



Section: System Management

Task 24: We have determined our energy performance improvement.

Getting It Done

- Demonstrate an improvement in energy performance at your facility using the DOE [EnPI Lite](#) tool or an alternative facility-level energy performance calculator.

Task Overview

Implementation of an ISO 50001 EnMS is intended to realize and sustain energy savings and energy cost reductions. There are many ways to calculate energy savings and track improvements. The ISO 50001 standard and 50001 Ready allow for flexibility in defining the appropriate energy performance indicators and tracking methods for your facility and its selected SEUs.

EnPI Lite is recommended but not required to meet the 50001 Ready energy reporting requirement. For your initial 50001 Ready designation, energy reporting recommendations and requirements are as follows:

<p>1. The recommended approach for all participants is to submit an EnPI Lite Output File, using the baseline and reporting year guidelines as described in the Navigator.</p>	<p>EnPI Lite accepts inputs from the Energy Footprint Tool and EPA's ENERGY STAR Portfolio Manager® to perform regression-based modeling.</p> <p>Visit EnPI Lite for detailed instructions on how to use the tool.</p>
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<p>2. If you are a Better Plants partner, the next recommended approach is to submit your most recent Better Plants Annual Report with data reported at the facility level.</p>	<p>If you do not have access to your most recent Better Plants Annual Report at the facility level, complete the 50001 Ready Baseline Reporting Template.</p>
<p>3. If you are a Better Buildings Challenge partner, the next recommended approach is to submit your most recent Better Buildings Challenge Annual Report with data reported at the facility level.</p>	<p>If you do not have access to your most recent Better Buildings Challenge Annual Report at the facility level, the next recommended approach is to use Portfolio Manager.</p> <p>If you do not use Portfolio Manager, complete the 50001 Ready Energy Consumption Baseline Report</p>
<p>4. If you use Portfolio Manager, use the 50001 Ready Energy Report for Portfolio Manager report template.</p>	<p>Download the 50001 Ready Energy Report for Portfolio Manager directly to your Portfolio Manager account.</p> <p>Participants will need to run the report for one full year of data, with the starting date being no more than 23 months from the submission date. It is recommended but not required for the data to cover the 12 months leading up to the implementation of the EnMS.</p> <p>ENERGY STAR Energy Performance Indicator reports may also be submitted.</p>



<p>5. All participants are permitted to use the 50001 Ready Energy Consumption Baseline Report.</p>	<p>Download the 50001 Ready Energy Consumption Baseline Report .</p> <p>The Period Covered should be one full year, with the starting date being no more than 23 months from the submission date. It is recommended but not required for the Period Covered to be the 12 months leading up to the implementation of the EnMS.</p> <p>This form is valid only for initial 50001 Ready recognition.</p>
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For all reports, a separate form should be created for each facility requesting 50001 Ready recognition, or relevant facility data must be clearly indicated within the document. If multiple facilities are listed in a single document and not clearly identified, they will be assumed to be covered under a single scope for a single 50001 Ready designation.

For subsequent 50001 Ready designation renewals, participants will be required to demonstrate energy performance improvement.

If your facility uses an energy reporting form approved by a utility- or state-sponsored program, please contact us to inquire if it is an acceptable format to satisfy reporting requirements.

Through completion of in the following tasks: [Data Collection](#), [Data Analysis](#), [Relevant Variables](#), [Performance Indicators \(EnPIs\)](#), [Baselines, Objectives and Targets](#), and [Monitoring](#) you have:

- Identified and gathered the appropriate energy consumption and relevant variable information
- Selected your baseline and reporting period
- Familiarized yourself with regression analysis

At the completion of this task, you will have...

- Run EnPI Lite or your preferred method for calculating energy performance improvement
- For EnPI Lite or regression analysis users, selected the valid models of your facility's energy consumption that best describe how your facility uses energy
- Determined your facility-level energy performance improvement



The remainder of the guidance for this task will address using EnPI Lite for determination of your energy performance improvement.

This guidance is relevant to Section 4.6.1 of the ISO 50001:2011 standard.

Associated Resources	Short Description
Energy Footprint Lite Data Uploader	The Energy Footprint Lite Data Uploader provides a structure format to track energy consumption and relevant variables.
50001 Ready Energy Consumption Baseline Report	Energy Consumption Baseline report to satisfy the energy reporting requirement for initial 50001 Ready recognition.
50001 Ready Energy Report for Portfolio Manager	50001 Ready reporting template for Portfolio Manager

Full Description

Run DOE EnPI Lite

Following instructions on the [EnPI Lite](#) homepage, upload your [Energy Footprint Lite Data Uploader](#) file to EnPI Lite and view your energy performance improvement.

Select the valid models of your facility’s energy consumption that best describe how your facility uses energy

For a detailed technical description of the model and statistical requirements used by [EnPI Lite](#) for calculating energy performance improvement, please refer to the [50001 Ready Protocol](#). Also refer to the guidance in the following tasks: [Data Collection](#), [Data Analysis](#), [Relevant Variables](#), [Performance Indicators \(EnPIs\)](#), [Baselines, Objectives and Targets](#), and [Monitoring](#). A summary of the requirements is provided in the table below:

Parameter	Requirement
Reporting period	Last month must be within last 11 months
Baseline period	12 months prior to first month of reporting period



Energy sources	All entering the facility (see 50001 Ready Protocol for 5% exception)
Potential relevant variables	Production and weather should be considered
Data collection frequency	Monthly
Model type	Linear regression forecast, Linear regression backcast,
Minimum model R ²	0.5
F-stat	Greater than F-critical for p-value < 0.1
Max p-value for any relevant variable	0.2
At least one variable must have p- value	<0.1
	3 STD of model data
Numeric model validity requirements when applying model	Mean of data w/in range of min/max of data used in model
Site or primary energy?	Primary



Primary energy multipliers

See [50001 Ready Protocol](#)

[EnPI Lite](#) may produce multiple valid models for each energy source. Use your best engineering judgement to select the model(s) that best describe how your facility uses energy. For example, if steam is used throughout the production process of a product, the model for the energy source that is used to generate steam should include a production variable. As another example, if the major uses of electricity in your facility are electric heating and cooling, then HDD and CDD should appear in your model of electricity.

Results, including your energy performance improvement, are available through [EnPI Lite](#). These results can be viewed without developing a valid model and are intended to assist you to better understand your facility's energy performance improvement.

Determine your facility level energy performance improvement

Once you have selected your energy consumption model(s), [EnPI Lite](#) will display your energy performance improvement against the baseline year. It is expressed as a percentage. See [Performance Indicators \(EnPIs\)](#) for guidance on interpreting your facility's percent improvement. A 50001 Ready EnMS requires that your facility show a positive energy performance improvement against the baseline year. You can use this energy performance improvement to communicate the benefits of the EnMS within your facility and to your top management (Task 25, [Management Review](#)).