A Strategic Dating, I mean Energy Experience: Learnings and improvements to make Strategic Energy Management (SEM) more accessible and affordable for Energy Programs without sacrificing the connection

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ABSTRACT

Almost like a new dating app, while some energy programs value scale and numbers, Strategic Energy Management (SEM) values connection and engagement. It is a program that offers eye contact and hand-holding, fostering behavioral change and savings through personalized training and ongoing engagement. Customer engagement is the "chemistry" that keeps the SEM program spark alive. But the engagement-intensive SEM model is designed for sophisticated industrial staff with big energy budgets. Can we find the same chemistry when we venture into lower-energy-intensity sector "social circles"?

To meet targets, influence positive change, grow affordability, and enhance efficiency in our markets, we need to understand how to mindfully adjust the SEM model to meet the unique needs of lower-energy-intensity sectors. A process evaluation studied a SEM program's efforts to extend SEM savings opportunities to a wider range of customers while adhering to the core SEM guidelines. We interviewed customer Energy Champions, Energy Sponsors, Energy Coaches, implementer program managers, and program administrators. These interviews allowed us to better understand program activities from the various perspectives of the practitioners and to quantify compliance. They also helped us identify key activities and program dynamics that made the program relationships work and grow stronger, rather than taper off and hinder continuous energy savings growth.

This study provides findings and future considerations that can help SEM programs grow without losing their high-touch customer connection—so that customers of any size can be comfortable "swiping right" on SEM.

Introduction

If commitment and fulfilling engagement is what you are looking for in an Energy Efficiency (EE) program, Strategic Energy Management (SEM) is for you. In an evolving EE landscape with more programs desiring quick results and instant rebate/savings, SEM is a refreshing pause, moving back to a method of energy management that works with customers to both understand energy saving possibilities and help foster longstanding change for their facility. It really can be a case study for bringing value, not only to our savings calculations, but to the customers.

In California, SEM programs have had longstanding success. As interest programs has grown, it has expanded beyond traditional industrial customers to a broader commercial customer base, with third-party implementers now facilitating these energy-saving relationships.

Through recent studies, the California Public Utilities Commission (CPUC) looked into the possibility of confirming SEM savings assumptions and how programs can expand, allowing for broader access for customers to experience this energy saving relationship.

As with all things, from our underdog sports team to our favorite indie band, popularity and success have the potential to change things. With broader reach and increased scale, is the spirit of SEM being preserved? Do new and different customer types allow for the same mechanism to take place or do corners have to be cut to fit more participants into the SEM box?

In this study, the CPUC engaged DNV to look at the process of SEM planning and deployment. This study was the first phase in a two-year effort to better understand if the SEM program is maintaining its adherence to the design principles, the SEM guide, and the spirit of the program itself. The study team spoke with participating customers, program managers and implementers, Energy Coaches, and Program Administrators (PAs) and triangulated findings to compare with program planning and deployment guidelines. The study team sought to understand if this growth is healthy or if it is causing this program to change its very nature for those who are not the right fit.

SEM In A Nutshell

SEM is a high-engagement approach to energy management that emphasizes continuous improvement and a systematic method for enhancing program participants' energy performance. This high level of participant engagement is integral to SEM's success. The SEM program implementer uses an Energy Coach to work with site-level staff to identify and execute energy-saving opportunities. This Energy Coach commits to learning the ins and outs of a customer site and using their expertise to walk participants through the identification of opportunities and coaches them along the energy saving journey. Participating sites commit their staff to fulfilling the SEM-defined roles of Energy Champion (participant SEM lead), the Executive Sponsor (participant decision-maker), and other support roles as part of the participant Energy Team. The Energy Champion is the Coaches partner, leading the sites' effort in fulfilling the plans created through SEM participation. The Executive Sponsor is the ultimate decision-maker at the site and provides the high-level guidance and influence required to adopt new strategies. The Energy Team supports the transition through various roles.

SEM is built on three core elements: commitment, energy management planning and implementation, and a system for measuring and reporting performance. The SEM Design Guide outlines the following core elements that all programs must provide to participants (Sergio Dias Consulting 2022). These are:

1. **Kick-off meeting.** Introducing SEM to the site, defining the roles at the facility, and laying out a program schedule.
2. **Energy management assessment (EMA).** Assessing the site's current energy use policies and procedures. The implementer conducts these assessments each year of the program and has the option to share the results with the facility.
3. **Energy use mapping.** Detailed mapping of all energy consumption at the facility.
4. **Energy treasure hunt.** Walking through the entire facility searching for ways to reduce energy waste, either through capital project upgrades or process and behavioral changes.

5. **Action plan and support.** Identifying and creating action plans to meet SEM requirements, including meetings, trainings, and workshops.
6. **Energy management information system (EMIS).** Developing a system to manage energy use and model energy savings across the entire facility.
7. **Future planning.** Creating a plan for meeting program requirements in future program years, and for continuing to pursue energy efficiency after program participation ends.

The SEM vendor must maintain a site-specific **Opportunity Register** to record and track the progress of each identified energy savings action.

Designed as a long-term program that works with participants over a six-year period, the SEM program is divided into three two-year phases. Participants join in groups, called cohorts, based on when they start. Each phase includes specific planning and action steps. Participant projects started in the first year are often improved and expanded upon in the second year.

Methods

This study employed a mixed-methods process evaluation design that leveraged qualitative interview data and documented program implementation evidence from the and the PY2023 SEM impact study, measuring gross savings and potential Net-to-Gross implications through a Theory Driven Attribution approach (DNV 2025). This study typically sees many 'classic' SEM customers representing high energy consumption and, often, heavy industry attributes. Our previous study efforts served as a foundational data source describing program structure, implementation context, timelines, and reported activities, while interviews provided practitioner- and participant-level perspectives on how those activities were experienced, adapted, and operationalized in practice. This shed light onto how staff and customers interacted with SEM as unique and different customer types.

The SEM Activity Report evaluation focused on SEM activities and experiences occurring during the 2024–2025 program cycle, consistent with the reporting period covered in the SEM Activity Report. Interviews were conducted following sufficient program exposure to allow respondents to reflect on onboarding, early engagement, and ongoing SEM activities.

Semi-structured interviews were conducted with four primary stakeholder groups involved in SEM program design, delivery, and participation:

- **Program Administrators,** responsible for SEM program oversight, policy interpretation, and alignment with regulatory and portfolio objectives. DNV conducted group interviews for each of the five PAs.
- **Vendors and Implementers**, including SEM coaches and program managers, responsible for delivering training, coaching, and customer engagement.
- **Customer Participants**, including Energy Champions and Energy Sponsors, representing organizations participating in SEM.
- **Independent Evaluators**, to provide additional perspective on program planning and implementation.

Table 1 presents the outcome of our data collection efforts.

Table 1. Data collection activity

Survey target	Target	Interview completes	Instrument type
PA: Program Manager	5	5	In-depth Interview
Implementation Vendor: Program Manager	5-8	5	In-depth Interview
Implementation Vendor: Energy Coach	8	9	In-depth Interview
State Independent Evaluator: Contracts	1-2	2	In-depth Interview
Participant interviews, Energy Champion, and Executive Sponsor	16-20	19, across 11 projects	In-depth Interview
Completes	40-53	40	

Interview guides were tailored by respondent type but shared a common core of themes to enable cross-population comparison. Topics covered across the different interview populations included:

- **Program Design and Intent**
  - Goals of SEM expansion
  - Perceived fit of SEM for lower-energy-intensity sectors
- **Engagement and Relationship Dynamics**
  - Customer onboarding experiences
  - Coaching intensity and communication practices
  - Trust, accountability, and relationship continuity
- **Adaptations and Fidelity**
  - Modifications to training, pacing, or delivery
  - Alignment with core SEM guidelines
  - Tradeoffs between flexibility and rigor
- **Barriers and Challenges**
  - Organizational capacity and resource constraints
  - Staff turnover and time availability
  - Factors supporting sustained participation

While all populations addressed engagement and program fit, PA interviews emphasized compliance, scalability, and policy alignment, vendors focused on delivery logistics and coaching strategies, and customers emphasized usability, relevance, and relationship value.

In addition to the SEM Activity Report evaluation, this study leveraged qualitative and quantitative data collected as part of the PY2023 SEM impact evaluation. Data collection activities for the two studies were intentionally coordinated to maximize analytical alignment and reduce respondent burden. Interviews conducted for the PY2023 SEM EM&V study were designed to support both impact and process evaluation objectives, and common interview instruments included overlapping questions relevant to program implementation, engagement, and participant experience. This allowed for fewer interviews per respondent.

As part of this coordinated effort, DNV conducted interviews with SEM program participants (including Energy Champions, Executive Sponsors, and Energy Team members), implementation vendors (including program managers and Energy Coaches), Program Administrators, and independent evaluators. For sampled PY2023 projects, DNV attempted interviews with Energy Champions, Executive Sponsors, Energy Team Members, and the associated Energy Coaches. While outreach targeted multiple Energy Team members per project, limited or outdated contact information constrained successful participation beyond primary points of contact.

The PY2023 SEM EM&V study applied a theory-driven attribution (TDA) research framework to assess alignment with SEM Design Guide requirements and levels of participant engagement. TDA findings provided standardized quantitative measures of program influence, implementation fidelity, and engagement intensity. This study incorporated those results where relevant, as they directly support the process evaluation objectives related to program compliance, delivery consistency, and customer satisfaction.

Table 2 summarizes SEM project completion volumes across program administrators for PY2023. These project populations provided the contextual basis for interpreting interview findings and situating participant experiences within broader program scale and maturity. PG&E and SDG&E were not sampled in this year, but are in the ongoing, follow-up study.

Table 2. SEM projects completing a cycle in PY 2023

Estimated project populations	Projects completing cycle in PY 2023
PG&E	–
SDG&E	–
MCE	4
SCE	40
SCG	9
Total	**53**

Together, the integrated use of Activity Report documentation, coordinated qualitative interviews, and TDA-based quantitative findings enabled a comprehensive assessment of SEM implementation processes, stakeholder experiences, and perceived program value.

Findings

According to our interviews, much is working across SEM programs for customers of all types. Programs appeared to be largely in compliance and PAs and implementers reported high levels of customer satisfaction, ranking it at 9 and 8.2, respectively, on a 10-point scale. Customers themselves largely agreed, with most (9 of 11) reporting that the program supported their goals and that they were satisfied with its structure, coaching support, and useful tools. However, the drop-out rate is substantial, ranging between 10% and 30% for a variety of reasons, but low engagement is often cited. A consensus emerged across stakeholder groups that finding opportunities for in-person customer engagement is critical to program success, and potentially key to strengthening the program as it expands. Companies always perform Treasure Hunts in person, and they drive substantial engagement, but there are no required activities to get back on site in the following years. Stakeholders suggested that some program elements could be improved, and these correlated with a lack of customer engagement, either due to internal turnover, confusion about the purpose of a program element, or a lack of certainty that the program could meet their specific needs.

Program Design and Compliance

Table 3 aggregates the core findings on program design and compliance, summarized further below.

Table 3. SEM design elements and compliance observations

Customers	PA Program Managers	Vendor Program Managers	Energy Coach	Independent Evaluator
Energy Champions rated the Treasure Hunt an 8.2 out of 10 for its value. One vendor's project management and opportunity register software and structured coaching were key drivers of engagement; 9 of 13 responses cited this product as essential for	PAPMs design customer activities to be conducted remotely. Four of the five PAPMs observe customer interactions by attending program activities. Internal mechanisms to prevent savings double counting.	Quality control standards vary across PAs. Lack of compliance with EMIS and EMA is challenging for customers. Internal mechanisms to prevent savings double counting.	7 of 8 respondents said the Treasure Hunt activity is most important for engagement. Though not explored at length, respondents note all Design Guide activities as being part of the process. Further, 25% noted the programs would	Restrained cashflow to program managers may limit pool of companies who can bid on the contract. Contracts have claw back provisions for lack of performance by program managers.

tracking, buy-in, and savings.			improve with greater EMA guidance from implementers.	

The TDA Delivery score is an important indicator of program compliance. The TDA research indicated an average delivery compliance by PA of PA 1 (0.92), PA 2 (.88), and PA 3 (0.63), indicating strong compliance by some and opportunities for growth with others.

PA program managers and vendor program managers reported ambiguity and inconsistency as the greatest challenges to program compliance. Different practices across PAs, burdensome administrative requirements, or ambiguity about how to adapt SEM for customers beyond the industrial sector all introduced complexity, confusion, and an increased risk of non-compliance. Likewise, where customers were confused about the expectation or purpose of a program element, they were less likely to engage and, potentially, not fully comply – a common complaint about the EMA and EMIS, for example. Examples of this include vendor program managers noting various expectations, depending on PA, and the EMA and EMIS requirements being difficult to understand.

While both the vendor program managers and PA program managers view all program activities as important, they consider the EMA activity, adaptation of the SEM guide, and end-of-year reporting to be the least valuable. PA program managers also regard all activities as important, though they find peer meetings and energy modeling training to be potentially less beneficial. Customers expressed confusion about the energy management information system requirement in the SEM guide. This requirement had the lowest level of engagement and is likely the least compliant aspect of program execution.

Stakeholder Satisfaction

Table 4 below summarizes the key findings on stakeholder satisfaction across the various parties interviewed. Additional context is provided below.

Table 4. SEM stakeholder satisfaction observations

Customers	PA Program Managers	Vendor Program Managers	Energy Coach	Independent Evaluator
9 of 11 customers indicated high satisfaction with the program and that it supported their goals. Difficult to maintain	Average estimated customer satisfaction: 9 out of 10. In-person Treasure Hunts establish site	Average estimated customer satisfaction at 8.2 out of 10. In-person Treasure Hunts establish site	Coaches indicated Energy Champions were highly engaged. Coaches ranked energy teams	Not applicable.

engagement. Two sites maintained high engagement, while 10 saw decreases. Five exited early due to resource constraints. Two sites said the Energy Coach lacked sufficient knowledge of their industry.	buy-in to program, and a subsequent Treasure Hunt could help with continued engagement. Energy modeling training can be hit or miss.	buy-in to program, establish relationship. PMs generally conduct program activities virtually.	lower for engagement.	

The TDA Engagement score is an important indicator of customer engagement and ultimately satisfaction. The TDA research indicated an average engagement factor by PA of PA 1 (0.85), PA 2 (.86), and PA 3 (0.73).

Interviewees cited customer engagement, in its many forms, repeatedly as key to customer participation and satisfaction. When engagement ebbed, either because of turnover among site staff or as the program moved into its second year, customers became more likely to drop out. We cannot ignore the value of the in-person Treasure Hunt here. Although typically the only in-person activity, verbal responses from vendor program managers, Energy Champions, and Energy Coaches confirmed the value it had on engagement.

Both the implementers and the customers (including the Energy Champions and Energy Coaches) stress the importance of in-person Treasure Hunts in the SEM journey as well as a strong Executive Sponsor. They are opportunities to build relationships with site staff, which could help with long-term engagement despite staff turnover. Also, Treasure Hunts help establish buy-in for the program by quantifying the energy efficiency opportunities at the site. In addition, customers said that engaging site staff in training workshops is a key element of delivery, not just of engagement. Customers also reported significant learning from SEM trainings, which helped them identify deeper energy savings opportunities. On the other hand, SEM customers reported that staff turnover can hinder program momentum and decrease engagement. Specifically, new Energy Champions were often less engaged or familiar with program requirements, leading to a decline in energy-saving efforts. Small Energy Teams limited site engagement and ability to participate in required activities. While most implementers inform customers about the average staff commitment required in the first year, two out of five SEM programs did not provide this information. Customers without this information could underestimate the time needed to maximize program benefits long-term. Generally, sites struggle to allocate sufficient resources to SEM due to competing work priorities, hindering their ability to sustain engagement and improvement efforts. To minimize dropouts, PAs and implementers suggest providing customers with flexibility, such as the option to pause the program, establishing a robust team at the site, fostering long-term relationships with customers, and ensuring they fully understand the entire SEM process.

Resource Burden

The compiled findings for resource burden across the various respondents can be seen below in Table 5.

Table 5. SEM delivery burden observations

Customers	PA Program Managers	Vendor Program Managers	Energy Coach	Independent Evaluator
Time investment varied widely across sites. Of 18 EC & ES respondents: • 7 estimated 50–200 hours/year; • 3 reported <50 hours; • 3 reported >500 hours. Most said the effort was worthwhile.	Four of five PA program Managers do not know if anyone communicates time commitment during recruitment. Four of the five PAs observe customer interactions by attending program activities.	Two of five vendor program managers don't communicate time commitment expectations. The remainder communicate general ranges.	Most coaches met with champions/teams monthly. One did biweekly and one did every two months.	Not applicable.

Each PA differently interprets, for example, the California SEM Guide, so quality control practices vary across PAs. This can be challenging for implementers, as each reviewer has a different approach to compliance. Implementers also reported that the administrative burden of the program can be challenging. They suggest streamlining the documentation and reporting, if possible.

During conversations with the PAs and implementers, the most common suggestion to improve the scalability of the SEM program was to streamline the documentation or reduce the administrative burden requirements. One implementer noted that in other jurisdictions, an energy model is sufficient proof of the project, but in California, there is a heavy burden to document everything. This is a challenge, especially for self-guided projects in which a site takes on more of the burden in managing the project. When asked about challenges scaling SEM, one vendor program manager noted that dealing with ambiguity within the program is a greater challenge. Specifically, adapting criteria to sectors other than the industrial sector has been difficult. For example, with a school district, the customer is the district as a whole, but developing an opportunity register for an entire school district is a challenge, one for which implementers must get special approval from the CPUC. This example highlights that, while SEM is anticipated to

be a useful program design for most non-residential sectors, there may be some in which a few sectors cannot easily meet the SEM engagement needs. Furthermore, the SEM Expansion Study noted that there was no evidence suggesting the necessity of creating a distinct SEM guide for each sector but recommended flexibility in terms of program delivery for non-industrial customers.

Dropout

Dropout findings from the various respondents can be seen below in Table 6, with further discussion below.

Table 6. SEM dropout & recruitment observations

Customers	PA Program Managers	Vendor Program Managers	Energy Coach	Independent Evaluator
Lack of transition planning or team support often drove dropout. Of 13 responses, five sites had no backup plan for the Energy Champion role; five ended participation early.	Three of the five PAs estimate program dropout rates of 12%-25%. Customer staff bandwidth or turnover at site was responsible for dropout. Implementer leads recruitment after receiving PA contacts.	Estimated dropout rate of 5%-30%. Low staff engagement, lack of projects, lack of savings, or turnover at company at sites causes dropout. Implementer leads recruitment after receiving PA contacts.	50% reported dropout or no re-enrollment. 25% reported no dropout or re-enrollment. 25% had no response.	Not applicable.

Program dropouts proved to be a prevalent reality amongst interviewees, though the details as to the reasons may be more nuanced. PA program managers estimated 12%-25% of their customers either drop out mid cycle or do not re-enroll in a subsequent Cycle 2 or 3, and the vendor program managers estimated 5%–30%. Dropout customers are being interviewed as part of Phase 2, where new findings will be incorporated. These responses are consistent with each other. Also, 50% of the Energy Coaches indicated dealing with customers who dropped out or ended early.

Implementers identified two primary moments when a site drops out of the program: after the first year (before starting Y2) or at the beginning of the program—a false start. One implementer estimated that approximately 30% of customers drop out after the first year. Implementers and PAs indicated that site dropouts were typically due to low staff engagement, lack of energy efficiency project opportunities, or unrealized savings.

The predominant reason given is engagement and staff consistency at the customer site. The Energy Champion is the cornerstone of engagement for a site and if they switch roles or have engagement issues, almost always the site saw issues. The ability for a customer to have support staff for the Energy Champion is very important, to help weather the storm if there is turnover. As noted in the customer interviews, in five cases, the departure or reassignment of an Energy Champion let to the end of program engagement. As a respondent noted, “When the Energy Champion was pulled away from the site to open a new plant, there was no one available to continue to champion the SEM program.”

Interviewees cited opportunities for customer engagement at the start of recruitment. Three out of five implementers mentioned receiving both customer leads and warm handoffs from the PAs. Those who received less support expressed a desire for greater involvement from PAs in lead generation and warm handoffs. Program evaluators also advocate for PA involvement in recruitment and customer engagement to foster sustainable long-term relationships with the program. Recruiting the types of customers who will succeed in SEM is key to successful program delivery. Specifically, sites under a parent company with a strong focus on energy efficiency have been more successful in maintaining SEM engagement over time as opposed to customers who may have challenges in devoting the necessary level of engagement and management support (see school district example above).

Conclusion

Our study found that SEM can expand beyond traditional industrial customers into more varied commercial customers without fundamentally losing its “high-touch” personality, but only when the core engagement mechanisms that define SEM are preserved. Across the various stakeholders, there is strong agreement that SEM continues to deliver value, with high reported satisfaction and broad adherence to SEM design principles. Maintaining this personality allows for consistency of customer success with more traditional programs and also is consistent with SEM in many other jurisdictions.

Customer engagement remains the primary determinant of SEM success. In-person interactions, most notably the Energy Treasure Hunt, along with Executive Sponsor buy-in drive value across all stakeholder groups. These in-person events establish trust, site-level buy-in, and a shared understanding of opportunity, serving as an anchor for long-term participation, while the Executive Sponsor buy-in ensures customer site engagement and resourcing to allow for the customer to get the most out of the program. Where engagement declines, often after the first program year or following staff turnover, dropout risk increases. Expansion into lower-energy-intensity sectors does not inherently reduce engagement potential, but it does require more intentional strategies to sustain it over time.

Administrative and resource burdens present a growing constraint on scalability. Implementers reported that documentation, reporting, and QC processes, while important for regulatory confidence, can detract from time spent on customer engagement and coaching. These burdens affect organizations with decentralized operations or limited internal capacity most acutely, including school districts and smaller commercial entities. This may not be an area with much flexibility, but it will allow for the programs to more recruit customer types where the benefits are worth the effort.

Dropout is not primarily a reflection of dissatisfaction, but rather of organizational capacity and continuity. Sites with strong Executive Sponsors, well-supported Energy Champions, and backup staffing structures are far more resilient to turnover and competing priorities. Conversely, reliance on a single Energy Champion without transition planning is a critical vulnerability, particularly in lower-energy-intensity sectors where SEM roles are often additive rather than core job functions.

SEM's expansion challenge is less about sector eligibility and more about individual alignment and fit. The evidence does not support the need for separate SEM program designs by sector, but it does underscore the importance of setting realistic expectations during recruitment, matching customers to an appropriate level of engagement intensity, and preserving the relational elements that distinguish SEM from other energy efficiency programs.

In summary, SEM can grow in scale without losing its defining "chemistry," but only if real engagement remains the organizing principle of program design and delivery. Expansion that prioritizes participation counts over relationship quality risks eroding both savings persistence and customer outcomes. Growth that is intentional, flexible, and grounded in SEM's core engagement model offers a more committed, long-term future.

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