

# Strategic Energy Management for Regulated Facilities

Implementor: CLEAResult

2019-2021

Strategic Energy Management (SEM) offers technical assistance, information and carbon emission reductions to Regulated Facilities that have opted into Alberta's Carbon Competitiveness Incentive Regulation Program, to identify and implement energy efficient measures.



Energy  
Efficiency  
Alberta

## Case Study - Leading Power Generation Company



### Leading power generation company reduces GHG emissions by 2.7 million tonnes over 3 years

This leading power generation company has implemented energy-efficient activities and an ISO 50001 certified energy management system (EnMS) since 2014. They committed to forming an energy team, creating energy efficiency awareness, identifying and implementing low/no cost electrical energy saving opportunities, procuring materials based on the consideration of energy savings, and conducting innovation training for employees at all levels. Through Strategic Energy Management (SEM) practices and the implementation of ISO 50001, the company reduced CO<sub>2</sub> emissions by 2.7 million tonnes and improved their energy performance by more than 4.0 per cent over 3 years.

#### The Opportunity

This power generation company wanted to be in line with federal and provincial regulations on energy conservation and had an obligation to report their energy consumption and greenhouse gas emissions because they exceeded the emission limits. The energy team, with active support from the plant manager, eagerly implemented SEM-type practices and ISO 50001 to achieve their annual energy efficiency targets.

#### The Solution

This company has active participation from upper management to harmonize and encourage energy conservation activities throughout the field. Setting company targets at the staff level was accomplished by providing clear direction from management. The energy team was highly proactive and effective in adopting SEM employee engagement practices and ISO 50001. They established a culture of energy savings in all activities amongst all employees and developed energy awareness training for employees that included tips on how to spot low/no-cost opportunities. Through internal audits and employee suggestions, the team quickly developed a list of energy saving ideas.

The energy team monitored their energy performance and applied technical resources from SEM programs and ISO 50001 training to review their cooling and heating systems. They determined critical operating parameters and developed standard operating procedures (SOP) to maintain operational controls and sustain energy performance improvement. These measures resulted in identifying energy-saving set points, control settings adjustments and maintenance practices, and helped lead to the reductions in energy use listed above.

#### SEM Savings at a Glance

**2.72 million tonnes**

Total GHG emission reduction over 3 years

**+4 per cent**

Energy Performance Improvement

## Overview of SEM for Regulated Facilities Program



- This program is funded by Natural Resources Canada (NRCan) and administered by Energy Efficiency Alberta.
- This is a 2-year SEM program that will also implement the 50001 Ready tool.
- On average, SEM participants see a 3 – 5 per cent emissions reduction in the first year through the implementation of low cost / no cost measures in addition to savings coming from potential capital-intensive projects.
- Throughout the 2-year program participants will utilize the 50001 Ready tool to implement further savings and earn 50001 Ready recognition upon program completion.

## Benefits to participating in SEM for Regulated Facility Program



- No cost to participate in the program
- Reduced energy consumption and GHG emissions
- Increase in level of environmental attributes
- Improved energy performance
- Improved operational efficiency
- Lower energy bills and increased cash flow which make the business more profitable
- Increased knowledge in predictive analytics to assist in future business planning
- Increased employee engagement and commitment
- Sustained business process improvement and improved competitiveness
- Demonstrate business leadership

## Estimated Annual Hours

This table shows the annual estimated number of hours by SEM activity and team role.

	Attend Sessions	Energy Team Meetings	Energy Tracking (M&V)	Employee Involvement Activities	Energy Project Work	TOTAL HOURS	% of year
Executive Sponsor	7	12	2	8	-	29	1%
Energy Champion	35	60	15	30	60	200	10%
Backup Energy Champion	8	30	-	40	40	118	6%
Energy Team Member	12	48	6	40	80	186	9%
Data Specialist	8	24	48	4	-	84	4%
Engineer	-	2	-	4	40	46	2%
Per Maintenance Tech.	-	-	-	4	40	44	2%
Per Supervisor	-	2	-	8	8	18	1%
Per Person – Gen. Workforce	-	-	-	4	-	4	0.2%

## SEM Team Roles and Responsibilities

### Executive Sponsor

- Communicates the policy
- Creates a sense of purpose
- Sets clear expectations
- Provides direction
- Provides necessary resources
- Engages supervisors
- Communicates success
- Recognizes, rewards

### Energy Champion

- Assists team communications
- Drives activities
- Owns the opportunity register
- Creates a sense of urgency
- Creates enthusiasm
- Engages others - spreads responsibility
- Prepares and conducts effective meetings
- Keeps executive management engaged

### Team Member

- Interfaces with their departments & work areas
- Identifies energy saving opportunities
- Offers subject matter expert advice
- Prioritizes energy saving opportunities
- Manages projects and initiatives
- Quantifies cost and savings, and GHG emission reduction
- Utilizes external and internal resources

# SEM Executive Sponsorship Roadmap

	Action	Timing	Hours	Comments	SEM Coach / Energy Champion – Support Tasks
1	Choose and commission an energy champion. Communicate role and expectations.	Prior to program start	1.0		Provide outline for role and expectations.
2	Attend Workshop # 1 - Kick off / Building a Foundation.	Month 1	4.0	Attend meeting at offsite location.	
3	Review and sign off on Energy Charter.	Month 2	0.5	Options: Email, company newsletter or during existing company meeting(s). Meeting preferred.	Prepare final version of SEM Energy Charter and submit to Executive Sponsor.
4	Make SEM company-wide announcement, communicate energy charter and introduce energy champion & team.	Month 2	0.5	Options: Email, company newsletter or during existing company meeting(s). Meeting preferred.	Prepare SEM program announcement (Refer to SEM Energy Charter).
5	Attend the site review meeting and SEM Plan creation meeting.	Months 2-4	1.0	Meeting with SEM Energy Coach, Energy Champion and team.	Provide opportunity register explanation and SEM Plan creation assistance.
6	Support Employee Engagement Activity(s) by attending event(s) and providing feedback.	Month 5	1.0	Example: Attend energy scan results presentation, sit in on employee training, etc.	Provide advanced notice for scheduling.
7	Mid-Year Executive Sponsor Update Meeting with Energy Team and CLEARResult.	Months 5-7	2.0	Review SEM Plan, energy model performance, discuss future O&M and capital measures.	Prepare SEM status report #1.
8	Provide support in the implementation follow up and capital planning to overcome resistance to change and to help implement energy saving initiatives.	Months 6-11	3.0	Meet with site leader and personnel. Discuss initiatives at company operations and planning meetings.	Discuss obstacles and challenges with Executive Sponsor.
9	Review energy savings graphs, GHG emission reduction, and general project status.	As needed	1.0	Meeting with SEM Energy Coach, Energy Champion and team.	Provide baseline and energy savings "CUSUM" report and charts.
10	Attend Energy Management Assessment and Planning Q&A session. Review and approve energy management plan.	Months 7-11	2.0	Meeting with SEM Energy Coach, Energy Champion and team.	Schedule attendance. Finalize energy management plan.
11	Conduct SEM project status review. Read SEM report and provide feedback.	By end of Month 9	1.0	Options: Email or meeting with energy champion. Meeting preferred.	Prepare SEM status report #2.
12	Attend final SEM workshop report out & celebration.	Month 12	4.0	Attend meeting at offsite location.	Prepare final report and presentation. Send a copy to the Executive Sponsor for review and request input.

## Additional Recommended Activities

- Attend energy team meetings
- Attend additional SEM workshops
- Participate in data collection
- Hold monthly energy champion review meetings

## Strategic Energy Management - Year 1 Workshop Schedule

Workshop #	Workshop Title	Delivery Format	Timing
1	Kick-Off Building a Foundation	Group Workshop #1	Month 1
2	Site Review and Opportunity Assessment	One-on-one Activity #1	Months 1-3
3	Measuring Energy and Modeling Energy Performance	Group Workshop #2	Month 3/4
4	Review and Prioritize Opportunities - SEM Plan Creation	One-on-one Activity #2	Month 2-4
5	Engaging Your Organization in Saving Energy	Group Workshop #3	Month 5
6	Mid-Year Executive Sponsor Update	One-on-one Activity #3	Months 5-7
7	Implementation Follow Up & Capital Planning	One-on-one Activity #4	Months 6-11
8	Energy Management Assessment	One-on-one Activity #5	Months 7-11
9	Sustaining GHG Emission Reductions / Report Out	Group Workshop #4	Month 12

## Strategic Energy Management - Year 2 Workshop Schedule

Workshop #	Workshop Title	Delivery Format	Timing
1	Annual Planning	One-on-one Activities #6	Month 2
2	Energy Efficiency Technical Trainings	Group Workshop #5	Month 3
3	Energy Scan Year 2	One-on-one Activities #7	Month 5
4	Training and Sustainment Planning	Group Workshop #6	Month 7
5	Executive Communication and Project Planning	Group Workshop #7	Month 9
6	Measurement System Sustainment	One-on-one Activities #8	Month 10
7	Celebrate Success and Impact – Annual Planning	Group Workshop #8	Month 12

### How to Enroll

Submit an expression of interest at [efficiencyalberta.ca/semforlife](https://efficiencyalberta.ca/semforlife) or speak to your assigned Energy Efficiency Alberta Account Manager.