



**STRATEGIC ENERGY
MANAGEMENT**
FOR INDUSTRY

Facility Readiness Assessment (FRA) Application Guide

October 1, 2024

The purpose of the Facility Readiness Assessment (FRA) Application Guide ("Guide") is to provide you with step-by-step guidance on how to apply for the Strategic Energy Management for Industry (SEMI) program. The Guide is intended to provide the following:

- ▶ Provide an overview of the SEMI program and the various eligible activities
- ▶ Detail the steps to apply for the FRA
- ▶ Outline the process for how the FRA will provide you with a roadmap to participate in the other eligible activities in the SEMI program without obligation

Please contact our program support team if you have questions or would like more information:

- ▶ Website: <https://www.eralberta.ca/semi>
- ▶ Email: semi@eralberta.ca
- ▶ Phone: 1-844-407-0025

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SEMI Program Overview

Emissions Reduction Alberta's Strategic Energy Management for Industry program (SEMI) helps industrial and manufacturing facilities improve their energy performance by offering co-funding to implement an integrated system of practices, processes, and capital retrofits.

With funding from the Government of Alberta's Technology Innovation and Emissions Reduction (TIER) fund and Natural Resources Canada (NRCAN), the objective of SEMI is to support eligible facilities to:

- ▶ Understand energy use;
- ▶ Identify methods and approaches to optimize energy use;
- ▶ Implement energy-saving capital retrofits; and
- ▶ Improve energy productivity and competitiveness.

SEMI offers financial incentives that cover up to 50% of eligible project costs for for-profit organizations and up to 100% for not-for-profits and Indigenous organizations. Additional funding caps are stated on the SEMI website. SEMI also allows in-kind contributions from the facility to offset the co-funding requirement for certain activities.

SEMI is structured around five key activities to drive energy efficiency and emissions reduction in industrial and manufacturing facilities:

1. FACILITY READINESS ASSESSMENT (FRA)

The first step in SEMI is to complete a Facility Readiness Assessment (FRA) at your facility. For-profit organizations must cover 50% of the cost; however, it is anticipated that your contributions can be provided as an in-kind contribution. In-kind contributions can include facility staff time necessary to complete any aspect of the FRA and prior energy management activities that contribute value to eligible activities. The FRA will provide you with recommendations to implement further eligible activities. Not all recommendations are mandatory to implement for participation in SEMI.

The FRA provides a facility-wide assessment of how, where, and when energy is used in the production process. The FRA will:

- ▶ **Provide an energy assessment** of all energy uses and energy management systems.
- ▶ **Identify opportunities for improvement.** The FRA will highlight immediate opportunities to enhance energy efficiency and provide an energy roadmap for the facility based on site-specific considerations.
- ▶ **Define a path forward in SEMI.** The FRA identifies the most suitable next steps of eligible SEMI activities such as further detailed studies, engaging in strategic energy management (SEM), implementing energy management information systems (EMIS), and/or initiating capital retrofits. The path forward will consider the current situation and the capabilities and capacity of your facility, including financial considerations and other constraints. Not all of the next steps identified are mandatory to implement for participation in SEMI.

2. COMPREHENSIVE ENERGY STUDIES

After completing the FRA, facilities may proceed with more detailed studies. These studies can include:

- ▶ **Comprehensive Energy Assessment (CEA):** This assessment thoroughly evaluates the facility's overall energy consumption, pinpointing inefficiencies and suggesting targeted energy-saving strategies. The CEA is facility-wide and provides further detailed analysis of energy-saving opportunities. The scope of a CEA may include systems that operate across the facility.

- ▶ **Computational Fluid Dynamics (CFD) Studies:** CFD studies involve using advanced simulation techniques to model and analyze thermal and fluid dynamics within industrial processes. These studies help to optimize energy use by identifying areas where energy losses occur and suggesting modifications to improve energy efficiency.
- ▶ **Process Integration:** This approach focuses on optimizing the interactions between different processes to reduce energy consumption. Process integration studies analyze how energy flows through the entire facility, looking for opportunities to reuse waste energy, improve heat exchange systems, and streamline operations for better energy efficiency.

3. STRATEGIC ENERGY MANAGEMENT (SEM)

The FRA contains an initial assessment of a facility's readiness to participate in Strategic Energy Management (SEM). The assessment allows a facility to be placed within the correct SEM group training with a customized curriculum. SEM is a systematic approach to energy management that integrates energy-saving practices into the daily operations of a facility. SEM supports facilities in developing and implementing long-term energy management plans that align with their business objectives. This approach includes:

- ▶ **Setting Clear Goals:** Establishing measurable energy performance targets and creating a roadmap to achieve them.
- ▶ **Engaging Employees:** Involving employees at all levels to foster a culture of continuous improvement and energy awareness.
- ▶ **Continuous Monitoring:** Encouraging regular monitoring and reviewing of energy use to ensure that energy efficiency remains a priority and that opportunities for improvement are continually identified.

4. ENERGY MANAGEMENT INFORMATION SYSTEMS (EMIS)

The FRA contains an initial assessment of the facility's Energy Management Information Systems (EMIS). These systems are critical tools within the SEMI framework, providing facilities with the ability to collect, analyze, and manage energy data to inform operating decisions. EMIS activities include hardware and software components that support:

- ▶ **Data Collection and Monitoring:** Using sensors, meters, and software to gather real-time data on energy consumption and production levels.
- ▶ **Analysis and Optimization:** Analyzing data to identify inefficiencies, track energy consumption patterns, and optimize processes.

- ▶ **Reporting and Decision Making:** Providing insights into energy use, which helps in making informed decisions, detecting anomalies, and implementing corrective actions promptly.

5. CAPITAL RETROFITS

The FRA will provide additional insight to support capital retrofits. Capital retrofits are essential for implementing the energy-saving measures identified through energy assessments or studies and supported by SEM and EMIS. SEMI provides co-funding to assist facilities in upgrading energy-efficient equipment, adopting advanced technologies, and making infrastructure improvements that contribute to reduced energy consumption and lower greenhouse gas (GHG) emissions. Examples of capital retrofits include:

- ▶ **Equipment Upgrades:** Installing high-efficiency electric motors with variable frequency drive controls, LED lighting, and waste heat recovery systems.
- ▶ **Renewable Energy:** Investing in renewable energy sources, such as solar panels, to reduce dependence on non-renewable energy.
- ▶ **Process Improvements:** Upgrading a facility's energy consuming processes, such as improved compressed air systems or upgraded process cooling to enhance energy efficiency.

By integrating these five activities—FRA, Comprehensive Energy Studies, SEM, EMIS, and Capital Retrofits—SEMI offers a comprehensive approach to energy management. This approach enables industrial and manufacturing facilities to optimize energy use, reduce costs, and lower their environmental impact, contributing to a more sustainable and competitive industrial sector in Alberta.

Facility Readiness Assessment (FRA) Overview

The Facility Readiness Assessment (FRA) is a required first step for all participants to maximize benefits from SEMI. The scope of the FRA is determined through collaboration between you and ERA's Service Provider (Enerva Energy Solutions Inc. herein referred to as "Enerva" or "Service Provider"). This initial step involves working together to define the specific assessment parameters tailored to the facility's needs. Once the scope of FRA is established, the FRA is conducted by ERA's Service Provider. This assessment includes data collection from the facility and may involve site visits for data validation and enhanced understanding of facility operations. The FRA outlines the next steps for SEMI participants, offering detailed recommendations based on the facility's current energy management capabilities and readiness for implementing energy-saving measures. The FRA recommendations will include opportunities to complete additional eligible activities in SEMI.

For-profit organizations are required to cover 50% of the FRA cost, although this can be offset by in-kind contributions such as staff time and prior energy management activities or studies. SEMI provides up to 100% funding support for Indigenous-led and not-for-profit organizations.

The FRA, at a minimum, contains the following:

- ▶ Analysis of facility energy use
- ▶ Relationship of energy use to independent variables
- ▶ Development of energy baseline and energy model
- ▶ Energy performance benchmark
- ▶ Assessment of controllable and uncontrollable energy use
- ▶ Assessment of facility's energy management information system
- ▶ Assessment of facility's current energy management practices
- ▶ Recommendation on how to leverage SEMI aligned with your needs

The FRA report, reviewed by a professional engineer, offers a roadmap for participating in the other eligible activities. While the FRA will guide you in implementing further activities, implementing all the recommendations is not mandatory for continued SEMI participation. The FRA is the initial step towards participating in SEMI and will help identify and evaluate energy savings and GHG reduction opportunities for your facility.

Eligibility Requirements

1. ELIGIBLE PARTICIPANTS

An eligible participant must meet the two following eligibility requirements:

1. Operates a business—whether as a corporation, non-profit, co-operative, sole proprietorship, partnership, government or public entity, or Indigenous-owned organization—by owning or leasing at least one Eligible Facility.

To be considered Indigenous-owned, your organization must meet the following criteria:

- ▶ Be a sole proprietorship, limited company, cooperative, partnership, or not-for-profit organization in which Indigenous peoples own and control at least 51% of the enterprise.

2. Is not insolvent.

2. ELIGIBLE FACILITIES

To be an eligible facility, a facility must meet all the following requirements:

- ▶ The facility is located in Alberta.
- ▶ The facility has been in operation for at least one year with fixed equipment and energy consumption information.
- ▶ You own or lease the facility. For a leased facility you have obtained permission from your landlord to undertake the key activities.
- ▶ The facility belongs to one of the following North American Industry Classification System (NAICS) economic sectors:
 - ▷ **Agriculture, Forestry, Fishing, and Hunting (NAICS 11)**
 - Crop Production
 - Animal Production and Aquaculture
 - Forestry and Logging
 - Fishing, Hunting, and Trapping
 - Support Activities for Agriculture and Forestry
 - ▷ **Mining, Oil, and Gas (NAICS 21)**
 - Oil and Gas Extraction
 - Mining (except Oil and Gas)
 - Support Activities for Mining
 - ▷ **Utilities (NAICS 22)**
 - Electric Power Generation, Transmission, and Distribution
 - Natural Gas Distribution
 - Water, Sewage, and Other Systems

▷ **Construction (NAICS 23)**

- Construction of Buildings
- Heavy and Civil Engineering Construction
- Specialty Trade Contractors

▷ **Manufacturing (NAICS 31-33)**

- Food Manufacturing
- Beverage and Tobacco Product Manufacturing
- Textile Mills
- Textile Product Mills
- Apparel Manufacturing
- Leather and Allied Product Manufacturing
- Wood Product Manufacturing
- Paper Manufacturing
- Printing and Related Support Activities
- Petroleum and Coal Products Manufacturing
- Chemical Manufacturing
- Plastics and Rubber Products Manufacturing
- Nonmetallic Mineral Product Manufacturing
- Primary Metal Manufacturing
- Fabricated Metal Product Manufacturing
- Machinery Manufacturing
- Computer and Electronic Product Manufacturing
- Electrical Equipment, Appliance, and Component Manufacturing
- Transportation Equipment Manufacturing
- Furniture and Related Product Manufacturing
- Miscellaneous Manufacturing

▷ **Transportation (NAICS 48)**

- Air Transportation
- Rail Transportation
- Water Transportation
- Truck Transportation
- Transit and Ground Passenger Transportation
- Pipeline Transportation
- Scenic and Sightseeing Transportation
- Support Activities for Transportation

▷ **Services and Waste Management (NAICS 56)**

- Waste Collection
- Waste Treatment and Disposal
- Remediation and Other Waste Management Services

FRA Registration Process

The FRA registration process is easy and secure. Please complete the registration form on the SEMI online portal ("Portal") at www.semiprogram.ca. The process flow below outlines the main steps for the FRA.

STEP 1 REGISTER ON SEMI PORTAL

STEP 2 DEFINE SCOPE OF WORK (SOW) CONFIRM BUDGET SIGN TERMS & CONDITIONS

STEP 3 FRA CONDUCTED BY ERA'S SERVICE PROVIDER

STEP 4 ENABLE SEMI ACTIVITIES

Further details on each step are provided below. For more details on the other eligible activities in SEMI, please visit the SEMI website.

STEP 1: REGISTER YOUR ORGANIZATION AND FACILITIES IN THE PORTAL

Registration only requires you to input basic information including name, address, contact information, and some additional information to confirm eligibility of your facility. You will also need to consent to the Portal Terms and Conditions, the ERA's Privacy Policy and the Canadian Anti-Spam Legislation (CASL). Upon registration, you will receive an acknowledgment email confirming successful registration.



Tip: As part of the registration process, an email is sent to verify your identity and confirm your email address. Please check your Junk or Spam folders if you do not see the email in your main inbox.

Your registration will be reviewed for compliance by ERA's Service Provider. You will not be able to edit the registration information during the review process. If there are any questions or issues, a SEMI support team member will contact you.

STEP 2: CONFIRM FRA SCOPE AND BUDGET, SIGN TERMS & CONDITIONS

ERA's Service Provider will contact you to schedule a virtual meeting. The purpose of this meeting is to discuss the scope, deliverables, and budget for the FRA including your in-kind contribution. The meeting will include the following topics:

- ▶ Short presentation to provide an overview of the FRA process, scope and deliverables
- ▶ Information and data that you will need to provide to finalize the scope of the FRA. This will include the following:
 - ▷ Key personnel that will contribute input into the FRA
 - ▷ Facility annual energy consumption and energy costs
 - ▷ Facility site plan or layout (if available), major processes, and major energy-consuming equipment
 - ▷ Discuss your energy goals and related business objectives
 - ▷ Discuss any recent production changes, prior energy studies and assessments, and any recent capital equipment upgrades or plans
 - ▷ Discuss FRA project management
 - ▷ Discuss your in-kind contributions
- ▶ Establish the next steps including:
 - ▷ When the above information can be provided
 - ▷ When the FRA proposal will be provided including the SOW, deliverables, schedule, budget, and eligibility of your in-kind contribution



Tip: The intent for SEMI is to have your in-kind contribution to be equal to the FRA budget. Therefore, we do not anticipate that you will need to provide a financial contribution to ensure your commitment to the FRA process. We will help you identify eligible in-kind contributions.

ERA's Service Provider will prepare a checklist that outlines the steps required to be completed for a successful FRA.

The FRA Terms and Conditions will be sent to you after the scope and budget are finalized. The template is posted on the SEMI website. Your facility is enrolled upon receipt of the signed Terms and Conditions. An enrollment confirmation notice will be emailed to you. If we do not receive your signed FRA Terms and Conditions within 30 days, your FRA offer may be withdrawn if the SEMI budget is allocated.



Tip: These documents are also accessible through the SEMI website and Portal for future reference.

STEP 3: FRA CONDUCTED BY ERA'S SERVICE PROVIDER

ERA's Service Provider will reach out to schedule a kick-off meeting and to fill out a checklist. The kick-off meeting agenda will include:

- ▶ Introduce the delivery team for the FRA and your key personnel to support the FRA
- ▶ Discuss the FRA objectives, adjust if needed, and review project management logistics
- ▶ Review the FRA work plan including major activities, site visits, and deliverable milestones
- ▶ Schedule virtual check-in meetings, site visits to complete the FRA, anticipated draft FRA submission date, initial date for management presentation, and anticipated FRA completion date
- ▶ Review the pre-assessment checklist before the site visit(s)
- ▶ Review the FRA deliverable template

ERA's Service Provider will complete the FRA deliverables, submit them for your review, and request confirmation of your in-kind contributions. ERA's Service Provider will compare your in-kind contribution with the plan and incorporate your FRA review comments. The final FRA deliverable will be provided after validating your in-kind contribution.

STEP 4: ENABLE SEMI ACTIVITIES

The completed FRA will provide access and a roadmap of additional SEMI activities. The additional activity recommendations are developed during the drafting of the FRA deliverables and presented at the meeting with your management team. There is no obligation to participate in the recommended additional activities.

 **Tip:** Completing the FRA allows participants to fully maximize participation in the other SEMI eligible activities.

FRA	
ENABLED ACTIVITIES	MAXIMUM INCENTIVES PER FACILITY
Energy Assessments and Audits	Up to \$50,000
Strategic Energy Management (SEM)	Up to \$100,000
Energy Management Information Systems (EMIS)	Up to \$50,000 Facility energy consumption less than 400,000 GJ
	Up to \$250,000 Facility energy consumption more than 400,000 GJ
Capital Retrofits	Up to \$1,000,000

ELIGIBLE ACTIVITES & INCENTIVES

