Innovative recruitment and outreach: Contractor will leverage existing relationships and establish strategic collaborations with customers, partnering organizations, manufacturers, trade allies, and firms giving the Program access to commercial end-users and a wide range of prospective participants.
- Cohort-based participation: Contractor will conduct group workshops to encourage information exchange among participants through group activities and the encouragement of cross-market cohorts.
- Hybrid virtual/in-person delivery: Contractor will conduct some components of the Program virtually, allowing greater flexibility for participants.
- Streamlined approach to Total System Benefit (“TSB”): Program measures are set up to both target cost effectiveness and drive the adoption of measures that will result in maximizing program TSB through the net-to gross ratio of 1.0 and increased savings delivery by focusing on no-cost/low cost measures that are able to be completed quickly and persist through the coaching provided by The Program.
- Inclusion of Greenhouse Gas (“GHG”) into Program Delivery: Company will provide education to interested participants about reducing GHG emissions and help guide participants towards achieving GHG reduction in the following ways:
  - Workshops for participants to understand and quantify their baseline GHG emissions.
  - Educate participants on the basics of climate change including how climate change can impact business operations and how businesses can take steps to improve their climate resiliency.
  - Use information collected from site visits to identify GHG reduction opportunities and help participants plan and strategize for capital improvement projects that save energy and reduce GHG footprints.
  - Perform energy and cost calculations to help participants understand the potential benefits of decarbonization.
  - Provide support conducting lifecycle assessments of essential products and/or services to determine its lifecycle GHG emissions for participants who have made strides towards reducing both energy and GHG emissions.

## 5. METRICS:

These Key Performance Indicators (KPIs) will be the primary means of assessing the Program’s performance on an ongoing basis.

%	Company Metric	SoCalGas Metric	KPI	KPI Definition	Scoring	Continuous Monitoring Mechanism
	Program Performance	Energy Savings	First Year Net Energy (therm) Savings Delivered	Percentage of net energy savings achieved vs forecasted	0: less than 70% 1: 70 – 85% 2: 85 – 100% 3: 100 – 115% 4: >115%	Annually. Starting in 2 <sup>nd</sup> Program Year
	Program Performance	Energy Savings	Lifecycle Energy Savings Delivered	To date % achieved of lifecycle energy savings goal split on an even pro rata basis	0: less than 70% 1: 70 – 85% 2: 85 – 100% 3: 100 – 115% 4: > 115%	Annually. Starting in 2 <sup>nd</sup> Program Year

%	Company Metric	SoCalGas Metric	KPI	KPI Definition	Scoring	Continuous Monitoring Mechanism
	Program Performance	N/A	Goals/Expenditure Alignment	To date % of energy savings goal / to date % of budget split on an even pro rata basis	0: less than 60% 1: 60 to 69% 2: 70 to 79% 3: 80 to 89% 4: 90 to 100%	Annually. Starting in 2 <sup>nd</sup> Program Year
	Program Performance	N/A	Cost Effectiveness Alignment	Actual TRC Ratio/Pre-Program Approved TRC Ratio	0: less than 60% 1: 60% – 79% 2: 80% – 99% 3: 100% 4: >100%	Annually. Starting in 2 <sup>nd</sup> Program Year
	Program Performance	N/A	Performance: Disadvantaged Communities	Percentage of customers from disadvantaged communities in different counties	0: < 5% 1: ≥ 5 and < 105% 2: ≥ 10 and < 25% 3: ≥ 25 and < 40% 4: ≥ 40%	Annually
	Supply Chain Responsibility	N/A	Diverse Business Enterprise Spend	To date % DBE spend/DBE commitment %	0: less than 70% 1: 70% – 90% 2: 90% – 99% 3: 100% – 129% 4: greater than 130%	Quarterly
	Service Delivery	N/A	Program Administration and Implementation	Based on Contractor's reporting/data quality, timeliness, invoicing issues, meeting expectations Criteria: - Timely Response for out-of-scope requests - Proactive in continuous program delivery - On-time invoice and Monthly report - Quality of Deliverables - Willingness to partner - Communication	0: Meets 2 out of 6 Criteria 1 : Meets 3 out of 6 Criteria 2 : Meets 4 out of 6 Criteria 3 : Meets 5 out of 6 Criteria 4 : Meets 6 out of 6 Criteria	Quarterly

## 6. FOR PROGRAMS CLAIMING TO-CODE (TO STANDARD PRACTICE) SAVINGS:

The equipment and controls' performance degrade over the life of the equipment. The to-code program incentives will help the customers in restoring the performance of the equipment and controls to the rated performance. The to-code savings potential mainly resides in all the retro-commissioning measures, and behavioral and retro-commissioning sub-measures part of the SEM measures. The to-code potential is also available in all the non-code compliant equipment and controls installed by the customers due to financial restrictions and unaware of energy efficiency benefits.

The to-code potential resides in HVAC equipment and controls under all the building types, customer segments and geographical locations of the program scope. However, the measures will be cost-effective depending upon equipment loading, existing efficiency and hours of operation.

The typical barriers that prevent code-compliant equipment replacements are:

- Lower initial capital costs of lesser efficient equipment
- Unaware of utility program incentives
- Unaware of code requirements
- Lack of awareness on energy efficiency, its alternatives and associated lifetime energy savings
- Unaware of OBF and alternative state financing plans
- Lack of understanding of non-energy benefits of higher efficiency measures

Natural turnover will not occur in certain markets for a variety of reasons, but as this applies specifically to the Commercial SEM program and facility types eligible to participate, the most significant barrier is access to expertise. Market actors in the commercial sector are often understaffed, underfunded, and lack the technical expertise to effectively execute an energy efficiency plan.

The program interventions that would effectively accelerate equipment turnover are:

- Program incentives
- Aware of life-time energy efficiency savings' benefits
- Third party implementer's site assessment and identification of potential energy efficiency opportunities
- Third party implementer guidance on available energy efficiency alternatives and selection of most-efficient energy option
- Aware of non-energy benefits of measures including reduced maintenance and longer equipment life
- Environmental benefits/corporate sustainability goals

## 7. PILOTS:

Not Applicable

## 8. WORKFORCE EDUCATION AND TRAINING:

The Program will support workforce, education, and training (WE&T) to market actors and reinforce the value with customers where possible. Implementer will take the following steps:

- Cultivate relationships with and provide resources to vendors serving the sector with a track record of high-quality installation and energy efficiency proficiency who meet and advance the workforce standards.
- Engage and provide information to customers' local and regional vendors who work in the sector to ensure they understand Program requirements and build the necessary skills to support energy efficiency projects.
- Reinforce the value of a skilled and trained energy efficiency workforce with customers to further support customer's vendor development.

## 9. WORKFORCE STANDARDS:

### **For Heating, Ventilation, and Air Conditioning (HVAC) Energy Efficiency Programs or Projects.**

For all Program Projects and for each Measure, installed, modified, or maintained in a non-residential setting where the project is seeking an energy efficiency incentive of \$3,000 or more, CLEAResult shall ensure that each worker or technician involved in the project meets at least one of the following criteria:

1. Completed an accredited HVAC apprenticeship.
2. Is enrolled in an accredited HVAC apprenticeship.
3. Completed at least five years of work experience at the journey level according to the Department of Industrial Relations definition, Title 8, Section 205, of the California Code of Regulations, passed a practical and written HVAC system installation competency test, and received credentialed training specific to the installation of the technology being installed.
4. Has a C-20 HVAC contractor license issued by the California Contractor's State Licensing Board.

This standard shall not apply where the incentive is paid to any manufacturer, distributor, or retailer of HVAC equipment, unless the manufacturer, distributor, or retailer installs or contracts for the installation of the equipment.

### **For Advanced Lighting Control Programs or Projects.**

For all Program Projects and for each Measure, installed in a non-residential setting where the project is seeking an energy efficiency incentive of \$2,000 or more, CLEAResult shall ensure that all workers or technicians involved in the project are certified by the California Advanced Lighting Controls Training Program ("CALCTP"). This requirement shall not apply where the incentive is paid to a manufacturer, distributor, or retailer of lighting controls unless the manufacturer, distributor, or retailer installs or contracts for installation of the equipment.

## 10. DISADVANTAGED WORKER PLAN:

The Commercial SEM program doesn't involve the direct installation of EE measures and is therefore not in a position to directly improve access to career opportunities for Disadvantaged Workers. However, the SEM curriculum is enhanced with embedded Workforce Education and Training into existing curriculum with the objective of connecting course content directly to utility incentive programs. This will provide the opportunity for students to acquire the job skills needed to create immediate transfer opportunities into the energy industry workforce. The program will also provide referrals to technicians and trade allies to applicable local and statewide workforce education and training resources. We will track this information on an annual basis noting the following:

- a) Number of new employees;
- b) Number of job promotions;
- c) Number of disadvantaged workers as defined by CPUC;
- d) Partnership and/or employment goals and results from partnering with training or apprenticeship programs such as community colleges;
- e) Reporting on other metrics as defined in CLEAResult's DAW Plan.

## 11. ADDITIONAL INFORMATION:

The Program will adhere to the California SEM Design Guide For: Cycle 1, 2, and 3 except for the timing of the first Treasure Hunt. The Guide recommends the hunt be scheduled towards the end of the first phase – around 6 months into the first monitoring year. CLEARResult recommends pulling the Treasure hunt forward by a few months to ensure participants receive a list of recommended projects as early as possible to increase the pace of saving. Ideally this is completed before the end of Month 2 or 3.

### 1. PROGRAM MANUALS AND PROGRAM RULES

See attachment

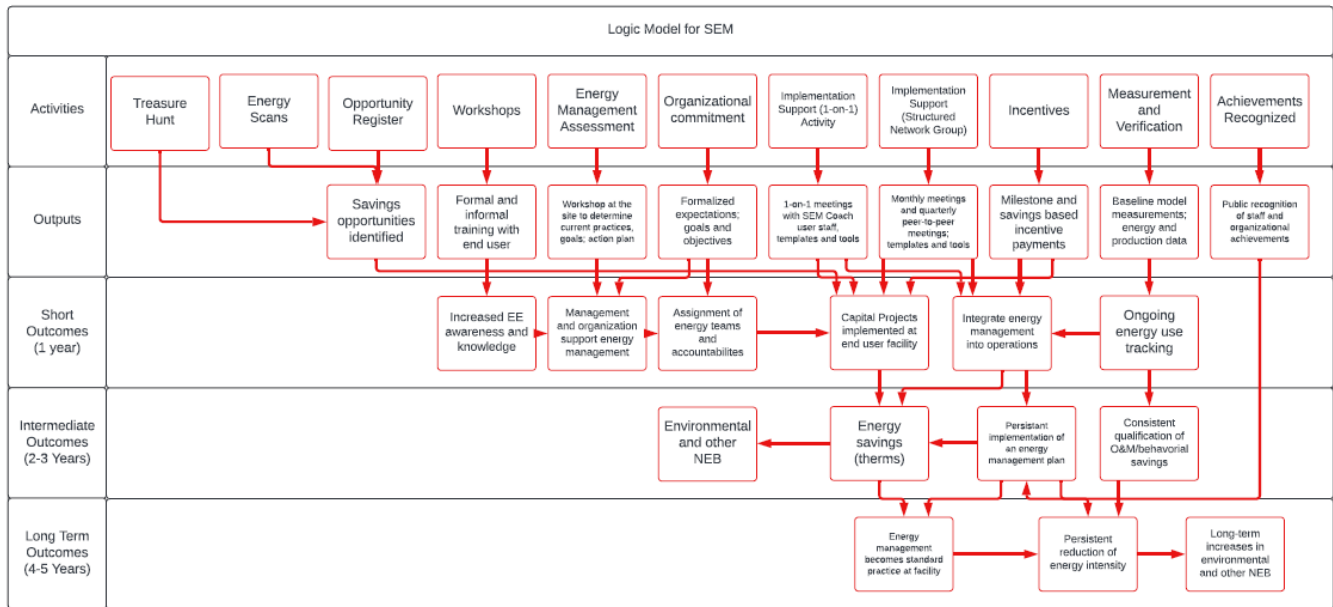
### 2. PROGRAM THEORY AND PROGRAM LOGIC MODEL

Program Logic Model					
<b>Barriers</b>	Confusing program offerings and complex processes	Lack of technical expertise	Rigid financing and procurement hurdles	Lack of commitment from management	Diverse sector is difficult to serve cost effectively
<b>Activities</b>	Single point of contact with dedicated SEM coaches	Technical assistance, onsite or virtual assessments	Integration of direct incentives, on-bill financing, and alternative funding	Clear communication of expectations and recruitment of executive sponsor	Regionally focused outreach with continuous enrollment opportunities
<b>Output</b>	Reduced market confusion	Project opportunities identified	Simplified participation options yielding net positive economic benefits	Customer program/project champion identified	SEM participants will be able to enroll in the program on their timelines
<b>Short Term Outcomes</b>	Greater program interest and improved customers satisfaction	Low-cost behavioral and operational savings		Clear communication of support for participation across customer functions	Enhanced program enrollment
<b>Intermediate Outcomes</b>	Improved project conversion rate	Meter-based incentive unlock additional savings potential		Tracking and M&V show clear progress and benefits	Cohort participants share best practices

<b>Long Term Outcomes</b>	Improved cross-cutting participation	Energy efficiency incorporated into the culture of the business	Program recommendations established as standard practice	Participants incorporate best practices from across the sectors
---------------------------	--------------------------------------	---	--	---

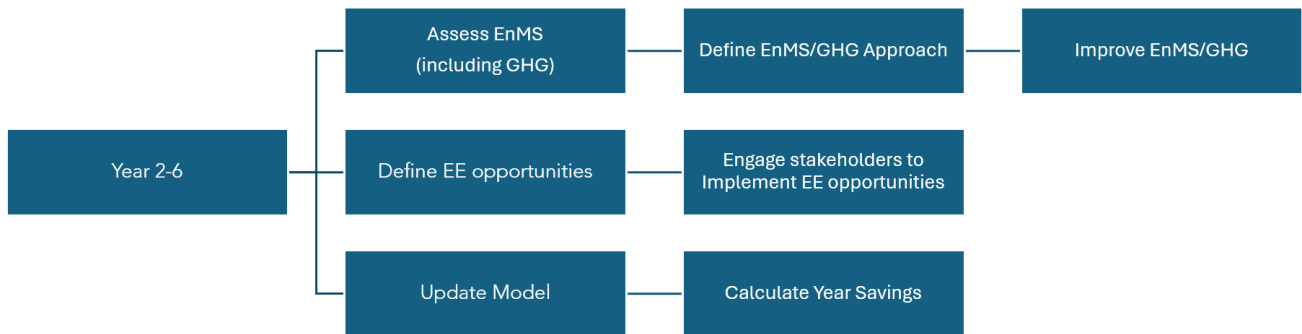
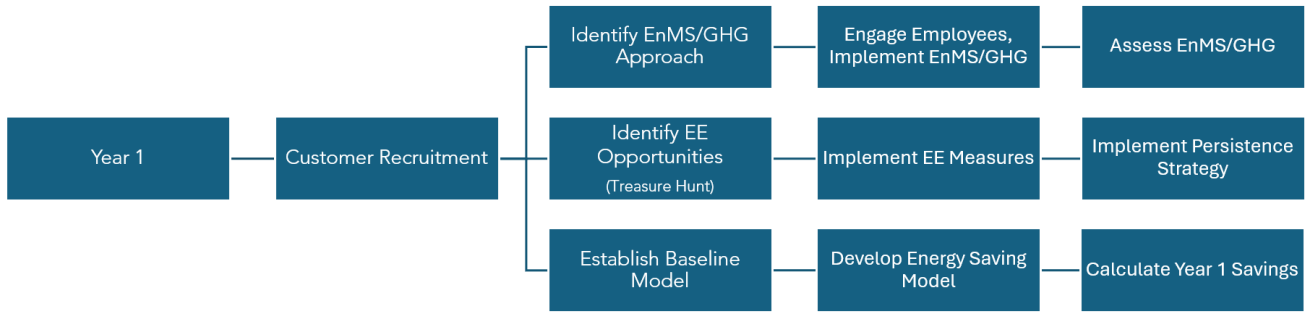
The Program is designed to address barriers to the adoption of energy efficient operational and procurement practices that are common and persistent across the commercial sector. Commercial institutions may lack knowledgeable technical staff to make informed and strategic energy-related decisions. It is therefore crucial that a program provides a simplified, streamlined process that is simple and easy for participants to follow. The Program makes it as easy as possible to participate through providing consistent offerings across the commercial sector, deploying technology to simplify the delivery of and access to program information, and by offering the services of experienced experts to guide customers on their energy journey.

Customers in the commercial sector often have rigid financing and procurement hurdles to overcome in implementing projects. While the program will provide incentives and financing tools to address these barriers, these customers often find more value in technical assistance than direct cash incentives. The Program addresses this technical need through CLEARResult's team of talented engineers and account managers in addition to dedicated SEM coaches.



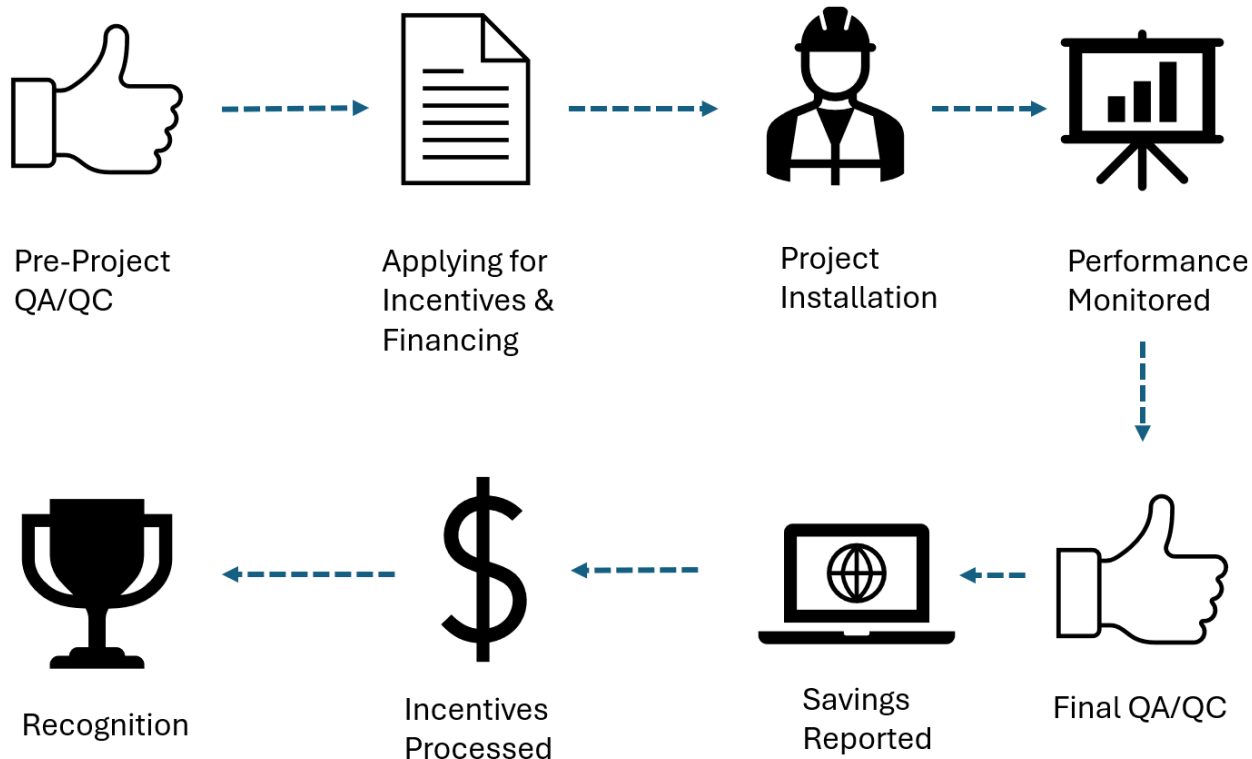
### 3. PROCESS FLOW CHART

The following is a visual flow chart of the Program Processes for SEM.



The following process flow chart applies to the Custom and Deemed incentive pathways within SEM.





#### 4. II INCENTIVE TABLES, WORKPAPERS, SOFTWARE TOOLS

The Program’s incentive design is consistent with the best practice guidance presented in D.18-05-041, including aligning incentives with lifecycle savings, promoting increasing degrees of efficiency, considering the barrier variation of different customers, and aligning payments with annual monitoring for performance-based approaches.

There are two types of participant incentives:

- Milestone incentive payments: Milestone incentives will be paid to participants based on progress made in the program, primarily for meeting deadlines for providing energy and other relevant variable data.
- Performance incentive payments: Performance incentives will be paid to participants based on energy savings calculated through the energy consumption adjustment model.

The table below represents the type, quantity, and payment rates for program incentives.

Incentive Type	Quantity	Rate
Initial Milestone: Complete Recruitment, Provide Energy and Relevant Variable Data, Treasure Hunt and Workshop Attendance	1/participant	\$5,000/participant
Subsequent Milestone(s): Updated Data and Opportunity Register*	11/participant	\$2,000/participant
SEM Performance Incentive	Variable based on project’s approved therms. Issued annually/participant.	\$0.95 / therm

Incentive Type	Quantity	Rate
Capital Project Performance Incentive	Variable based on project's approved therms. Issued per approved project.	TBD** \$/therm

\*Subsequent customer milestones will be triggered by Program participants meeting specific requirements set forth by the Program. These can include updating the Opportunity Register, supplying customer production data, attending workshops, completing energy management assessments, attending energy coach led meetings, taking part in subsequent treasure hunts and other Program activities. Schedule of milestone payments and activities will be updated in Program Implementation Plan.

\*\*Incentive rate for capital projects will receive email approval from SoCalGas.

#### Participant Milestone Incentive Schedule

Milestones
Initial Milestone \$5,000 -Recruitment sign-up -Attend Treasure Hunt -Provide Energy and Relevant variable Data -Attend General Information, Year 1 Educational Module (workshop) -Complete EMA
Milestone #2 \$2,000 -Provide updated production data -Provide updated Opportunity Register -Attend Improving Performance, Year 1 Educational Module
Milestone #3 \$2,000 -Provide updated production data -Provide updated Opportunity Register -Attend Measuring Success Educational Module -Completed Planning, Year 2 Educational Module
Milestone #4 \$2,000 -Provide updated production data -Provide updated Opportunity Register -Attend Improving Performance, Year 2 Educational Module -Complete EMIS, Year 2 -Attend Treasure Hunt if scheduled
Milestone #5 \$2,000 -Develop Carbon Footprint for Scope1, 2

Milestone #6 \$2,000  
-Provide updated production data  
-Provide updated Opportunity Register  
-Complete EMA  
-Attend Celebration and Next Steps, Year 2 Educational Module

Milestone #7 \$2,000  
-Provide updated production data  
-Provide updated Opportunity Register  
-Attend Celebration and Next Steps, Year 2 Educational Module  
-Attend Treasure Hunt if scheduled  
-Complete EMA

Milestone #8 \$2,000  
-Provide updated production data  
-Provide updated Opportunity Register  
-Attend Celebration and Next Steps, Year 2 Educational Module  
-Attend Treasure Hunt if scheduled

Milestone #9 \$2,000  
-Provide updated production data  
-Provide updated Opportunity Register  
-Attend Celebration and Next Steps, Year 2 Educational Module  
-Attend Treasure Hunt if scheduled

Milestone #10 \$2,000  
-Provide updated production data  
-Provide updated Opportunity Register  
-Attend Celebration and Next Steps, Year 2 Educational Module  
-Complete EMA

Milestone #11 \$2,000  
-Provide updated production data  
-Provide update Opportunity Register  
-Completed General Information Educational Module  
-Completed Planning, Year 5 Educational Module  
-Attend Treasure Hunt if scheduled

Milestone #12 \$2,000  
-Provide updated production data  
-Provide update Opportunity Register  
-Attend Risks to Success and Leadership Development Educational Module

## Software

Statistical analysis and data analysis will be performed in statistical software packages and transferred to Excel for ease of customer use and for the program administration and CPUC teams to recreate calculated energy savings.

## 5. QUANTITATIVE PROGRAM TARGETS

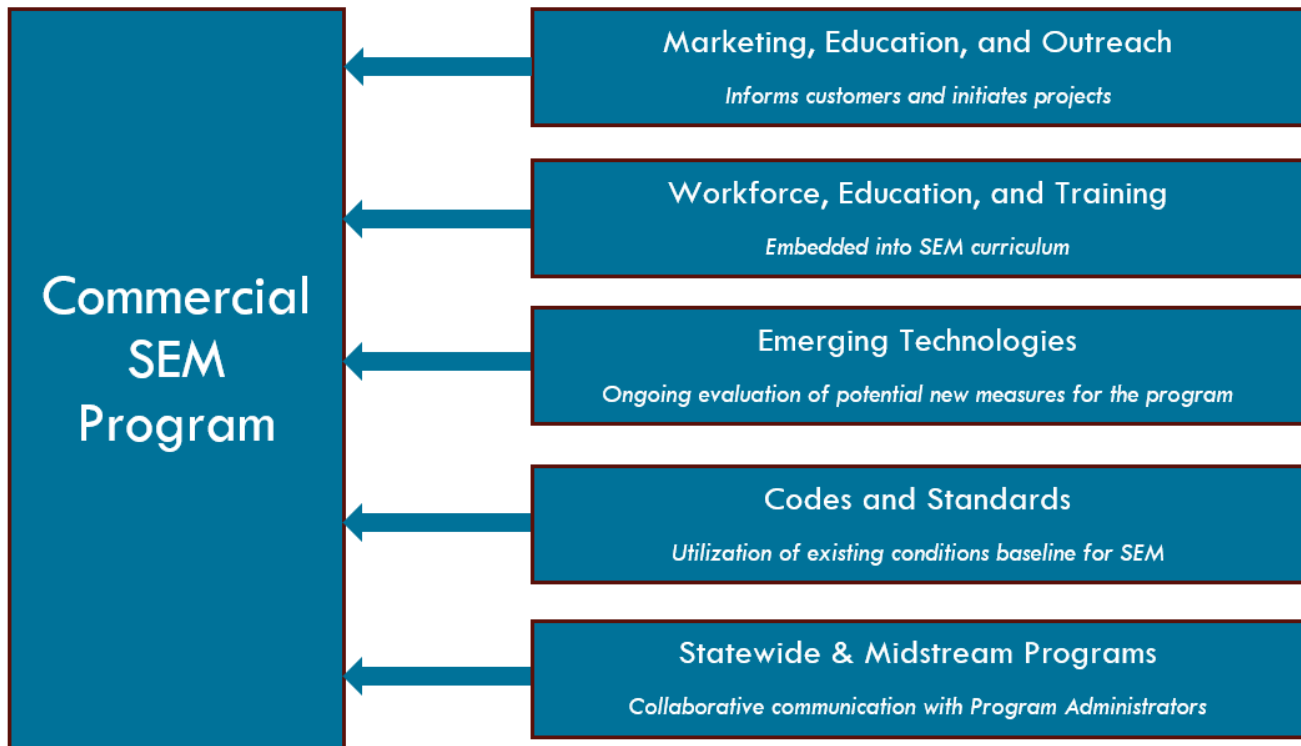
The targets provided herein are best estimates, but nonetheless are forecasts contingent on many factors.

Program Year	No. of Participants	No. of DAC	No. of HTR
Year 1	20	4	4
Year 2	40	8	8
Year 3	40	8	8
Year 4	40	8	8
Year 5	40	8	8

### Incentive Budget

Cost Category	2024	2025	2026	2027	2028	Total
Direct Implementation – Incentive	\$ 0	\$595,650	\$886,350	\$886,350	\$886,350	3,254,700

## DIAGRAM OF PROGRAM



## 7. EVALUATION, MEASUREMENT & VERIFICATION (EM&V)

The Program will follow the most recent version of the California SEM Design and M&V Guides (to deliver all data, calculations, and reporting required by the CPUC for their third party evaluation. As outlined in the California SEM M&V Guide, all deliverables outlined in section 13 of the guide will be provided by the program implementor to the program administrator during the mid-year evaluation period for preliminary review by the program administrator. After review, the program implementation team will make any necessary modifications as needed for the program administrator to deliver to the CPUC for review.

Additionally, as outlined in the California SEM M&V Guide, all deliverables outlined in section 14 will be provided by the program implementor to the program administrator during the year end evaluation period for preliminary review by the program administrator. After review, the program implementation team will make any necessary modifications as needed for the program administrator to deliver a final package to the CPUC for review. During program implementation, the following section will be utilized to guide the program measurement and verification to meet the requirements of the most recent version of the California SEM M&V Guide.

Data collection will be performed within the boundaries of this IP, the SEM Design Guide, M&V Guide, and the confines of SoCalGas's processes for delivering customer data to CLEAResult. Customer specific information will be provided by the participating customer to the implementation team, energy usage data will be provided from the utility to the implementation team, and weather data will be sourced from a recognized weather station. Internal performance analysis will be compared to progress towards goals and completed at various times throughout the program to determine where changes are needed to meet the performance goals of the program.

### Program Measurement and Verification Guide Summary

This M&V Guide Summary provides an overview of the energy efficiency program measurement and verification of energy savings from identified and implemented energy efficiency projects in order to meet the California SEM M&V Guide

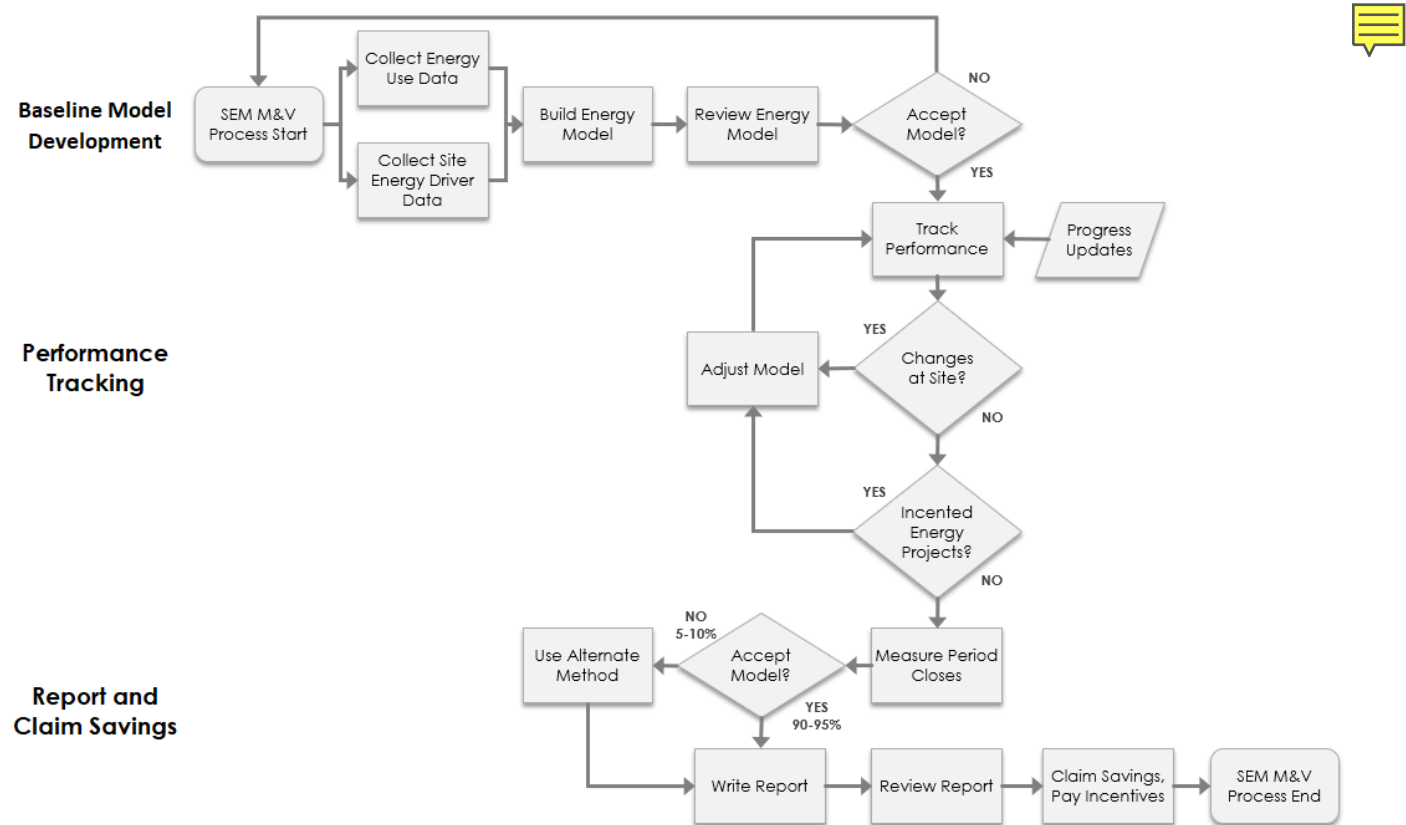
requirements. The guide describes the process and procedures for measurement and verification of these energy savings in each of the following (3) program platforms:

- Strategic Energy Management (SEM)
- Custom
- Deemed

Participants will have an option to participate in Custom and Deemed pathways as per allowance and requirement provided by CA SEM Guide.

### SEM M&V Activities

The primary objective of the M&V activities is to estimate the energy impacts of the SEM offering. This M&V plan provides information on the M&V activities including data collection, data analysis, adjustments, and reporting. The following flow chart provides a high-level overview for the major activities. The California SEM M&V Guide was utilized for reference to create this M&V plan and any updates to the M&V guide will be incorporated into future M&V plans. The figure below shows the general process flow of SEM data collection and model creation. All SEM model creation and validation will follow the California SEM M&V Guide Version 3.02 as described throughout that guidance document.



### SEM Data Collection

The Program's M&V approach is based on the California SEM M&V Guide Version 3.02. The guide defines the measurement boundary as the whole facility and requires measurement utilizing revenue grade meters; whole-building utility energy meters qualify as revenue grade meters. The Program will also monitor static factors such as equipment and operations within the measurement boundary to identify if any non-routine adjustments are required.

There are two types of data collection during the program. First, the team will collect energy data and other quantitative data to estimate the therm energy impacts of the program; energy data will be provided directly from the utility and customer operational data, such as occupancy, will be shared via secure SharePoint from the participating company. Second, the team

will track qualitative observations related to the SEM activities and feedback from participant buildings to inform the results of the quantitative assessment.

### Quantitative SEM Data Collection

The table below outlines the data collection requirements for the participant sites. The program will review data on an ongoing basis to determine if any additional data or refinements are necessary.

Data Collection Requirements for Participant Buildings:

Data Description	Desired Interval	Pre-SEM Data Collection	Post-SEM Data Collection	Data Source	Update Frequency
Interval meter data (primary)	15 min. therm	1-2 years	Program duration	SoCalGas or Participant Records	Monthly
Monthly billing data (if interval is not available)	Monthly	1-2 years	Program duration	SoCalGas or Participant Records	Monthly
Weather data	Daily	Covering the interval data timeframe	Program duration	Officially recognized internet weather data site(s)	Monthly
Participant business characteristics including address, business type, building age, major equipment, square footage, enrollment date, dates of behavioral intervention, and operating hours	Multiple	n/a	Program duration	CLEARResult and customer	Minimum – beginning of the program and once at the end ideal – monthly
Occupancy and operations data	Same as energy use date, if available	Same as energy use date, if available	Same as energy use date, if available	Customer records	Monthly or as needed
Customer ID, meter number(s), services address(es)	One time	n/a	n/a	Participant	Upon enrollment
Participation data from other programs, including dates and estimated savings of energy savings measures	During and the end of the NMEC measurement year	n/a	n/a	CLEARResult	Minimum - at beginning and end of measurement period Ideal – monthly

### Equipment and Instrumentation

No additional metering equipment is required at the participating sites. For sites with existing interval meters, the Program will use the corresponding interval data. For sites without interval meters the team will utilize monthly billing data. Customer-owned submeters installed prior or during the SEM engagement may be used if the site is complex enough to warrant sub-metering breakout or metering with revenue grade meters (as outlined in the IPMVP) to collect the necessary data.

### Qualitative SEM Data Collection

In addition to meter data and other quantitative indicators of energy use, the Program will collect data from the participants (the individual sites enrolled) to document energy efficiency awareness and practices before and during the program. Data collection is designed to capture any changes in production, owner and occupant behavior, attitude, or actions that affect energy consumption. Data will be collected from multiple points including regular feedback from energy champions, facility managers, self-reporting tools, and electronic and phone surveys.

The data collection will include documentation of:

- Production changes including production mix or addition of new products (if applicable)
- Schedule changes including shutdowns or unusual events
- Any retrofits or maintenance activities
- System setting changes such as set points and heating or cooling schedules
- Occupancy changes such as tenant, production, or staffing changes
- Specific questions regarding participating employees' understanding of energy efficiency and any activities performed to save energy before the program
- Strategies the organization employed to save energy with the objective of identifying behavior changes and equipment upgrades
- Energy champion and executive sponsor responses when asked if they observed any other impacts on their operations, such as increased customer traffic or a change in overall employee engagement.
- Pre-planned projects outside the scope of the SEM engagement

The goal of the qualitative data collection is to help inform how much the program influences awareness and behavior. In addition, the qualitative data will provide context for the source of energy savings by telling a story with corroborating evidence about what activities led to the savings. Depending on the level of detail collected from participants, the program may be able to show resolution around what activities or actions happened within a specific timeframe that may correlate with a measurable drop in normalized energy intensity.

### SEM Data Analysis

The boundary of all measures is the whole facility, which could mean a single facility or group of buildings depending upon available utility information. CLEARResult will do a statistical analysis using statistical software and transferred into Excel for participants to track energy savings as projects are implemented throughout the program. The following is an overview of the data analysis activities to estimate the energy impacts of the program:

- Identify available metering. As participants enroll into the program, they will need to identify what type of utility data (monthly or interval) is available, as this will determine what type of analysis will be performed.
- Assess baseline data for validity. As participants' models are developed by CLEARResult, the program will conduct an analysis to determine if adequate baseline data exists for the analysis and if any data is missing. If adequate data is not available, the CLEARResult team may make recommendations for additional data collection or alternative M&V approaches.
- As necessary, aggregate meter level data to business or site level data. Using the customer level ID or similar utility site identifier, the program will aggregate individual meters into whole businesses or whole building, as appropriate. In situations where the individual meters have misaligned meter read dates for similar monthly billing periods, the whole business or whole building meter level data will be aggregated based on the monthly billing periods from the individual meter with the largest energy consumption.
- Estimate Program Energy Savings. The analysis will use an avoided energy use method where a baseline statistical model is created by CLEARResult, ideally using two full years of monitored data prior to implementation. Then the actual monitored data recorded during the program are used in a standard least squared regression to create an adjusted baseline. The difference between the adjusted baseline and measurement period energy use is the avoided energy use, or the SEM energy savings, shown below:

$$\begin{aligned} & \text{Avoided energy use (SEM Energy Savings)} \\ & \text{Measurement period energy use} - \text{Baseline model prediction} \\ & \pm \text{Non routine adjustments} \end{aligned}$$

Based on this formula, SEM energy savings includes any activity, project, or change within the measurement boundary at a participant facility resulting in energy savings. There are several exceptions to projects captured within the measurement boundary that would not be allocated to SEM offering savings:

- Energy projects incentivized through other SoCalGas offerings
- Fuel switching (from natural gas to electricity)
- Installing alternative energy generation equipment such as fuel cell, combined heat and power, etc.

For all participants:



Preliminary modeling employing stepwise regression is used to evaluate the statistical significance of various independent variables in relation to energy usage. This is followed by successive manual changes to the model's specification to identify a model with good predictive performance and a reasonable number of predictors given the sample size. The distribution of each variable in the model is examined for suitability in regression modeling. A time series plot of each variable is analyzed to identify trends and relationships between data sets. The strength of association between variables is evaluated using bivariate correlations as well as partial correlations and associated scatter plots.

The performance of the model is assessed through a variety of statistical measures including overall fit (R2), coefficient of variance, autocorrelation of the regression residuals, X-Y plot of actual vs. predicted values and a time series plot of actual vs. predicted values is superimposed. If necessary, CLEARResult will incorporate routine and non-routine adjustments to improve model performance (see adjustments section below).

The Program reviews each model per CLEARResult's internal QA/QC document, and reports the final:

- data issues,
- model specification,
- sign and significance (including t- statistic) of the coefficients,
- residual plots, and
- statistical metrics: R2, adjusted R2, F- ratio probability, sample size (N), ratio of N to predictors, first- order autocorrelation, CV/RMSE, net determination bias, and the maximum CUSUM as a percentage of annual energy use.

For participants with interval data:

The interval for the final model will be determined based on a combination of timing with concurrent program year, preference from the participant, and quality of the data at the chosen interval. To estimate the gas savings ordinary least- squares regression statistical technique will be used to create baseline models. Models will be created through investigating independent variables including production, dry bulb and wet bulb temperature, relative humidity, hours of operation, day of week, time of day, process loads, sales/transaction data, or occupancy. In addition, binary indicator variables informed by qualitative data collection will be considered where applicable. Step- wise regression analysis techniques will be used to iteratively compare all logical combinations of independent variables. Autocorrelation will be considered and tested to determine if the model autocorrelation will affect the final savings analysis.

For participants with monthly data:

In models where the billing period varies, the analysis may employ a weighted least- squares regression technique based on ASHRAE Guideline 14- 2014, section 2.3 for Day Adjusted Models.

Models will be created through investigating independent variables including, but not limited to, production, dry bulb and wet bulb temperature, relative humidity, hours of operation, day of week, time of day, process loads, sales/transaction data, or occupancy. In addition, binary indicator variables informed by qualitative data collection will be considered where applicable. All non- indicator variables will be divided by the number of days in the monthly billing period.

Depending on the actions taken by the participants with only monthly data available, there may not be high enough savings to provide a statistically significant measurement of savings using monthly data. Not all projects, however, require such a high level of statistical confidence in the savings. In these cases, the savings estimates using monthly data is the best option available and the program team will work to achieve the highest accuracy using all data available.

**SEM Model Validity**

Before energy baseline models are approved to track energy performance, they are subject to multiple reviews. The first review is performed by CLEARResult against a stringent set of statistical criteria and analysis listed below and as outlined in the California SEM M&V Guide Version 3.02; future revisions to the California SEM M&V guidelines will be utilized as appropriate.


Overall SEM Model		
Performance Statistic	Typical Limits	Explanation

R <sup>2</sup>	> 0.75	The proportion of energy use during the baseline period that can be explained by movements of the model's predictors. An R <sup>2</sup> of 0.95 means that 95% of period- to- period variations in energy use in the baseline period are explained by the model's predictors.
Coefficient of Variance of RMSE	<0.2 (daily models) <0.1 (weekly models) <0.05 (monthly models)	CV of RMSE is RMSE divided by average energy use over the baseline period. The lower the CV, the smaller the regression residuals (prediction errors) are relative to predicted energy.
Autocorrelation	<0.5	Autocorrelation is a measurement (ranging from -1 to +1) of the serial correlation of regression residuals. High autocorrelation can cause a model to over-predict or underpredict for stretches of time and is more common in high frequency (e.g., daily) models. Autocorrelation leads to underestimated standard errors of the regression coefficients, so a model's t-values need to be large (well above 2.0) to assure their relevance when autocorrelation is high (e.g., above 0.5).
Net Determination Bias	<0.005%	Net determination bias measures the model's tendency to over- or under- estimate energy savings.

#### SEM Model Predictors

Item	Typical Limits	Explanation
t-stat	t  > 2.0	The ratio of a predictor's estimated coefficient to its standard error. Large t- ratios (>2.0) suggest that the variable is a useful predictor.
p- value	p < 0.05	Small p- values (<0.05) indicate a predictor is statistically significant (unlikely to be zero).

#### SEM CUSUM Baseline

Item	Typical Limits	Explanation
Maximum Variance (Daily/Weekly/Monthly Models) 	< 1%- 2.5%	<p>This maximum variation in the CUSUM during the baseline period shows the noise in the model baseline. This is a good indicator of the "sensitivity" of the model at detecting future changes (i.e., savings). While not all models will meet this guideline, if savings achieved by the site greatly exceeds the baseline noise, this method give a high confidence in the measured savings.</p> <p>For instance, if the baseline variation is 3% but the site saves 8%, the savings trend will extend well outside the normal baseline and therefore savings can be claimed. If a model follows the typical limits of CUSUM variance, SEM savings can be easily detected even lower than 1.5 % savings.</p>

Valid hypothesis models will be prepared for review by the CPUC as they become ready and meet all statistical and engineering criteria outlined in the California SEM M&V Guide Version 3.02. In instances where there is a significant time delay in gathering utility or customer data, this timeline may be extended past the recommended timeline. SEM energy modeling is reliant on accurate data and customer and sometimes this data is difficult for customers to acquire which can result in significant delays in the modeling process; data delays can be the result of Green Button or participant supplied data. For example, if a participant is required to obtain a formal release to distribute business or Green Button data, that process can significantly delay data acquisition. A revised schedule for those participants can be prepared and reviewed with the CPUC and technical review staff.

Energy baseline models are also subject to review by the participant. During this, the participant is asked to examine the model to assure they understand how it works and to confirm that each predictor makes sense within the context of the site's energy profile. Once the implementer and participant approve the model, it is then presented to SoCalGas for review. SoCalGas may want to engage third party with statistical expertise, such as their evaluation contractor, to assist in this review.

### **Anomalies / Adjustments for Energy Consumption Changes**

If significant changes are made to the site during the baseline and measurement periods, such as added/removed space, equipment, or changes to operations such as tenants moving in/out or production changes, the modelers will investigate ways to account for the effects of the change. Changes will be tracked throughout the program and incorporated in the model prediction where possible. If changes are large enough, they may warrant a re-baseline for the participant to incorporate the change in the energy model calculations.

If participants undergo an energy saving project incentivized through another SoCalGas program, then reported realized savings from that project will be subtracted from the SEM savings in the energy model file. Additionally, any site savings that are pursued using the deemed or custom pathways will also be subtracted from the modeled savings in the same way as projects incentivized through other SoCalGas programs. If a reported capital project appears to have been over- or underestimated, the SEM team will review the project with the capital project implementation team to determine the accuracy of claimed savings. The program will receive periodic reports from CLEARResult project tracking of incentivized projects and associated savings calculations.

### **Alternative Savings Analysis**

If the standard modeling method does not lead to a valid model (valid models are defined by the statistical criteria outlined in the California SEM M&V Guide Version 3.02; models may be abandoned as described in the California SEM M&V Guide Version 3.02) that meets the goals of calculating energy savings and providing feedback to the SEM participants, alternative modeling methods may be used to measure savings from the SEM pathway following the guidance in California SEM M&V Guide Version 3.02. Alternate modeling methodologies will be described in the M&V report for each participant where alternate modeling is required and will be presented during Technical Review. The following modeling methodology will be considered:

- Intervention step models
- Regression modeling over both the baseline and the measurement period, which allows changes that occur after the baseline period to be incorporated in the analysis.
- This method is used when a participant makes large or drastic changes during involvement with the SEM offering and the baseline time period cannot be compared to the measurement period.
- Mean model
- Applied when there is insufficient variation in the energy use at the site to create a standard regression model.
- Calculating Savings with the Opportunity Register

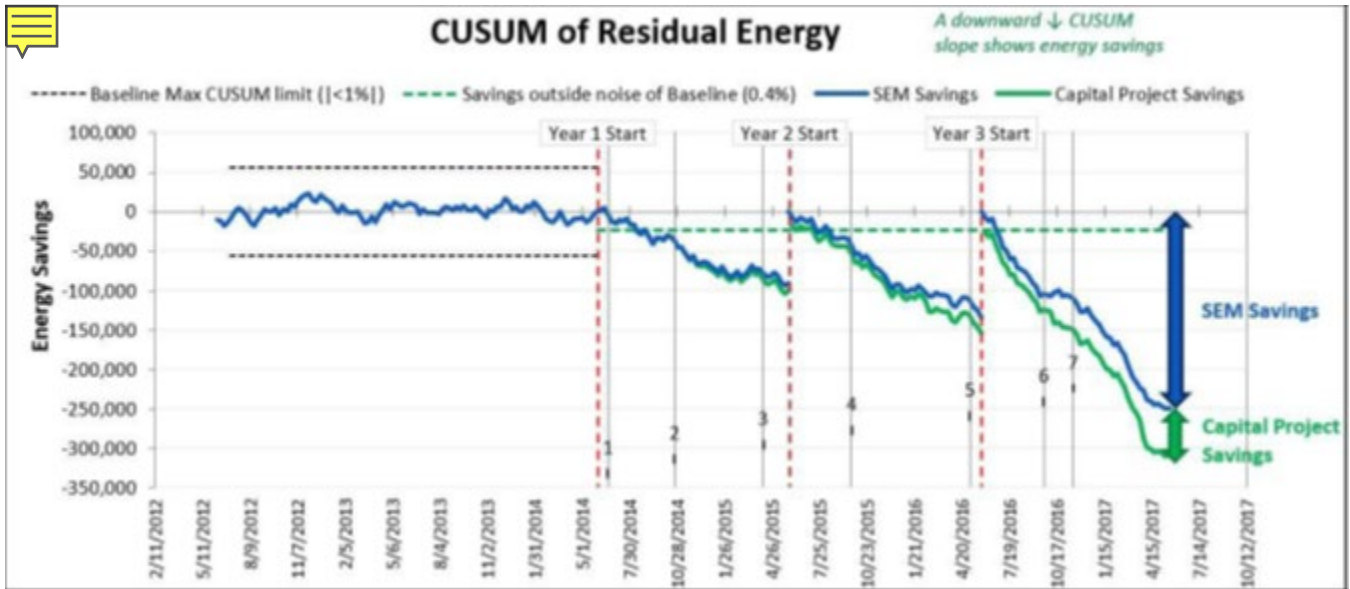
If none of the other modeling methods produce a model capable of measuring savings at a site, the savings will be calculated with bottom-up savings analysis and a document justifying bottom up calculations will be provided as described in California SEM M&V Guide Version 3.02.

### **Non-IOU Fuel Source**

Per the California SEM M&V Guide Version 3.02, when any energy supplier other than the PA is involved, incentives are paid based only on the energy savings that are reflected on the natural gas system. When an SEM participant utilizes a non-IOU fuel source, a non-IOU fuel source analysis will be performed in accordance with the most recent version of the California SEM M&V Guide.

### **Claiming SEM Savings**

California has elected to assign a five-year measure life for savings achieved through the SEM program. Facility-wide savings achieved will be shown graphically using a Cumulative Sum (CUSUM) graph, which sums the difference between the actual energy use and the predicted energy use over time. The diagram below illustrates how SEM savings will be quantified to determine program savings and incentive payments. These savings will be applied towards meeting SEM program goals and will be submitted to state regulators towards overall program energy reduction targets. Note that yearly savings are calculated from the original baseline set prior to a participant entering the program less any savings incentivized through other SoCalGas programs (capital project savings), SEM incented project savings, and non-SEM program savings; incented savings will be any savings above that previously achieved by the participant. Removal of non-SEM energy savings is outlined in the California SEM M&V Guide Version 3.02.



### Negative SEM Savings

Negative savings will be addressed in accordance with the California SEM M&V Guide Version 3.02. Negative savings will be evaluated against activities at the site to determine if they are the result of the SEM program. If a customer is expanding their business, for example, they would not be penalized for increased energy usage as that is not within the scope of the SEM engagement. Project backsliding in subsequent program years will also be evaluated to determine if implemented projects are not persisting to determine if those negative savings should be claimed. Since the program claims incremental savings in subsequent years, project backsliding may be overcome in following years so negative savings can be claimed as 0 in a single year with subsequent years making up for project backsliding as outlined in Annex H of the California SEM M&V Guide.

### SEM Results Reporting

CLEAResult will maintain the energy models each year the program is offered and will prepare an annual report for each participant at the end of each program year which includes a copy of the final model with all raw data included. These reports will contain the data cleaning as outlined in section 6 of the California SEM M&V Guidelines v 3.02, baseline model, CUSUM graph, savings and incentives earned, statistical rationale, and calculations. If a model is not viable, the report will contain the bottom-up savings analysis as described in California SEM M&V Guide Version 3.02 and will be submitted for technical review. Savings from the SEM initiative will be reported under the SoCalGas energy efficiency program.

In addition to the annual reports, CLEAResult will provide monthly progress reports to the participant and the IOU, as models become available, summarizing savings achieved for each participant, and for the program. Progress reports will be obtained by reviewing the energy models. Given that the energy models are dynamic and subject to change and constant updates, progress reports should be viewed as approximation of savings. Progress reports will be available sometime after the start of the program when energy models have been developed, or reset, and are actively being updated.

### Custom and Deemed

The Program will track and manage program data using CLEARResult's customized platform. Any projects incentivized outside of the SEM program will follow the traditional custom and deemed pathways and be deducted from the SEM top-down modeled savings. For custom and deemed projects identified within the scope of SEM and calculated within the top-down model will follow the SEM top-down methodology. The projects calculated under the traditional custom and deemed pathway, the Program's platform will benefit all aspects of Program delivery and evaluation activity, including:

- Project tracking from initial site assessments to completion and, if applicable, performance monitoring – informing all program stakeholder communication and providing a centralized foundation for program tracking
- Flexible reporting that unlocks meaningful data such as customer contact information, customer acquisition at each stage (work in progress, backlog and cancelled pending), participation by measure, QA/QC performance, and customer satisfaction scores
- Secure, role-based access that improves data integrity, reduces errors and prevents unauthorized access

The Program's Engineering QA/Policy team regularly tracks and communicates policy changes across the company using consistent methods. This regular dissemination of CPUC, utility, and CLEARResult-approved protocol empowers our staff to make concise and fiscally appropriate judgements when evaluating opportunities. Prior to investment of significant time or capital, potential projects receive high-level evaluation by members of the Engineering QA/Policy team. This "pass/fail" method allows the Program to concentrate efforts on opportunities that can overcome regulatory hurdles and garner cost-effective savings. These internal performance analyses during deployment supports evaluation criteria and compliance.

Upon a project officially being selected for advancement, data collection and measurement activities ensue with initial outlining of appropriate measure and baseline information. The following activities will be gathered or estimated for baseline, industry/code/customer standard practice, and proposed energy efficient equipment:

- Equipment specifications including estimated useful life (EUL) and remaining useful life (RUL).
- Energy consumption (source type, units of quantity) and hours of operation.
- Review on-site generation where applicable to determine eligible energy savings that reduce energy supplied from the grid.
- Measure costs to determine eligible costs (material cost of equipment, operation & maintenance, removal/demolition, permitting, freight, project development).
- Other data and factors (weather, process temperatures, production) that may impact the energy usage.

Verification and internal review of the information collected shall verify the measure eligibility:

- Does not overlap with other incentive programs
- Exceeds baseline energy performance and regressive baseline is not used
- Proposed equipment provides equivalent level of service
- Incremental measure cost is greater than zero
- Custom project EUL must be greater than simple payback period
- Installations adhere to federal, state, and local laws, building codes, manufacturer's specifications, and permits
- Applicable measure cost basis used for selected measure application type
- Fuel substitution criteria and test is passed where applicable

To ensure that energy savings persist and meets program metrics, the following steps are imbedded in the program:

- Confirmation that existing equipment is decommissioned and removed from site, or exception granted by PA prior to installation for Accelerated Replacement (AR) and Normal Replacement (NR) measures.
- Confirmation of installation of new equipment or controls for AR, NR, Add-On Equipment (AOE), and New Construction (NC) measures.
- Repair and re-deployment of existing equipment conducted as a Behavioral, Retro-commissioning, and Operational (BRO) measure.
- Confirmation of permanent installation of the AR, NR, AOE, NC measures such that the energy savings persist over the measure life.

## 8. NORMALIZED METERED ENERGY CONSUMPTION (NMEC)

N/A

