

Federal Energy Management Program Industrial Facilities Initiative

Frequently Asked Questions July 21, 2009

1) What facilities are considered “industrial”?

Industrial assessments focus on energy-intensive industrial processes such as production, manufacturing, treatment, refurbishment, or destruction of a product, as well as product testing. The definition of “industrial facility” can vary greatly among different agencies. However, in the most general sense, a facility or process system is considered ‘industrial’ if it has a large amount of capital equipment where the energy is not devoted to the heating, cooling, lighting, ventilation, or service hot water—“creature comforts.”

2) What does an industrial assessment include?

The assessment focuses on the actual process and equipment at hand; however, supporting services such as steam and compressed air are also evaluated. The assessments can target a particular system, like steam, for example, or assess the entire industrial process.

3) What do I get from an industrial assessment?

The industrial assessment’s end product is a final report that identifies recommendations of potential energy and energy-related cost-saving measures as well as productivity improvements. The report also estimates the conceptual costs to implement the findings. The list of energy conservation measures (ECMs), which include productivity improvements, will be prioritized in an action plan for the site to consider for implementation.

The final report contents include

- Overall summary description of assessment findings
 - Table of savings, including a detailed table of savings for all ECMs
- Existing equipment chapters
 - Descriptions of current building//system/process observations and evaluations (significant equipment, schedules, controls, operations, processes; what is working well, what needs improvements, wastes/inefficiencies/improvements identified, etc.)
 - Utility consumption, including descriptions/graphs/profiles
- Energy conservation measure (ECM) chapters (for each recommendation)
 - Description of each ECM, its purpose, its estimated savings/cost, how it interacts with other ECMs;
- Action plan for site to implement, priorities
- Contact information for assessment team members and site team
- Appendix, including assumptions, methodology, references, and parameters used, sample energy and cost calculations, resources for site to use (technical publications, additional assistance (FEMP), etc.)

4) How much does the assessment cost?

FEMP has provided assessments at no cost to Federal facilities from allocated funding. Federal sites can also pay for the assessments through work-for-others agreements if funding is no longer available through FEMP. Please check with the Technical Lead for the availability of FEMP funds for your assessment and training needs.

5) How do I request an IFI industrial energy assessment?

Interested sites should contact the Technical Lead to request an industrial energy assessment and provide background information about industrial facilities, systems, processes, and/or components for consideration. Sites are asked to provide information about their industrial buildings, processes, and systems in an initial data form available on the FEMP Web site. A call may be held for further discussion.

6) How are sites selected for assessment?

ORNL and the site contacts (building owner, building management, energy managers, facility/operations managers, etc.) will begin by discussing the candidate targets to confirm the targets are “industrial” and to determine their energy savings potential by reviewing a year of monthly utility data. They will also review the process or mission (equipment, operations), any problems experienced (productivity or maintenance), and the energy reduction goals of the site. If significant potential savings are probable, the assessment moves forward.

Oak Ridge National Laboratory (ORNL) will work with the site to prioritize the assessment targets. Once an industrial assessment scope of work is agreed upon, the site visit logistics can be arranged.

7) How long is the site visit?

The site visit duration can last a few days to a week depending on the processes and systems to be evaluated.

8) Who makes up the assessment team?

The team typically consists of two or more persons depending on the assessment focus. The assessment team may include staff from DOE’s Industrial Technologies Program BestPractice’s Industrial Assessment Centers and/or Qualified Specialists in a particular technology focus area (steam, process heating, compressed air, pumps and fans).

9) What does the site need to do to prepare for an assessment?

Teleconferences with the site will assist the assessment team in gathering additional information before the site visit. This allows more time for walk-through observations and data collection to identify recommendations for improvement. The site will need to gather the following information:

- Two years of monthly utility consumption and cost data for each service (and each meter), including natural gas, purchased steam or chilled water, etc.
- Rate schedules from each utility source for bill analysis
- Process building/facility details
 - layout and floor plans, square footage
 - mission/activities performed
 - description process areas, computer areas, mission-critical areas
 - hours of operation, occupancy
- Process equipment list (major equipment, size/capacity, operation schedule), including furnaces, plating tanks, paint booths, motors, conveyor systems, etc.
- Support system list (major equipment, size/capacity, operation schedule), including central plants, dedicated plants, cogeneration, etc
- Any drawings or essential process data
- Maintenance and repair data
- Description of any existing energy savings measures in use

11) What happens during the site visit?

The assessment team will meet with various staff members (facility managers, facility engineers, operations and maintenance staff, process staff) to ask questions, collect data, and take short-term measurements. Access to mechanical rooms as well as the process area(s) will be needed.

If requested, the assessment team can provide a formal in-briefing to the building owner, management teams, support staff, and decision-makers, as well as an out-briefing to discuss preliminary findings. Daily briefings can also be arranged.

12) What types of data collection and/or measurements will be done on site?

Data collection will include observing the process area, gathering nameplate data from process and supporting equipment, and performing measurements of surface temperatures, carbon dioxide, space temperature, humidity, combustion gas analysis, lighting levels, etc. Some measurements may be taken during the walk-through (spot

measurements) and others may be collected over a period of days (temporary installation). The conditions and efficiency of the equipment and distribution system will also be assessed.

Any drawings, utility data, or essential process data not provided previously will need to be gathered. Pictures will be very helpful to the team members once they return to interpret the data collected. With the expectation of escorts, team members may take photographs, with permission. All photos will be digital and can be subject to a final review by the site each day to ensure no sensitive material is captured.

13) What types of recommendations/findings usually result from the assessment?

In general, the most common type of recommendation falls under the “energy management” category, followed by “waste minimization/pollution prevention” and “direct productivity enhancements.”

Energy management opportunities consist of operations, controls, hardware, including leak repairs, right-sizing equipment, heat recovery opportunities, control methods, and proper service for actual demand (pressure, temperature, quality, etc.) and modern, energy-efficient upgrades.

Waste minimization/pollution prevention suggestions include waste disposal options, reuse/recycle/recover opportunities, water reduction, and water recovery scenarios.

Productivity enhancements include reduction of downtime, bottleneck reduction, improved quality, automation, equipment upgrades, and improved maintenance with predictive/preventive programs.

Visit the Industrial Assessment Center’s (IAC’s) [recommendation index](#) to access a complete list of ECMs and average savings from the commercial sector industrial assessments.

14) What support does the site need to provide for the site visit?

The site should provide a safety briefing to the assessment team at the beginning of the site assessment. The site should also provide craft support to help install temporary data logging equipment as needed (electricians, pipe fitters, etc.).

As security concerns and restrictions vary with each facility/installation, the site is responsible for granting access to the site. Typically, site personnel accompany the assessment team for the walk-through and serve as escorts.

Regarding information security, the site is responsible for providing appropriate information, at their discretion, and with their appropriate control requirements (clearances, need to know, etc.). The site is responsible for providing instructions for handling, storing, and disposition of all information provided to or gathered by the assessment team.

15) Will there be any further assistance to the site?

A follow-up call will be made in a few months after the final report is issued to see if any ECMs have been implemented, are considered for implementation in a future project, need additional study or design in order to consider, or are experiencing roadblocks preventing implementation.

Other [FEMP services](#) include additional screenings or feasibility studies, energy management planning activities, and help through the procurement process such as technical reviews of designs/proposals and evaluation of installed systems.

16) What are funding mechanisms to implement the projects?

Agencies can use existing operation and maintenance budgets or request funding from various types of appropriations from their respective agency programs.

FEMP supports Federal agencies in identifying, obtaining, and implementing alternative financing to fund energy projects, including incorporating agency appropriations to select the best value to the Government. These alternative [financing mechanisms](#) include:

- Energy Savings Performance Contracts (ESPCs)
- Utility Energy Services Contracts (UESCs)
- Purchase Power Agreements (PPAs)
- Energy Incentive Programs

17) What are the training opportunities available through IFI?

IFI provides webcasts of Introductions to BestPractices Tools, as well as instructor-led, one-day workshops on a particular system (steam, compressed air, process heating, etc). Training can also be conducted on-site as part of the site visit.

18) Can I have a specific training event conducted at my site?

Please contact the technical lead for more information.

19) What are some other resources for self assessment?

BestPractices is a program area within the Industrial Technologies Program (ITP) that supports ITP's mission to improve the energy intensity of the U.S. industrial sector through a coordinated program of research and development, validation, and dissemination of energy-efficient technologies and practices. The ITP Web site provides several resources (technical publications and software tools) for self assessment at <http://www1.eere.energy.gov/industry/bestpractices/resources.html>.

FEMP also provides [analytical software tools](#) to help choose conservation measures that are most cost effective and environmentally friendly. These tools provide a more complex energy consumption analysis and models to compare potential energy conservation measures. A few tools include:

- **BLCC**—The Building Life-Cycle Cost (BLCC) program analyzes capital investments in buildings.
- **EnergyPlus**—The EnergyPlus Simulation Program helps building designers and owners save money, reduce energy and improve indoor air quality.

These tools and more can be found at http://www1.eere.energy.gov/femp/information/access_tools.html.