SEM as a Pathway to Decarbonization

NORTHWEST STRATEGIC ENERGY MANAGEMENT COLLABORATIVE

Strategic Energy Management (SEM) is a well-proven pathway for achieving energy savings for commercial and industrial utility customers at low cost.[1] It is a training and trust-building program with a set of guidelines that teaches large utility customers how to better manage their energy use while providing technical support for energy reducing projects. More and more, these customers are interested in greenhouse gas (GHG) emissions reductions, including those associated with reduced energy usage. Reducing energy-related GHG emissions is one of the key strategies for achieving climate goals at the facility, corporate, and national level.[2]

> **SEM is the ideal platform for decarbonization that, in addition to reducing utility-supplied energy use, can reach beyond energy efficiency to achieve GHG reductions in all energy aspects of companies' businesses.**

There is variation among SEM programs, but they have common elements, defined by the Consortium for Energy Efficiency[3]. Among them:

- Reduction goals
- Commitment of resources (people and dollars)
- Regularly maintained list of savings opportunities
- Implementation of savings projects
- Measurement of savings

Energy efficiency is known to be a critical cost-effective approach to emissions reductions, and energy savings can be, and often are, easily converted to CO_2e reductions.

While the SEM framework currently focuses on energy reduction, leading directly to reductions in utility-based Scope 1 (natural gas) and/or Scope 2 (electricity) emissions, this existing structure can clearly also apply to the greater scope of GHG emissions, such as:

- On-site emissions from non-utility fuels such as gasoline and diesel (Scope 1).[4]
- Non-fuel emissions such as those from refrigerants (Scope 1).
- Electrification and other fuel switching (Scopes 1 and 2)
- On-site renewables and energy storage (Scope 2)
- Demand-side energy management activities such as load shifting, demand response, which don't result in energy reductions, but may decrease emissions (Scope 2).
- Off-site travel and fuels (Scope 3).
- Supply chain emissions (imagine a large manufacturer or school district encouraging their supply chain to participate in SEM) (Scope 3).
- Emissions from use of manufactured products (Scope 3).

As SEM is practiced today, its full decarbonization potential is unrealized. Steps can be taken to increase alignment between the SEM participants' goals and those held by utility funders and regulators.

> **SEM is an already existing and highly functional framework that can readily be expanded to support critical reductions in all GHG emissions types.**

We propose that the SEM community, legislators, regulators, utilities, and customers work together to make this happen.

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[1] Therkelsen, P.*, Fuchs, H.*, Miller, W.*, Whitlock, A.**, and Rightor, E.** (2021). *Strategic Energy Management Program Persistence and Cost Effectiveness*. NorthAmerican Strategic Energy Management Collaborative.

[2] In manufacturing, energy reductions can reduce emissions by 34%. *Bottom-up estimates of deep decarbonization of U.S. manufacturing in 2050*, Ernst Worrell & Gale Boyd, https://doi.org/10.1016/j.jclepro.2021.129758

[3] https://library.cee1.org/system/files/library/11283/SEM_Minimum_Elements.pdf

[4] https://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope3_Calculation_Guidance_0.pdf