WHEN TRUST MATTERS

SEM Expansion Study – CPUC Public Workshop

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Agenda


Introduction (5 min)
Study Overview (5-10 min)
Findings, Conclusions & Recommendations (15 min)
NTG and EUL
Energy models
Customer engagement
Supporting cost-effectiveness
SEM Design Considerations (10 min)
Q&A (20 min)

The SEM Expansion Study Team

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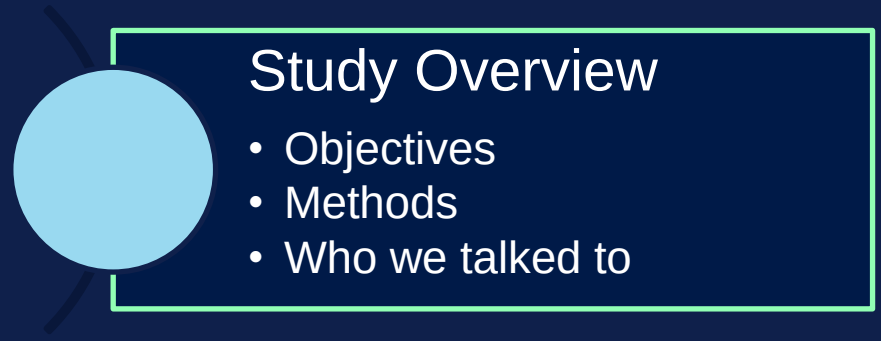
Study Overview



Study Objectives

- CA Program Administrators (PAs) have interest in launching non-industrial SEM programs
- Currently, Industrial programs are allowed:
  - **Net-to-Gross (NTG) ratio (NTGR) of 1.0,** resulting from adherence to a “very specific program design that ensures customer participation, education, and tracking of program/project performance”
  - **Effective Useful Life (EUL) of 5 years** implied by historical use of the Commission-issued Potential and Goals study from 2018
- Rulemaking 13-11-005 directed this study to:
  - Investigate whether these assumptions should remain in place for non-industrial programs
  - Develop recommendations for successful non-industrial SEM programs based on lessons learned from other jurisdictions and existing CA SEM programs
- The CPUC also directed the study to:
  - Collect perspectives on maintaining cost-effectiveness in a non-industrial SEM program
  - Study how sector-specific considerations may impact SEM program design, cost-effectiveness, etc.

Methodology Overview

Industrial & non-industrial SEM programs characterization

- Reviewed publicly available data from 10 different industrial & non-industrial SEM programs.
- Developed a comprehensive view of the standard operating practices and common attributes of industrial and non-industrial SEM programs within and outside of California.

Developed hypotheses

- Developed hypotheses about design features likely to impact the NTGR, EUL, as well as considerations around market sector fit, engagement, and cost-effectiveness.

Primary data collection

- Conducted 12 total interviews with SEM program managers and administrators.
- Supplemented data collection with two subject matter expert interviews and two implementer interviews.

Analysis

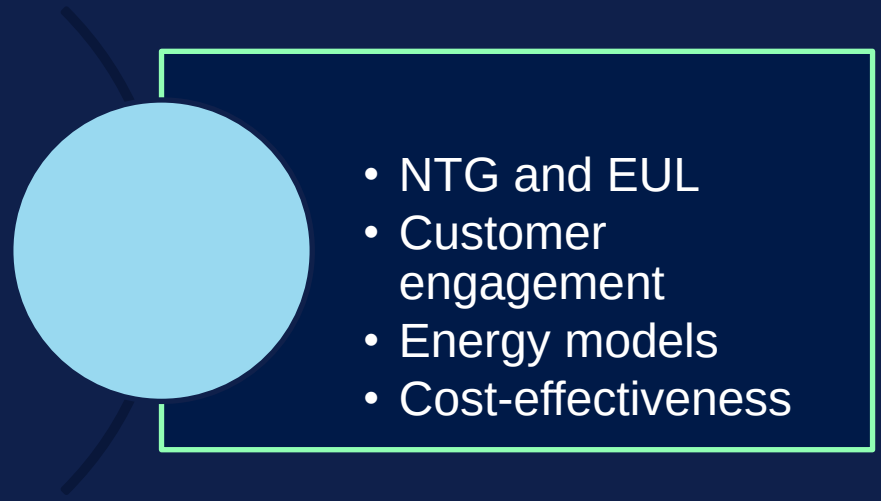
- Analyzed results from interviews & synthesized them with a literature review & other secondary research.
- Before reporting, DNV's study team, senior staff, and relevant SMEs vetted the synthesized learnings and the formulated recommendations & conclusions.
- Scheduled preliminary findings review call with CPUC and California PAs to review study approach and early analysis findings.

Who did we talk to?

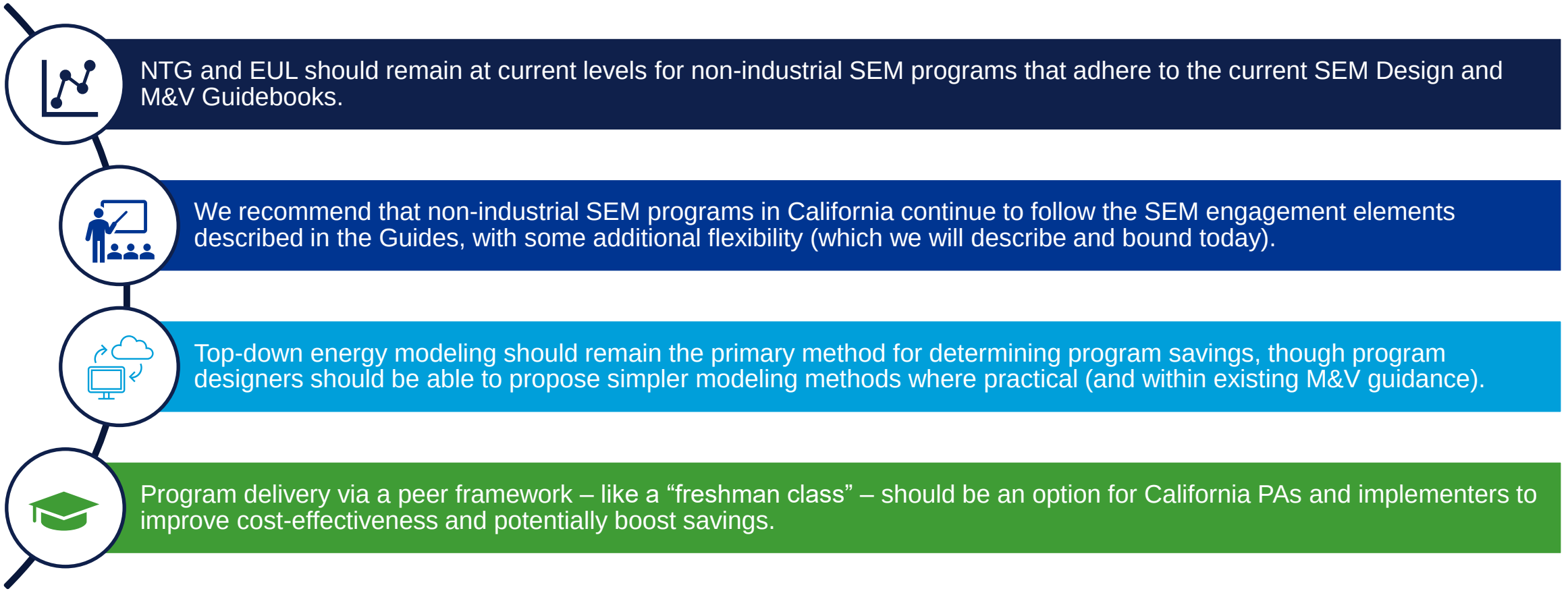
Interviewee type	Interview count
SEM program managers and/or administrators	12
SEM subject matter experts	4
SEM implementers	2
Total	**18**

Program type	Number of programs
Industrial	4
Commercial & Industrial	3
Commercial	5

Analysis Results, Findings, Conclusions & Recommendations



Conclusions preview



NTG and EUL

Effective Useful Life (EUL)

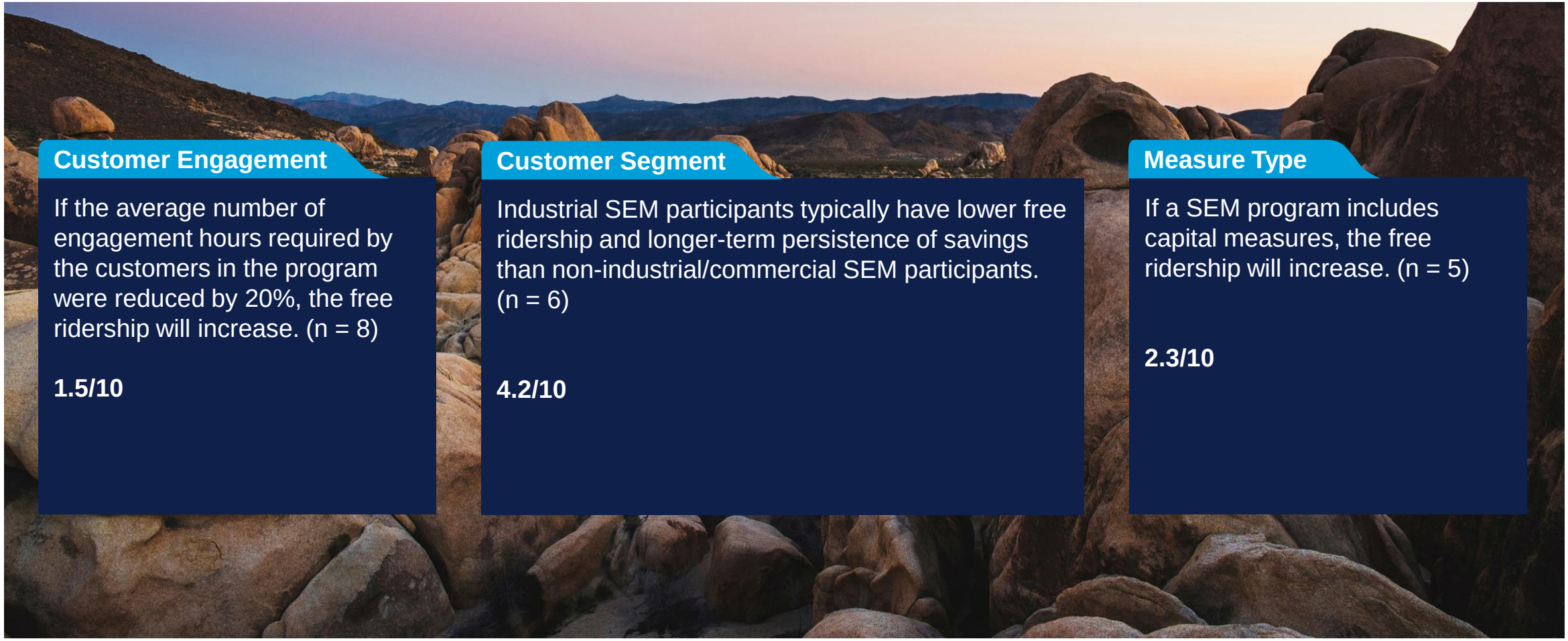
Program type	Number of programs	Range of EUL claimed (years)	Average EUL	Average duration of participant enrollment (years)
Industrial	4	7-8 (n=2)	7.5	3.7
Commercial & Industrial	3	4-5 (n=2)	4.5	2.3
Commercial	5	1 – 7.3 (n=5)	4.6	3.8

- EULs were often stipulated (i.e., not empirically derived)
- There is limited rigorous independent research into EULs

- *There is an upcoming P&G study looking at SEM EULs. Further, EULs were reviewed in a 2018-2019 SEM Impact evaluation**

*SBW Consulting, Inc. "2018-19 Industrial Strategic Energy Management (SEM) Impact Evaluation." pda.energydataweb.com, 12/17/21. https://pda.energydataweb.com/api/view/2572/GroupD-D11.03-SEM%202018-19%20Impact%20Evaluation.pdf

Net-to-Gross Ratio (NTGR)



Customer Engagement

If the average number of engagement hours required by the customers in the program were reduced by 20%, the free ridership will increase. (n = 8)

1.5/10

Customer Segment

Industrial SEM participants typically have lower free ridership and longer-term persistence of savings than non-industrial/commercial SEM participants. (n = 6)

4.2/10

Measure Type

If a SEM program includes capital measures, the free ridership will increase. (n = 5)

2.3/10

Finding: EUL assumptions

- 12 non-California SEM programs served diverse sectors following a customer engagement model and delivery similar to the CA SEM guides
- EULs are not sourced from primary data, therefore the reported EULs may not reflect actual differences
- Respondents ranked customer engagement as important to persistence (longer EUL)

Finding: NTGR assumptions

- Opinion among interviewees is that free ridership is rare in SEM programs
  - Although little primary research to support this conclusion
- Only one program allows capital measures as part of the design, which may contribute to interviewee confidence in low free ridership
- Respondents did not expect NTGR to be different by sector

NTG and EUL:
Conclusions and Recommendations

Conclusion:

The research and interviews found no evidence that the NTGR and EUL values should be different for the same program design delivered to the industrial sector versus the non-industrial sector.

Recommendation:

We recommend maintaining the existing Industrial SEM NTGR value (currently 1.0) and EUL value (currently five years) for non-industrial SEM programs that adhere to the current SEM Design and M&V Guidebooks.

Customer Engagement

SEM customer engagement – a set of common elements

Customer engagement activity	Number of programs requiring (out of 12)	Percent of programs requiring	Most highly rated	Least important
Workshops	11	92%	0	4
Treasure Hunt	12	100%	4	0
Opportunity Register	12	100%	0	0
Energy Team Check-ins	11	92%	3	2
Energy Management Assessment	4	33%	0	3

- Most programs adhere to a common (“core”) set of design elements similar to CA
- Interviewees were hesitant to portray any particularly element as unnecessary or superfluous, emphasizing that the combination of design elements is critical
- Interviewees noted only modest differences in program design/delivery for different market segments

Findings: Engagement activities

- Regardless of sector served, programs maintain core elements of the SEM engagement template, such as Energy Team check-ins and Treasure Hunts
- Different sectors receive the same program delivery, but occasionally emphasize different measures

Findings: Customer Commitment

- Substantial time and staff commitment is required of customers annually and over the program engagement period
- Some programs screen for customer commitment to assess “intangibles” beyond purely quantitative measures, like historical energy consumption

Essential SEM program elements

Conclusion

The driver of a successful SEM engagement is a comprehensive program of customer engagement with a committed customer, regardless of the customer segment.

The current Industrial SEM Guidebook provides a blueprint for successful engagement that can be applied to non-industrial SEM with minimal changes.

Recommendation:

We recommend that non-industrial SEM programs in California continue to follow the SEM engagement elements described in the Guides, with some additional flexibility. Separate, sector-specific guides are not required.

Conclusion

Other successful SEM programs feature roughly two- to four-year commitments (sometimes with options to extend). A roughly two-year minimum participation period was critical to allow customers to get familiar with the program and start to see results

Recommendation

Consider allowing (but not requiring) less than a six-year design. Introduce new design elements, like “Succession Plans” and “Persistence Strategies” to buttress persistence. Guidance for these new design elements can be provided through targeted updates to the existing SEM guidebook.

Energy Modelling

Energy modeling – a preference for top-down models

- Per CEE's SEM Minimum Elements, energy modeling should serve a measurement as well as an engagement function
- Nine of 10 (90%) of interviewees indicated that top-down energy modeling was "highly preferred"
- Top-down modeling allows customers to make the connection between their efforts and the resulting energy and cost savings

"We don't ever do bottom-up, it's just too complicated"

- Interviewee whose program has ~500 sites enrolled at a time

Energy modeling

Conclusion:

Energy modeling is a core element of a SEM program, providing important feedback on all activities, including BRO and capital measures; the preferred approach is top-down modeling using historical energy consumption.

Sites that are unable to secure representative billing or production data, or sites with erratic operations, may not be good SEM candidates because they will have a harder time getting critical feedback on the impact of their actions.

Recommendation:

Top-down energy modeling should remain the primary method for determining program savings, with individual site exceptions allowed for bottom-up estimates as specified in the SEM Guide.

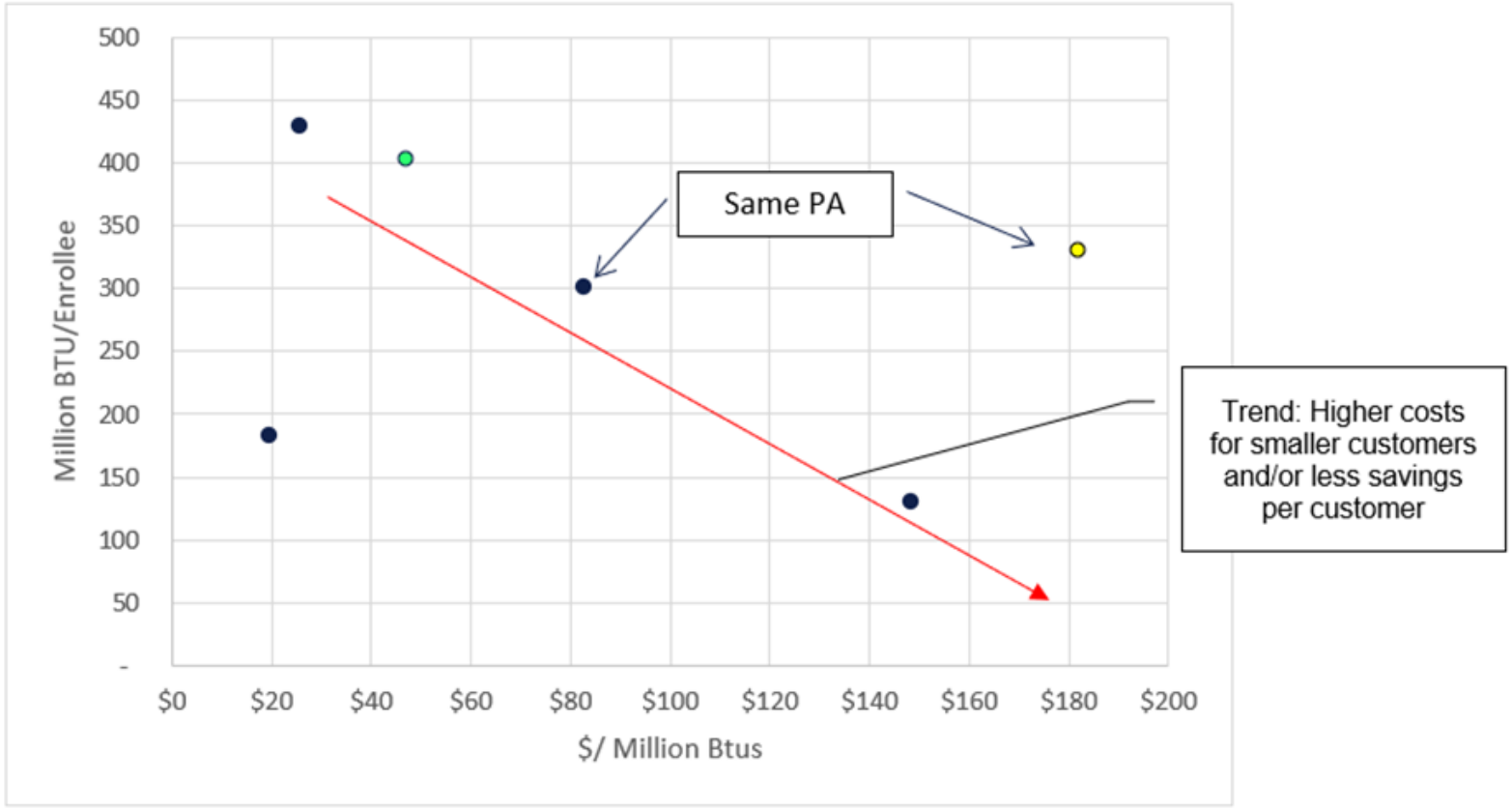
Program designers should be able to propose simpler modeling methods, potentially using open-source or commercial tools to estimate aggregate savings.

Programs might also consider screening sites before recruiting for the availability of key data, like production and billing data.

The cost of having to utilize bottom-up energy savings methods should also be considered as part of the cost-effectiveness of the program.

Cost-effectiveness

Cost-effectiveness and its supporting structures



- Larger customers are generally considered more cost-effective (greater savings per unit of implementation effort invested)
- A “peer framework” helps improve cost-effectiveness
- Cost-effectiveness is measured at a program level
- Interviewees did not suggest that any customer segment is categorically ill-suited to SEM participation

Cost-effectiveness (1/2)

Conclusion:

Program managers broadly agreed that larger customers were more cost-effective for both the vendors and the program, and several noted that smaller customers could be less cost-effective.

However, the desire to serve customers of diverse sizes and sectors overrode concerns about site-specific cost-effectiveness.

Program managers count on a mix of large and small savers to balance out a cost-effective program overall.

Recommendation:

CPUC staff could recommend that the SEM Program Implementation Plans (PIPs) specify the number of targeted annual enrollees; total targeted number of enrollees; standard participant characteristics and their anticipated annual usage; anticipated energy savings per participant; and projected delivery costs and use this information to allow satisfactory cost-effectiveness metrics to be met while allowing a broader spectrum of customers to participate. These metrics set in the PIP can be reviewed by all parties to monitor the long-term cost-effectiveness of the program. Similarly, existing SEM guidebooks could be amended to reflect this approach.

Cost-effectiveness (2/2)

Conclusion:

Program delivery to a peer group (like a “freshman class”) offered numerous benefits to the programs we studied, including cost reductions, improved cost-effectiveness, and potentially greater participant engagement.

Recommendation:

Program delivery via a peer framework – in which participants co-participate in engagement activities and have opportunities to interact with each other – should be an option for California PAs and implementers.

Care should be taken not to place direct competitors in the same peer group to mitigate concerns about competitiveness.

The size of a peer group must be small enough to still permit high levels of engagement.

SEM Design Considerations

SEM program design

Conclusion:

The current SEM Guide presents a blueprint for SEM programs that can be adapted to address all sectors. A single guide has the advantage of providing consistency and clarity across all SEM programs and will better facilitate program designs that address both industrial and non-industrial sectors.

The value of flexibility was a common refrain across multiple interviewees, who noted that it allowed them to “meet customers where they are,” address individual and sector-specific nuances, and in some cases streamline program delivery without significantly impacting savings or other key metrics (including NTGR and EUL).

Recommendation:

As PAs and program implementers design non-industrial SEM offerings and develop implementation plans, they should do so with an eye toward allowing flexibility in key targeted areas (next slide).

These flexibility adjustments can be included as modifications to the existing SEM Design Guide without requiring new guides; efforts to introduce flexibility should balance the need to maintain core elements of successful SEM programs with allowing programs to tailor the guide to their specific targeted sectors and use cases.

DNV

Areas of potential program design flexibility (1/2)

Required SEM components	Potential for flexibility	Potential for peer-style delivery	Notes on limits to flexibility and/or peer-style delivery
Energy Team check-in calls	Y	N	Moving from monthly to less frequent (bimonthly or quarterly) meetings can reduce SEM Coach spending depending on the customer and their state of progress Energy Team check-ins should still occur on a regular basis.
Energy Management Assessment (EMA)	Y	N	Interviewees found the EMA to be a helpful but not critical activity. As such, it may be possible to do this less frequently without harming outcomes. This is currently an optional activity in the CA SEM guide
Site-specific planning exercises (Action Plans, annual planning, transition planning)	N	Y	While site-level planning sessions are not compatible with peer group delivery, implementers may consider convening joint discussions to provide common guidance to streamline participants' individual planning activities

Areas of potential program design flexibility (2/2)

Required SEM components	Potential for flexibility	Potential for peer-style delivery	Notes on limits to flexibility and/or peer-style delivery
Treasure Hunt and Action Plan	N	Y	Treasure Hunts are a critical activity that should not be dropped. While in-person Treasure Hunts are preferable, interviewees noted that virtual Treasure Hunts can be an option. In cases where one customer owns or operates multiple similar buildings, staff might attend one Treasure Hunt at a representative building.
Education, training, and workshops	Y	Y	Program Managers introduced flexibility by allowing participants to skip specific workshops that did not apply to their facilities. Training and workshops can be delivered via a one-to-many format to reduce delivery costs.

Areas not supporting program design flexibility

Required SEM components	Potential for flexibility	Potential for peer-style delivery	Notes on limits to flexibility and/or peer-style delivery
Kick-off meeting	N	N	Kick-off meetings should remain a required, individual activity
Energy mapping	N	N	Energy mapping (identifying and quantifying energy end uses) should remain a required, individual activity
Opportunity register	N	N	Opportunity tracking via the opportunity register should remain a required, individual activity

Questions?

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