Empowering Transformation through Space and Time: Exploring the Influence of Strategic Energy Management in Disadvantaged Communities and Multi-Year Cohorts

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ABSTRACT

Strategic Energy Management (SEM) is not just a program; it's an innovative offering that leverages the power of behavioral science to transform energy practices in commercial and industrial (C&I) organizations. By fostering long-term relationships with participants, SEM inspires mindset and culture shifts around energy, and increasingly around sustainability. An example of this transformative journey began in 2014. Participants from those early SEM programs are now in a multi-year alumni program, with some members having joined from the very start. This stands as a testament to the lasting impact SEM can make.

With participants across a wide variety of commercial and industrial sectors, SEM consistently empowers energy teams to share awareness and engagement within their respective organizations. The ongoing support SEM programs provide participating sites ensures the persistence of behavioral change. This influence doesn't stop there – the program continuously creates new cohorts to expand SEM's reach even further.

In 2022-2023, CLEAResult set out on a mission to amplify the impact of SEM by focusing on diversity, starting a community cohort centered in a disadvantaged community. This cohort brought together schools, municipalities, healthcare organizations, and industrial facilities. The result: synergy, cross-sector learning, collective goals, and energy savings that impacted communities and their residents.

SEM is about more than saving energy; it's about transforming organizations and communities through changing behaviors and fostering a more sustainable future. This paper will explore an innovative SEM journey, examining its impact on diverse sectors, while highlighting the strategies and behavioral science principles that drive transformation.

Introduction

Strategic Energy Management (SEM) programs offer a near unmatched service among utility energy efficiency programs. The holistic, high-touch, customer-centric approach allows program implementers to understand an organization's structure and strategy towards energy saving initiatives. This is accomplished by guiding program participants through an energy management framework for each organization alongside a dedicated energy coach. The process begins with building an energy team, identifying and prioritizing energy savings opportunities, and creating an energy performance model. The SEM framework, along with utility incentives, educational workshops, and networking events, is designed to develop an organizational culture of energy efficiency and continuous improvement. The emphasis SEM places on engagement lends itself to rapport building and behavioral influence on lasting energy management practices.

The ComEd and Nicor Gas' jointly sponsored SEM program demonstrates and offers the opportunity to evaluate two unique paths to the transformative impacts of SEM: influence over time and influence over space.

The first path looks at the first year of SEM and subsequent alumni cohorts which have realized persistent overall savings year-to-year. The second path examines an innovative, community-based cohort that enables the spread of energy efficiency across a particular geographic region.

SEM Alumni: Savings Over Time

The initial ComEd and Nicor Gas joint SEM Program began in 2014 and carried on into 2015. The program's aim was to achieve savings from no and low-cost measures as well as drive participation in all utility program offerings. The program centered on industrial energy efficiency, recruiting 11 large to mid-size industrial participants within ComEd and Nicor Gas service territories. Subsequent cohorts started in following years included healthcare and higher education participants, along with additional industrial participants. A breakdown of industry sectors from the first three cohorts is seen in Figure 1.

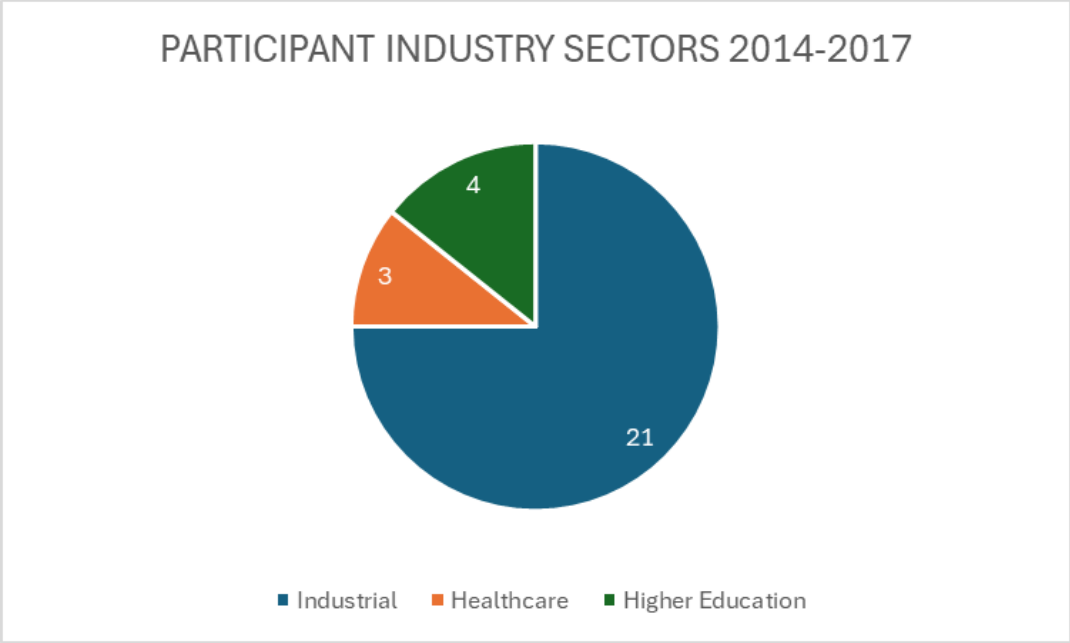

Figure 1 ComEd and Nicor Gas participant industry sectors, 2014 - 2017.

Continuation from Pilot Program to Alumni Cohort

The interest to extend SEM participation beyond the first year occurred when Pilot participants asked if utilities could keep the program open. The first Alumni year (and then years) was designed to imbed energy efficiency and energy management into the participating teams and organizations. Of the 11 Pilot participants, eight stayed on the Alumni year. The groundwork laid during the Pilot year, and the success that followed, led to an opportunity to repeat and build upon the gains from year one.

The established SEM framework is designed in a way to enable change throughout an organization. Figure 2 represents a typical cycle of SEM participant tasks when establishing an energy management system. Sustaining progress with the program requires continued backing from a participant's leadership. Energy team commitments of time and resources are required and can be a significant hurdle for organizations depending on their current state of operations. Having a support system from executive leadership is imperative to successful engagement and implementation of energy conservation measures.

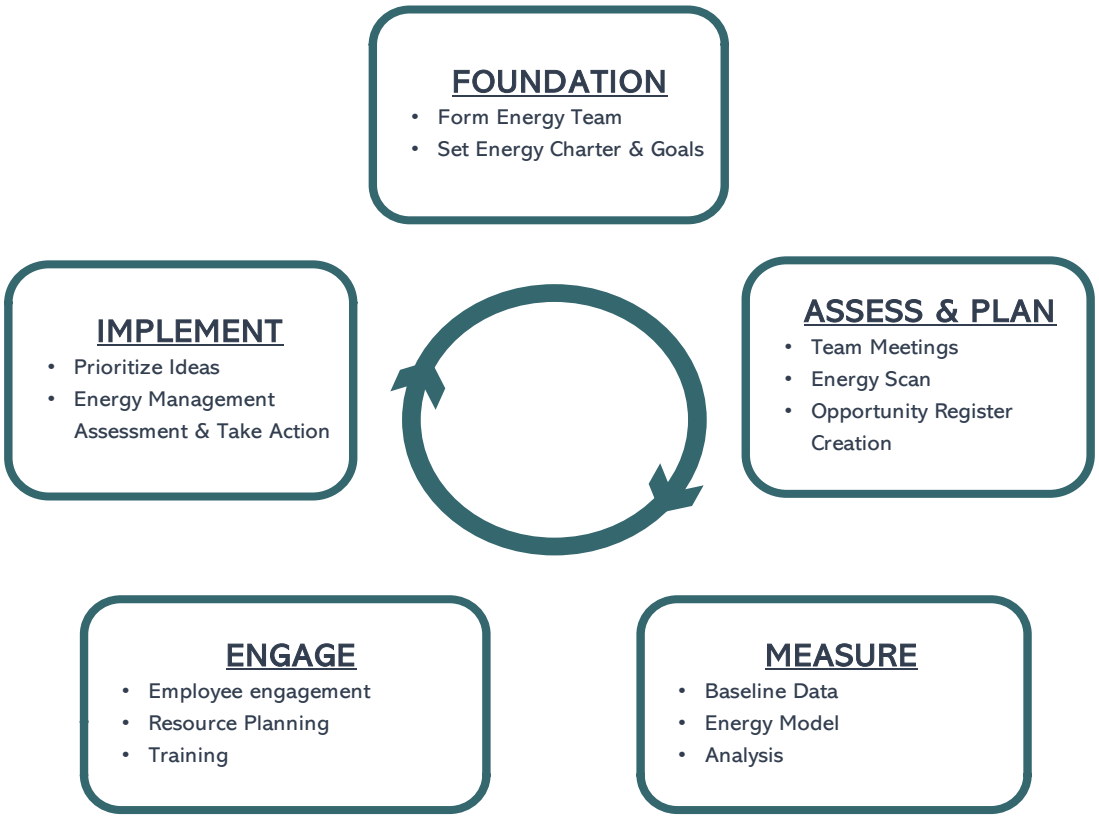

Figure 2 Strategic Energy Management framework.

Of the original eight participants who continued to Alumni year one, all had support from top-down leadership. Engaged executive sponsors or corporate goals centered on sustainability and energy savings were common among each of the Pilot participants. Backing from leadership paves a smoother path for energy teams to be effective in not only project implementation but building energy efficiency awareness across the organization. Figure 3 illustrates customers that continued their participation from their first year in SEM to their second year as an Alumni participant.

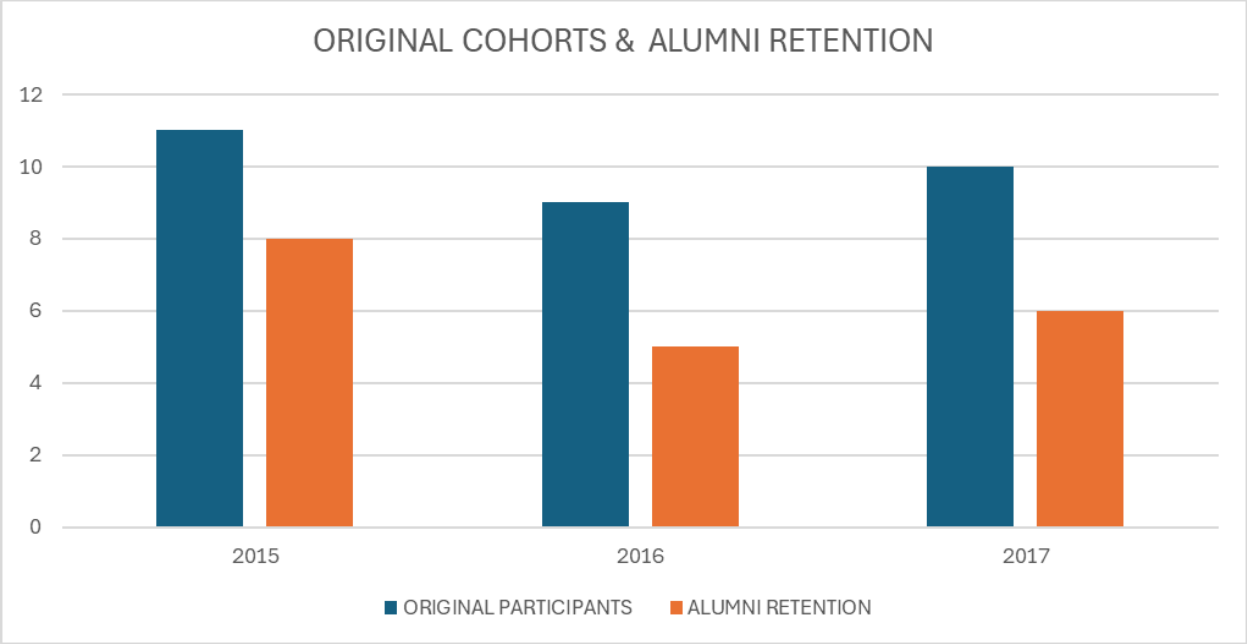

Figure 3. Original cohorts and alumni retention.

Reinforcement to participant energy teams through coaching, technical support, energy models, and utility incentives, driven by top-down support, filled in the necessary elements to provide an ongoing value-added service for organizations to lean on while pursuing energy reduction.

Sustaining Success

Over the years as the Alumni cohort grew, the SEM team looked to keep the experience fresh for participants and to find ways to achieve incremental energy savings. Because the measure life for SEM is greater than one year, ComEd and Nicor Gas SEM programs require measured savings within the current year to exceed those from previous years.

Each Alumni year kicks off with Annual Planning, where the SEM Coach works with the participant Energy Champion (and team) to map out SEM and non-SEM projects over the upcoming year. Additionally, the SEM team gauges interest in specific energy efficiency topics and delivers roundtables or webinars focused on those interests. This also creates opportunities for connecting two or more participants who can share best practices. Table 1 details enhancements to the ComEd SEM program since 2024, which are intended to add value to customers and encourage increased energy savings.

Table 1. Enhancements to the ComEd SEM Program

Tiered Incentives	ComEd SEM initiated tiered incentives for participants in 2023 to encourage a greater savings rate from baseline consumption. Incentives double if first year Alumni participants meet or exceed a savings percentage of 3%, and all other Alumni participants meet or exceed a savings percentage of 2.5%.

Roundtables	Facilitated presentations focused on peer-to-peer exchange. Allows for sharing best practices between participants in common industry sub-sectors or with similar interests.
Energy Advisor	Consultative role within SEM, but separate from coaching, to assist participants' ComEd energy efficiency program awareness and implementation.
Third Party Recognition Support	Provide participants with necessary data and support admin tasks necessary to pursue and ultimately achieve recognition such as ENERGY STAR Challenge for Industry and DOE 50001 Ready.
Executive Sponsor Review	ComEd funded event between SEM Coach and Energy Team intended to engage Executive Sponsor and other leadership. These events highlight progress to goals, and other significant achievements or challenges, and can include catered breakfast or lunch.
Energy Manager Program	ComEd SEM program designed to fund a portion of a dedicated Energy Manager salary for eligible organizations. The intent is to help overcome organizational challenges when implementing an effective energy management system. SEM brings focused support to the Energy Manager's responsibilities of planning and implementing energy saving projects.
Public Sector Project Fund	Public Sector SEM participants receive access to a project fund to support their implementation of low-cost SEM projects. The capped amount increases by 50% if the participant is based in a disadvantaged community.

SEM Milestone Incentives

In addition to savings-based incentives, milestone incentive payments were incorporated for Alumni, and designed to fit the activities that meet the program objectives around energy savings and organizational change. Examples of various milestone incentives over recent years are listed in Table 2.

Table 2. Example Milestone Incentives Within ComEd SEM

Annual SEM Plan	Completed plan of projects and initiatives throughout a calendar or fiscal year. Requires signature from Executive Sponsor to confirm awareness and approval of the plan.
Refreshed Energy Team Charter	Incentive available for participants to update this fundamental SEM document which includes energy team vision, scope, goals, and team roles. Intended to encourage participants to update the original document with current status.

Energy Management Assessment	Gap analysis designed to highlight organizational maturity in the development of an energy management system. Incentivizing energy teams to reassess their management system maintains the continuous improvement cycle.
Workshop & Check-in Attendance	This incentive motivates participants to remain actively engaged, providing rewards for their involvement and offsetting the impact of competing priorities that may hinder consistent participation.

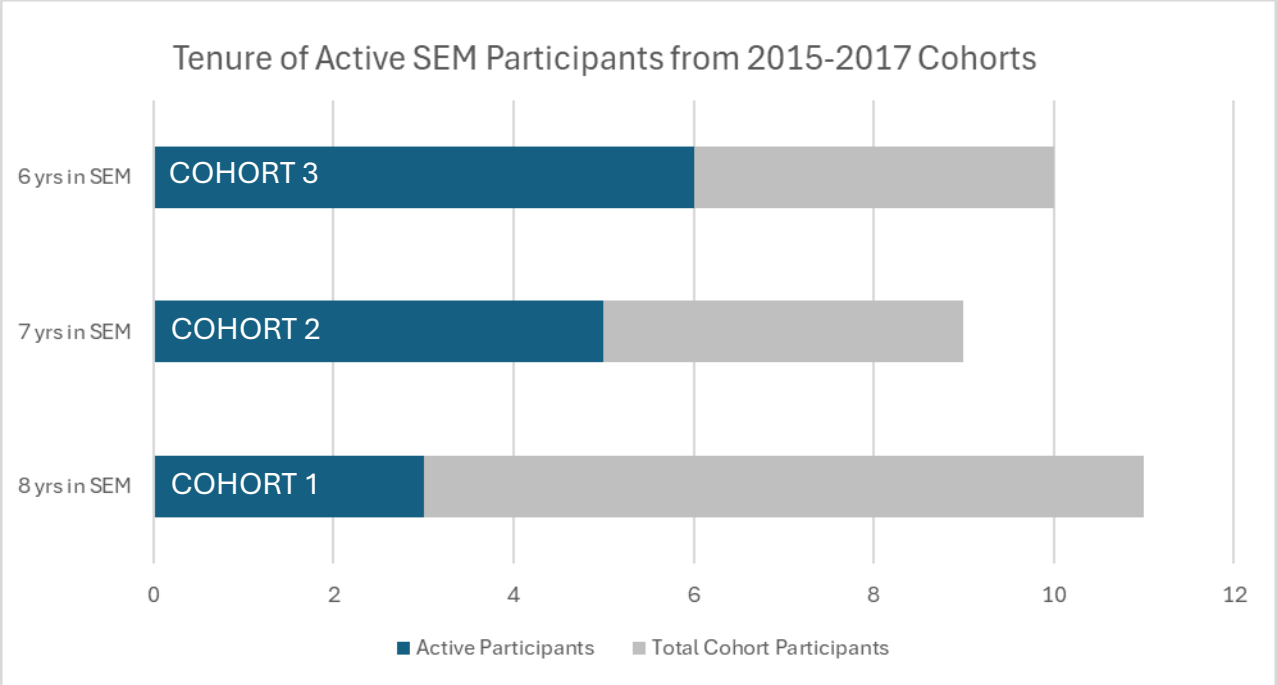

Figure 4 Participants from 2015-2017 cohorts that are currently active.

Figure 4 shows the number of currently active SEM participants from within the first three cohorts who have remained in the Alumni cohort. The following is a testament to the dedication and commitment from each of the fourteen organizations, valuing the support SEM offerings can provide year to year.

Extended SEM Measure Life

Energy efficiency is most impactful when it persists. Since SEM is typically operations and behavioral focused, many SEM programs had a measure life (or effective useful life) of three years. In recognition of how the Alumni group contributes to savings persistence, the measure life for the ComEd and Nicor Gas SEM program was increased to five years, and then to seven years. The SEM team proposed extending the measure life based on the strength of the ComEd and Nicor Gas SEM program and an evaluation study conducted for an SEM program in Oregon (DNV-GL, 2020).

Community Cohort: Savings over Space

The SEM Community Cohort emerged from applying the successes from a piloted community cohort in the SEMCO Michigan service territory to ComEd's desire to reach its underserved customers while also aligning with its "Community for the Future" initiative. The concept started with an idea that a more collaborative and community-driven approach to energy efficiency can leverage the collective power of the community to achieve cross-sector, sustainable energy savings.

Broadening SEM to support smaller and mid-size customers enables implementers to retain the unique benefits of our SEM programs while using innovative design to expand SEM's reach. The cohort objective for SEM for Community was to select a municipality with mid-sized to large private employers, school district, hospital, university or community college, civic center, and potentially community focused nonprofits. The shared community experience of SEM would bring these different sectors together around efficiency.

Why SEM is an Effective Platform for Community Engagement

Program participants experience more hands-on service with SEM than with most efficiency programs, with benefits including:

- Sharing best practices across their facilities and learning from other customers in the cohort
- A structured approach for energy management, from a trusted resource for energy efficiency (their utility/utilities)
- Coaching and technical support to identify and implement efficiency projects
- An energy intensity model to track performance and progress that can be shared throughout the site and provide visibility into energy use.

SEM takes a holistic approach to organizational change around energy. The SEM journey trains participants to identify and reduce energy waste during and after their SEM experience. SEM programs increase potential participation across *all* utility offerings by bringing consistent awareness and influence of capital (non-SEM) projects to the participants through regular, one-on-one coaching.

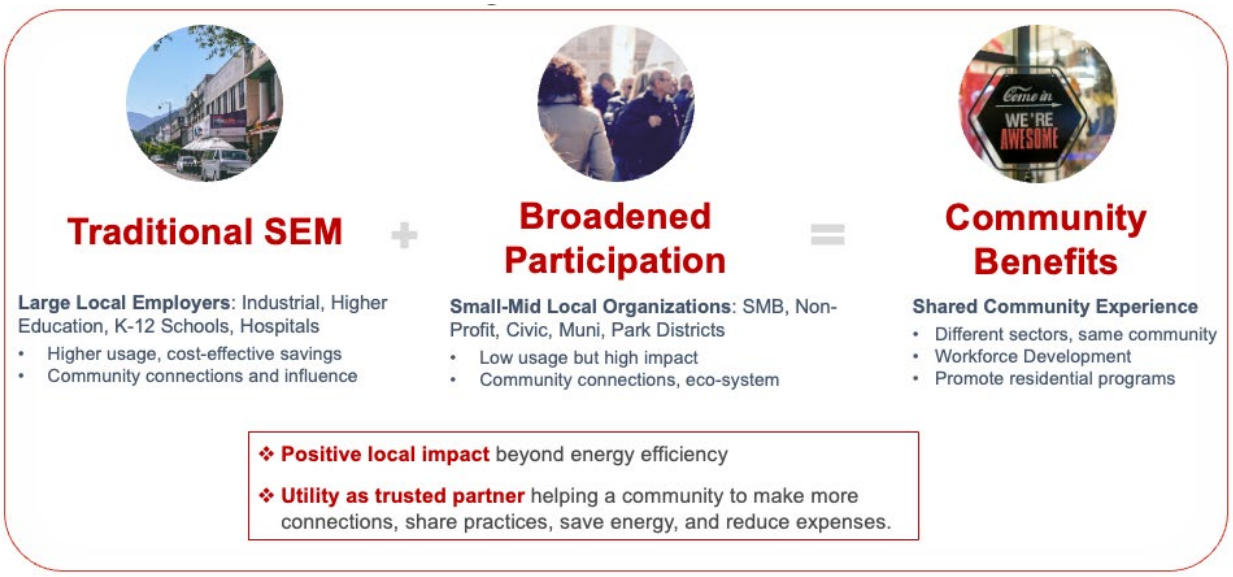

Figure 5 Community Cohort model employed.

Rockford, IL SEM Community Cohort

Rockford, Illinois, served as the inaugural geographical focus for the ComEd and Nicor Gas SEM Community Cohort program in 2022. Rockford is in north central Illinois, twenty miles from the Wisconsin border, with the Rock River running through the city center. Rockford is Illinois' fifth largest city with 2022 Census data counting a population of 146,713 (U.S. Census Bureau, 2022). Approximately 22% of the population is under the poverty line (Climate and Economic Justice Screening Tool, 2022), well above the national average of 11.5%. ComEd had designated the region as a disadvantaged community (DaC) within its service territory; DaCs are a priority for ComEd with more intentional efforts placed on programming and resources.

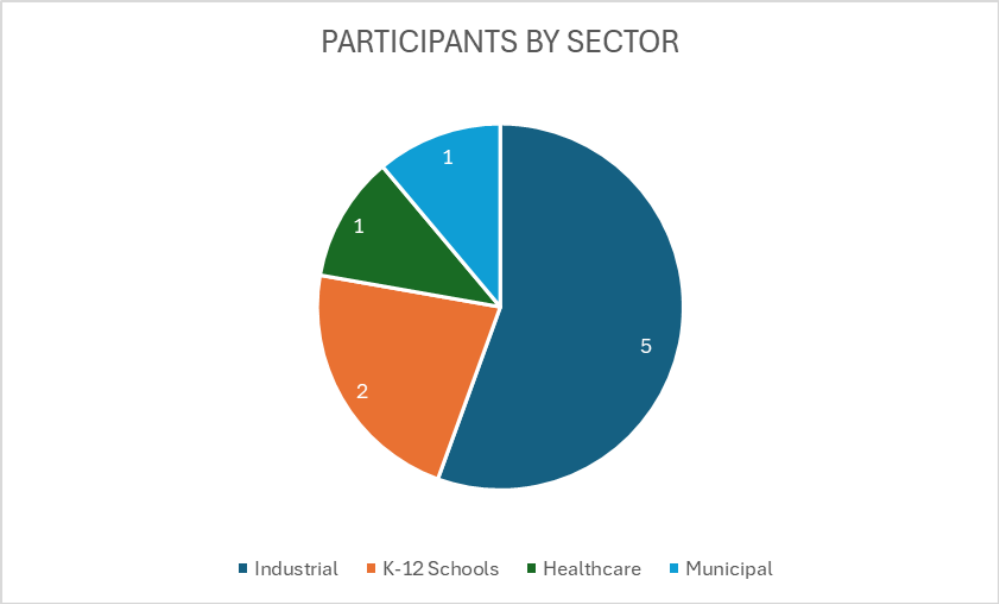

Figure 6 Rockford Community Cohort overview of participants by sector.

ComEd also recognized Rockford as one its "Communities of the Future" a few months prior to the SEM Community Cohort kickoff. The Community of the Future initiative aims to focus resources on energy efficiency and beneficial electrification projects while engaging community stakeholders and strengthening local employment opportunities (ComEd, 2021). Being named a Community of the Future exemplifies ComEd's commitment to dedicating resources to DaCs.

A full SEM cohort was enrolled by mid-2022 and included organizations from multiple sectors, both public and private. A total of nine organizations agreed to participate – three public sector and five private sector sites.

Given the intentionality of selecting a DaC such as Rockford as the backdrop for the SEM Community Cohort, the SEM program team engaged relevant, local environmental non-profits and government agencies to raise awareness of SEM program intent and bring a strengthened sense of 'community' to the cohort. Three such organizations were brought into the discussion:

- R1 (Region 1 Planning Council) – Special purpose government agency providing cross-jurisdictional collaborative planning across Northern Illinois (Region 1 Planning Council, 2024).
- Greentown Rockford – One of several Chapter organizations founded by Seven Generations Ahead and a5 Branding & Digital; this organization brings together public, private and community decision-makers to facilitate knowledge sharing about the energy and sustainability issues (Seven Generations Ahead, 2023).
- Sustain Rockford – Community organization that educates and advocates for practices and policies that protect the areas' land, air, and water (Sustain Rockford, 2024).

Community Kickoff

Program Kickoff took place in August 2022. The in-person event was held locally in the city and included representatives from the nine SEM participants, utilities and implementers, and the local community and government organizations listed above. The kickoff was designed to encourage collaboration and networking between SEM participants, and with the community groups. After introductions and an established common ground, community organizations and utility speakers provided higher level context to the importance of such a cohort and its unique place in overall Rockford sustainability efforts. Two SEM Alumni participants from the Rockford region provided experience and insights to the newcomers on how they found success in energy management.

Quantitative Outcomes:

Figure 7 Quantitative Outcomes of the Rockford Community Cohort.

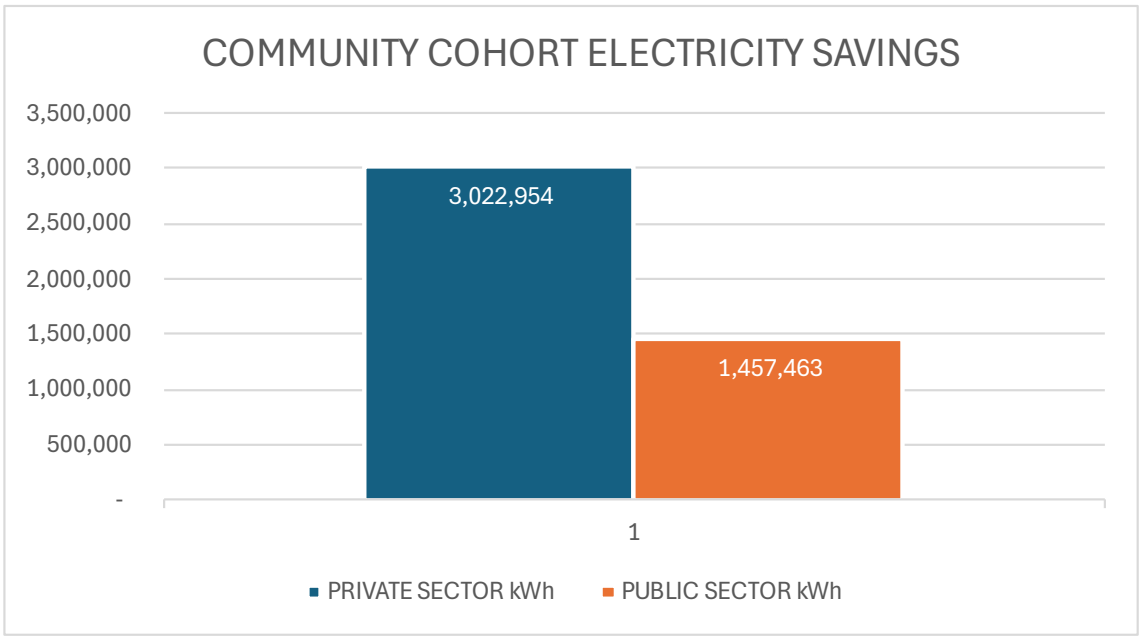

Figure 8 Community Cohort 2023 electricity savings (kWh).

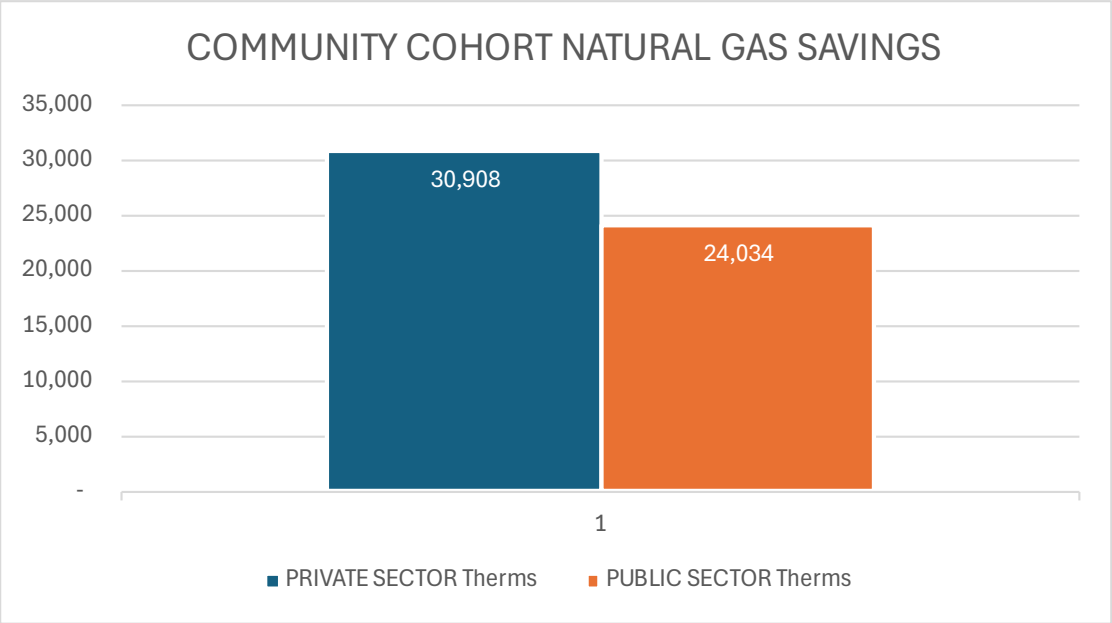

Figure 9 Community Cohort 2023 natural gas savings (therms).

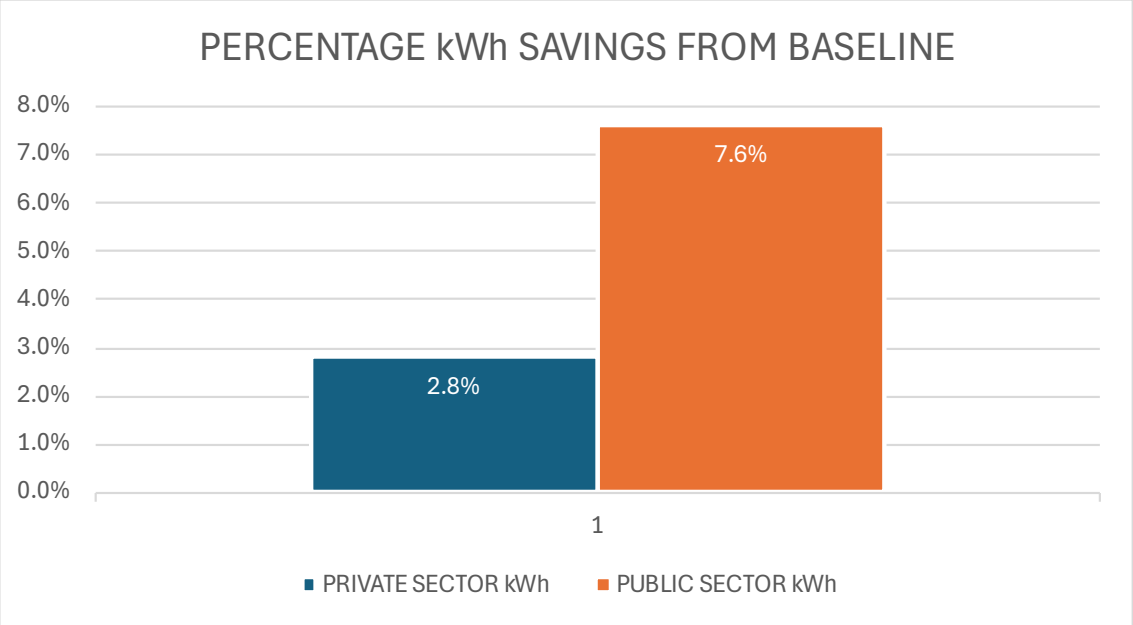

Figure 10 Community Cohort 2023 savings percentage from baseline (kWh).

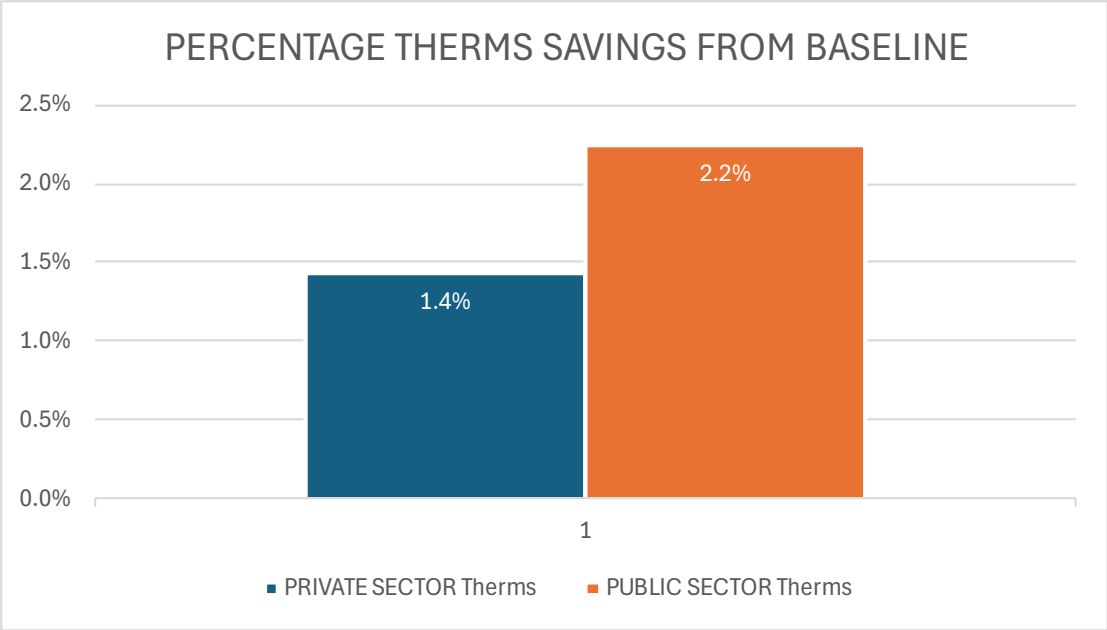

Figure 11 Community Cohort 2023 savings percentage from baseline (therms).

Qualitative Outcomes

Diverse representation of industry sectors saw participating organizations either employing, providing care to, or educating children of the local community. Celebrating achievements and building energy awareness from within creates an organic culture shift in how energy is consumed not only in the workplace, but at home as a lifestyle. The program fostered increased awareness of energy efficiency practices among community members, leading to behavioral changes and in some cases progress toward a culture of sustainability (Lewis, 2024).

Of the organizations that participated in the Community Cohort, all have continued into their Alumni year. Additionally, one private sector customer expanded SEM to a sister facility in the area and another is considering expanding SEM's scope to additional buildings in Rockford.

We found that as a result of participating in the Rockford Community cohort, customers experienced a collective increase of enthusiasm and a common bond for energy efficiency. In surveys and at workshops, customers expressed high levels of satisfaction for the SEM program. Examples of participant feedback of what they found most beneficial include: "Meeting other community SEM members" (Specialist, 2022), "(learning) new ideas from others" (Manager P. , 2022), and "Hearing other organizations and their ideas" (Manager E. , 2022)

Future Implementation

The success of the Rockford, IL Community SEM pilot revealed opportunity areas for enhancing future cohorts that are geographically centered. The pilot offered a glimpse into what it takes to work with municipal leaders and area nonprofits alongside the development and implementation of a traditional SEM cohort. Having completed the program year in fall 2023, program retrospective has offered additional learnings where current and future communities can

maximize benefit through SEM. In 2024, ComEd is planning two more SEM Community Cohorts, both focused in DaC and underserved geographical areas.

To continue building on the promise of Community SEM, in future cohorts we plan to add more community, workforce development and employee engagement activities. The pillars detailed below explore how SEM may further integrate community elements to improve energy efficiency outcomes both individually and collectively.

Stakeholder Engagement

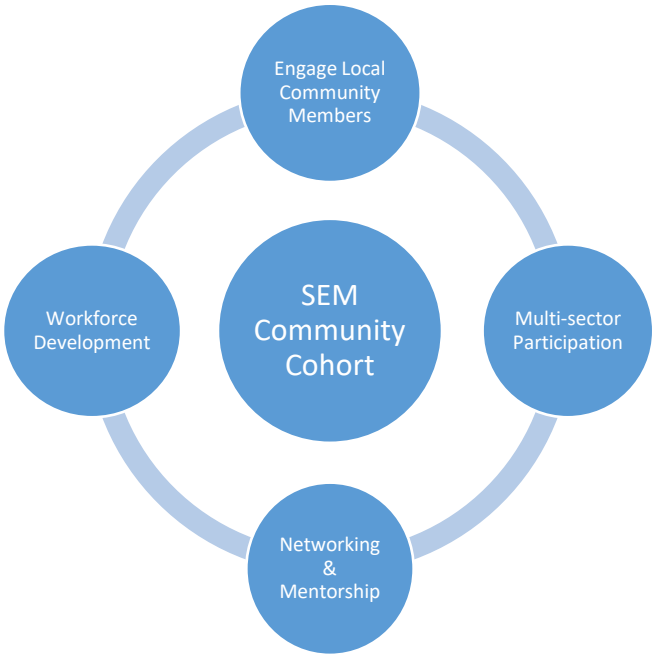

Figure 12 12Pillars to enhance future Community Cohorts.

Establishing awareness of an SEM community cohort and its intention to community leaders before the program begins, *and throughout the process*, will create buy-in, sponsor camaraderie, and allow for continuous program feedback. Local government representatives, private or public sustainability groups, and area nonprofits are a good start. Maintaining this communication of cohort progress between SEM implementor and community stakeholders will return broader community impact. This can be directly achieved through the recruitment of various municipal departments as SEM participants. But this is not the only path. Incorporating regular touchpoints into such engagement with area leaders can sustainably support the cohort through multiple avenues: participant recruitment, resident engagement, networking events, local trade ally awareness, workforce development, etc.

Multi-Sector Participation

Recruiting a diverse mix of participants that represents the community but with enough energy usage baseline to meet program goals can be challenging. The Rockford Community Cohort found success through enrollment of five industrials sites to satisfy the bulk of necessary baseline consumption. Municipal buildings, schools, and healthcare rounded out the rest. This is a satisfactory model and likely the simplest.

A future community cohort should strive for greater representation from the nearby region, with further reach across sectors. Cohort recruitment should also consider small-to-medium sized businesses, higher education, civic buildings, and nonprofits to maximize community awareness of SEM strategies. An expansive cohort with diverse participants will

bring greater awareness towards energy efficient practices, as well as broaden awareness to other utility program portfolio offerings, including residential programs.

Employee Engagement

In a community setting, there will be an increased collective interest in engaging employees, for energy efficiency within the organization as well as in employee homes. The latter would focus on promotion of residential programs in conjunction with the SEM program. When employees see that their organization is helping them save energy and money at home, they are likely more willing to do the same at work. Since employees will be aware of the other local organizations participating in SEM, a greater sense of community pride and connectedness should bolster enthusiasm.

Networking and Mentorship

By nature of the cohort framework, SEM organically fosters partnership through networking and knowledge sharing. Much of this takes place at SEM facilitated workshops and roundtables on various topics. The Community SEM program was no exception.

There is opportunity to expand networking amongst the cohort with the various community stakeholders mentioned above. The idea is to reinforce the cooperative spirit of community toward a common goal of reducing energy consumption. Strategic engagement between parties can lend itself to positive marketing across the geographic region and thus result in increased energy awareness. One such example is to intentionally pair participants with one another as a mentor/mentee approach. Another is utilizing local government officials or chambers to be a voice for program highlights across the community, through membership newsletters, council meetings, local fairs, and the like.

Community Charter

The Rockford Community Cohort delivery included facilitating discussions during group workshops about how customers network and share their successes, challenges, and best practices with each other. The make-up of future cohort participants could provide an opportunity to establish a "Community Energy Charter" both during and after the kick-off workshop. This could be part of a Sustainability or Climate Action Plan if the community has one. Just like an organization develops an energy charter to hold themselves accountable to established energy management goals, a community energy charter would enable the creation of shared goals that members can continue to advance.

Economic and Workforce Development

The structure of an SEM Community Cohort lends itself to supporting economic and workforce development. There will be a number of added skills and roles created within

customer organizations for staff (and potentially student interns) to help manage energy. This includes the energy champion and energy team members. These will be skills and roles that are valued in the green economy.

SEM low-cost projects and non-SEM capital projects usually require trade allies (i.e., service providers, contractors) to implement the projects. In a Community Cohort, participants will be encouraged to hire locally based trade allies when available. The participants and SEM team can track the contractor work orders, energy studies and investment in energy saving measures, equipment, and products. This way, SEM can generate measurable local economic development through SEM related activities. Furthermore, since the cohorts are planned to be focused in DaCs, this should help smaller to mid-size local businesses to grow in a community where unemployment is higher than the state average.

Continuing with Community

The Community Cohort experience can benefit as a standalone multi-year program delivery. Program ramp up for first year participants within an SEM cohort requires training and effort before members are comfortable with the process. While each participant varies in their organizational maturity, ramp up is generally four to six months from enrollment before foundational elements are set and energy performance can be measured. Time commitment early-on can already be perceived as a burden for some participants, and community-specific elements may take a backseat to more immediate energy management fundamentals. As participants grow in their energy management experience by the end of year one, and into year two, availability to engage in local peer-to-peer networking will likely emerge and allow enough time to accumulate measurable impact across the community.

Conclusion

Strategic Energy Management programs offer individual organizations and communities a support system to bring a long-term foothold of energy efficient practices regionally. Through dedicated cohort design within SEM Community and adding program elements tailored for Alumni cohorts, lasting change can result, leading to sustainable, persistent energy savings across utility service territories. For sponsoring utilities, SEM Community and Alumni cohorts are proving to make the utility, and its programs, more valued as a business partner and trusted energy advisor. SEM's value as a cornerstone to implementing all utility energy efficiency programs is clear through evidence of multi-year participation and communal engagement.

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