Section: Operation

Task 19: We establish energy performance criteria spanning the operating life for purchases affecting energy performance, inform suppliers that this is a factor in procurement, and define and use specifications for energy supply purchases.

Getting It Done

1. For purchases related to significant energy uses (SEUs), clearly identify any energy performance-related requirements. Communicate these requirements to suppliers and/or service providers, and inform them that energy performance is part of the evaluation criteria.
2. Evaluate your organization's current procurement processes for items that can significantly impact energy performance.
3. Determine and take any needed actions to adjust existing procurement processes to meet energy management system (EnMS) requirements.
4. Develop life cycle criteria for specific types of procurement activities if you do not have them already.
5. Develop and communicate specifications for the purchase of energy supply and ensuring the energy performance of procured equipment and services.
6. Determine if any specifications for the purchase of energy supplies are applicable to ensure the energy performance of equipment and services purchased.

Task Overview

The purchase of energy-using products, equipment, and services can affect your organization's significant energy uses (SEUs) and energy performance. Your organization must establish a procurement process to ensure energy performance is considered when procurement is related to your organization's SEUs or when it can have a significant impact on energy performance. Your procurement activities need to support effective management of SEUs and the achievement of improved energy performance.

You should evaluate energy performance over the planned or expected operating lifetime for any purchased items or services expected to have a significant impact on energy performance. Your organization must determine the evaluation criteria. These criteria look beyond your SEUs, so consider the bigger picture of how procurement impacts any item that substantially affects energy performance.

An important part of procurement in an EnMS involves ensuring the energy performance, over time, of procured equipment and services. If applicable, you must define and communicate those specifications to the appropriate personnel.

Another important part of procurement in an EnMS involves acquiring an adequate supply of energy with

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acceptable quality to maintain ongoing operations. Developing purchasing specifications for the types of energy used by your organization helps ensure the availability of a sufficient quantity of energy with acceptable quality and at a reasonable price.

This guidance is relevant to Section 8.3 of the ISO 50001:2018 standard.

Associated Resources	Short Description
no resources for this questions	

Full Description

Inform suppliers of energy performance as an evaluation factor for SEU-related purchases

You identified significant energy uses (SEUs) (Task 9 Significant Energy Uses (SEUs)) to focus your resources in the areas where you can achieve the most benefit. When an energy use is identified as significant, you should address a number of ISO 50001 requirements that apply specifically to SEUs, including those related to procurement.

Learn More: **Purchases related to SEUs**

Examples of purchases that could be related to SEUs include:

- Repair parts
- Add-on equipment
- Replacement parts or equipment
- Maintenance materials
- Maintenance services
- Operational and maintenance controls
- Calibration services
- Supplies
- Input materials
- Operator services
- Engineering services
- Consultants

Your organization determines the role energy performance will play in the procurement selection process. For purchases related to an SEU, procurement specifications need to clearly identify any energy performance-related requirements. Communicate these requirements to suppliers and inform them that energy performance is part of the evaluation criteria. Energy performance does not have to be the sole or most heavily weighted criterion, but it is one of the factors you use to make the final purchase decision. Consider leveraging your existing supplier communication processes for this purpose, such as through purchase orders, supplier meetings, and supplier agreements.

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Purchased services that will impact an SEU must be identified and service providers informed that energy performance is part of the evaluation criteria for procuring their services. Competency in energy efficiency is a common evaluation factor in procuring energy-related services.

Learn More: **Evaluation factors relevant to service providers**

Evaluation factors related to service providers could include relevant:

- Training
- Certifications
- Experience with similar energy uses
- Skilled trades availability
- Procurement practices for parts or materials
- Client recommendations or reviews

Establish operating lifetime energy performance criteria for purchases expected to significantly affect energy performance

It is important that your organization makes the connection between procurement and its impact on energy performance. At a minimum, energy performance for your organization is determined by the following:

- Energy performance of the significant energy uses
- Significant energy uses relevant variables
- Energy performance indicators (EnPIs)
- Effectiveness in meeting energy objectives and targets through action plans
- Actual versus expected energy consumption evaluation

If a purchase can affect one of more of these key characteristics, your organization must establish criteria for evaluating whether there is a significant impact on energy performance.

Learn More: **Evaluation criteria examples**

Some examples are as follows:

- **Significant energy use:** Assume that your lighting system has been determined to be an SEU. You may define a significant impact as the purchase of certain lighting items, the number of items, a cost level, or any purchase associated with lighting.
- **Significant energy use relevant variables:** A relevant variable for the lighting system SEU is the amount of daylight. If your organization has skylights and you are considering a new roof that would eliminate the skylights, the loss of daylight could result in a significant impact on the operation and energy consumption of the lighting system. A significant impact could be defined as a certain consumption increase or the potential for consumption increase.

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- **Effectiveness in meeting objectives and energy targets through action plans:** The purchase of a service or piece of equipment could determine whether an energy target is reached for an energy improvement project. Failure to meet the target could be a significant impact on energy performance.

Brainstorm other factors that can have a major impact on energy performance, such as controls for SEUs, controls to sustain past energy improvement projects, and energy system maintenance activities.

Significant impact on energy performance can be a specific hurdle or limit, or it can be an evaluation based on your organization's experience. Be mindful of using cost as a hurdle for determining significant impact, as it can be misleading. For example, buying a few light bulbs on a frequent basis can have a bigger impact on energy performance than replacing one large piece of machinery once over a long time span.

Similarly, a significant impact on energy performance does not have to relate to large items or complex services. It can result from relatively inexpensive maintenance items.

Learn More: **Example maintenance items that can significantly impact energy performance**

Example maintenance items that can significantly impact energy performance include:

- High efficiency air filters
- Synthetic lubricants
- Cogged v-belts
- Low leakage couplings
- Electronic condensate drain valves on compressed air systems

If a purchase can have a significant impact on energy performance, your organization should evaluate the purchase and its energy performance over its planned or expected operating lifetime. Many tools can be used to calculate life cycle cost, and the best one for your organization will depend on the items purchased and their application, as well as the complexity of your accounting system.

To ensure that procurement actions support the EnMS, it is critical that procurement personnel be kept informed about the requirements of the EnMS, including the SEU and the types of items and services that can significantly affect your organization's energy performance. This information enables them to make appropriate procurement decisions. Procurement personnel must be familiar with the key characteristics of operations that determine energy performance, and mindful that energy performance and life cycle assessment may be part of the procurement decision. Once personnel are aware of their role within the EnMS, it is their responsibility to purchase items in a manner consistent with the EnMS's requirements.

Learn More: **Life cycle tool resource list**

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Below is a non-exhaustive list of sources for tools that will assist you in conducting a life cycle analysis:

Building Life Cycle Cost Programs: The National Institute of Standards and Technology (NIST) developed the Building Life Cycle Cost (BLCC) Programs to provide computational support for the analysis of capital investments in buildings. They include BLCC, the Energy Escalation Rate Calculator, Handbook 135, and the Annual Supplement to Handbook 135.

Life Cycle Assessment Software, Tools and Databases - Links to a variety of life cycle assessment (LCA) software tools.

Procurement in your organization may be handled by a corporate or headquarters function. To satisfy the ISO 50001 requirements you may need to work with the corporate procurement function to implement the necessary procurement processes.

Define and communicate procurement specifications for purchases of energy supply and for ensuring the energy performance of procured products and services

You should define and communicate specifications for purchases of energy supply. The energy requirements for your organization may be adequately addressed by the local supplier(s), and perhaps you do not require special considerations. In this case, the supplier can typically provide the specifications for the energy you are being provided, or it may be specified in your contract, along with the rates.

Your organization may have special needs, or there may be other considerations for selecting and purchasing the energy needed for your site. If your organization has unique energy supply requirements, you may have to develop the specifications necessary to meet your needs.

Learn More: **Factors affecting the development of specifications for purchasing various types of energy**

The development of energy supply purchasing specifications can depend on:

- Equipment requirements
- Energy availability
- Site location
- Manufacturing process requirements
- Other governmental regulations

For example:

Governmental regulations: Governmental regulations specify that a new site must use the local electrical utility provider if the site’s connected load will be less than 900 kilovolts. Above 900

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kilovolts, the organization can select their provider with a competitive bid process. The local supplier may allow few variations in the characteristics or rates of the energy supplied. If the load is large, competition may allow more flexibility in the energy specifications.

Manufacturing process requirements: A carpet manufacturer uses a direct-fired dryer. Because the carpet comes in contact with combustion products, a cleaner-burning fuel like natural gas or propane is required. Fuel oil or solid fuels are not used, since contact between the finished product and combustion gases could result in contamination with soot or ash.

Specifications you may need to consider for your energy supply can include requirements related to quality, quantity, reliability, and cost.

Learn More: **Factors affecting energy supply specifications**

Examples of each of these factors (quality, quantity, reliability, and cost) include the following:

- Quality
  - Maximum moisture content in coal
  - Maximum sulfur content in fuel oil
  - Minimum energy content in fuels
  - Acceptable voltage variation
  - Minimum power factor
- Quantity
  - Amount
  - Delivery requirements
- Reliability
  - Allowable quality variation
  - Allowable delivery variation
  - Interruptible acceptance
- Cost
  - Cost per unit
  - Cost for non-interruption
  - Demand cost
  - Delivery cost

To help you develop purchasing specifications for energy supply, you may want to use the optional Playbook worksheet. The Playbook worksheet will help you identify important energy supply parameters and formulate suitable purchasing specifications. Because purchasing specifications are dependent on the energy source, this resource includes separate tabs for electricity, natural gas, fuel oil, and solid fuels.

Document the energy supply specifications to ensure the energy source, delivery, price, invoicing,

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payment, and contracting requirements are known by potential vendors and satisfied by selective purchasing. Consult your procurement specialists for help with delivery, invoicing, and payment requirements, and legal analysts for assistance with contractual issues. Document the specifications for purchasing the different types of energy used by the organization. This can help ensure that initial and future energy supply will meet the necessary requirements. The optional Playbook worksheet can be used to help organize the information needed for purchasing of energy supply.

Document procurement

Where applicable, your organization must define and document specifications needed to ensure the energy performance of equipment and services that have been purchased. First, identify the types of procured equipment and services where specifications are important for maintaining their energy performance. For those, consider possible specifications related to receiving inspections, equipment installation, preventive maintenance, operational controls, procurement of related supplies, etc. If specifications are needed, document them or incorporate them into training activities and ensure there are processes in place to communicate them to the appropriate personnel. If specifications are already in place for energy-using equipment and services, then check that the specifications are communicated to those who need to know them.

Decarbonization

The purchase of energy-using products, equipment, and services can affect your organization's significant energy uses (SEUs), energy performance, and energy-related GHG emissions. Your organization must establish a procurement process to ensure energy performance and energy-related GHG emissions are considered when that procurement is related to your organization's SEUs, or when it can have a significant impact on energy performance or energy-related GHG emissions. Your procurement activities need to support effective management of SEUs as well as the achievement of both improved energy performance and improved energy-related GHG emissions performance.

You should evaluate energy performance and energy-related GHG emissions over the planned or expected operating lifetime for any purchased items or services expected to have a significant impact on energy performance and energy-related GHG emissions. Your organization must determine the evaluation criteria.

An important part of procurement in an EnMS involves ensuring the energy and energy-related GHG emissions performance, over time, of procured equipment and services. You must define and communicate those specifications to the suppliers, vendors, and appropriate personnel within the organization.

Another important part of procurement involves acquiring an adequate supply of energy with acceptable quality to maintain ongoing operations with the lowest possible energy-related GHG emissions. Developing purchasing specifications for the types of energy used by your organization helps ensure the availability of a sufficient quantity of energy, with acceptable quality, at a reasonable price, with the expected energy-related GHG emissions. This is especially important for purchased electricity and can

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have a significant impact on scope 2 emissions.

Establishing a new EnMS prioritizing decarbonization

If you do not have an existing 50001 Ready-based EnMS and want to build one that also helps your organization manage energy-related GHG emissions, in addition to the guidance for the energy management system you should:

1. **Inform suppliers of energy performance as an evaluation factor for SEU-related purchases**. Ensure your evaluation factors for SEU-related purchases include energy-related GHG emissions factors. Procurement specifications need to clearly identify any energy-related GHG emissions-related requirements. Review your procurement criteria for purchases expected to significantly affect energy performance. Determine if additional energy-related GHG emissions-focused criteria are needed and if they are, communicate the changes to the appropriate personnel, suppliers, or contractors.
2. **Establish operating lifetime energy performance criteria for purchases**. Ensure that any purchase that can affect SEUs, relevant variables, and EnPIs have criteria established for evaluating whether there is a significant impact on energy-related GHG emissions performance over the life cycle of the purchased product or service.
3. **Define procurement specifications for purchases of energy supply**. Review your procurement specifications for purchases of energy supply to ensure they include energy-related GHG emissions factors where applicable.
4. **Document procurement**. Document any added specifications related to energy-related GHG emissions and, where applicable, incorporate them into training activities.

Adapting an existing EnMS to prioritize decarbonization

If you have an existing 50001 Ready-based EnMS and want to adapt it to manage energy-related GHG emissions, you should:

1. **Inform suppliers of energy performance as an evaluation factor for SEU-related purchases**. Review your evaluation factors for SEU-related purchases to ensure they include energy-related GHG emissions factors. Procurement specifications need to clearly identify any energy-related GHG emissions-related requirements. Review your procurement criteria for purchases expected to significantly affect energy performance. Determine if additional energy-related GHG emissions-focused criteria are needed and if they are, communicate the changes to the appropriate personnel, suppliers, or contractors.
2. **Review your operating lifetime energy performance criteria for purchases**. Ensure that any purchase that can affect SEUs, relevant variables, and EnPIs have criteria established for evaluating whether there is a significant impact on energy-related GHG emissions performance over the life cycle of the purchased product or service.
3. **Review your procurement specifications for purchases of energy supply**. Review your procurement specifications for purchases of energy supply to ensure they include energy-related GHG emissions factors where applicable.
4. **Document procurement**. Document any added specifications related to energy-related GHG

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emissions and, where applicable, incorporate them into training activities.

Commercial ERP

The guidance for this task is from the following sections from the ERP Framework: ERP Framework Milestone 4.

Inputs to scenarios include building-level measure packages and portfolio-level policies, *defined in Task 10 (Improvement Opportunities)*, as well as how measures are phased over time and estimated changes to the portfolio size. Organizations can consider other inputs to their scenarios depending on specific needs. Most importantly, organizations should align their scenarios with capital planning, reinvestment, major equipment end-of-life, or deferred maintenance planning timelines. The results of the building-level audits should be extrapolated during this phase to estimate impacts across the portfolio. While specific plans and designs may not be created for each individual building during this milestone, the strategies identified during the representative audits can set the general approach to be applied within building categories. The expected savings (energy consumption, GHG emissions, and operating costs) from the building-level measure packages can be used to project savings at buildings within the same category. Portfolio-level assessments can then be layered into savings projections. (Milestone 4)

One of the most important variables in GHG emissions reduction planning is how quickly measures will be implemented across the portfolio. Aggressive decarbonization efforts generally require expedited upgrades and replacement of systems before the end of the equipment's useful life. These early replacement efforts should be directed toward the electrification of natural gas or district heating systems. Alternatively, an owner may focus on decarbonization projects to coincide with their existing building upgrade plans and refresh cycles. A third option— the least aggressive timing—is to implement electrification- ready upgrades, then plan to replace the equipment at the end of its useful life. (Milestone 4)

Without pre-planning, owners are faced with replacing equipment upon failure, which poses challenges for implementing emissions reduction projects due to the urgency of the replacement schedule. Moreover, relatively recently purchased equipment may not reach end-of-life before 2050 or another critical date established in emissions reduction target-setting. Pre-planning and portfolio-level policies will ensure that the low-emission, best-option retrofits are most likely to be chosen by staff. (Milestone 4)

In many cases, emissions reduction measures can provide other benefits (such as reduced operating costs). Expedited implementation can enable organizations to capture these benefits sooner and demonstrate their climate commitment with action. (Milestone 4)

Industrial ERP

This task relates to ensuring that procurement practices for energy-using products, equipment, and services consider energy performance. Similarly, consideration of emissions reduction potential should be embedded in the procurement processes for products, equipment, and services.

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The guidance for Task 19 is found within the following sections of the ERP Industrial Framework:

Milestone 3:

Conduct a portfolio-level GHG emissions reduction assessment to identify, quantify, and prioritize ERMs that are implemented, led, and/or approved at the portfolio level, such as strategic energy management, clean energy procurement, demand management/load flexibility, circular economy strategies, or strategic business changes. This can also help companies understand the risks and opportunities associated with transitioning to a low-carbon economy. Some examples of portfolio-wide ERMs include:

- **Cross-cutting energy efficiency improvements** such as upgrading HVAC systems, lighting, compressed air systems, steam systems, and insulation, or implementing a corporate-level strategic energy management plan.
- **Clean energy** from purchased clean electricity via power purchase agreements, green energy tariffs, renewable energy credits, and other mechanisms. On-site clean energy may also be handled at the portfolio level in some cases.
- **Low-carbon transportation** options for fleet vehicles (on- and off-site use) such as electric or green hydrogen fuel-cell vehicles.

Milestone 4:

Scenario inputs to develop multiple scenarios – Inputs to scenarios include facility-level ERMs and corporate-level cross-cutting strategies (both defined in Milestone 3), as well as how measures are phased over time and estimated changes to the portfolio size (e.g., addition or closure of facilities). Organizations should align their scenarios with capital planning, reinvestment, major equipment end-of-life, or deferred maintenance planning timelines. Other inputs may include estimated timelines for technology development or cost reduction, supply chain projections, or possible future regulations/policies related to GHG emissions.

Milestone 5:

Update organizational standards and procedures – Review and update existing organizational standards and procedures (e.g. standard operating procedures, procurement practices, project evaluation criteria, and training programs) to align with the selected ERP pathway. For example, GHG emissions may become a key evaluation criteria for all capital projects. Create new standards and procedures as needed to encourage implementation (e.g., an internal price of carbon).

Define financing and project deployment schedule – Decide on preferred financing mechanisms (and their phasing) to fund ERMs. This may depend on project type and organizational preference, and should account for annual budgeting cycles and financing availability. There are a variety of options, including operation and capital funds, traditional financing/loans, performance contracting, and green bonds. Investigate utility, state and federal grants (such as those established by the Inflation Reduction Act and the Bipartisan Infrastructure Law), rebates, and incentives as well. Project deployment schedules may also depend on technology availability, projected grid emissions, and other factors.

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