U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

Contracting for Efficiency

A Best Practices Guide for Energy-Efficient Product Procurement

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FEMP
Federal Energy Management Program

Disclaimer

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List of Acronyms

ASHRAE	American Society of Heating, Refrigerating and Air- Conditioning Engineers
Btu	British thermal unit, a measure of energy consumption or output
COP	Coefficient of Performance
DOE	U.S. Department of Energy
EER	Energy Efficiency Ratio
EF	Energy Factor
ENAC	Environmental Attribute Code
EPEAT	Electronic Product Environmental Assessment Tool
FAR	Federal Acquisition Regulation
FEMP	Federal Energy Management Program
FPDS	Federal Procurement Data System
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation, And Air Conditioning
IEER	Integrated Energy Efficiency Ratio
IT	Information Technology
LED	Light-Emitting Diode
LER	Luminaire Efficacy Rating
O&M	Operations And Maintenance
SEER	Season Energy Efficiency Ratio
UNSPSC	United Nations Standard Products and Services Code
U.S.C.	United States Code
VOIP	Voice over Internet Protocol

Executive Summary

The U.S. Department of Energy's (DOE) Federal Energy Management Program (FEMP) supports federal agencies in meeting federal energy and water management goals. FEMP's Energy-Efficient Product Procurement program provides guidance to agencies with regard to federal sustainable acquisition requirements related to energy and water consumption. This guidance, in turn, depends on several programs that identify the energy or water performance of various commercially-available products. These programs include:

- ENERGY STAR, which labels products that meet particular energy efficiencyrequirements in a large number of product categories;
- FEMP designation, which sets efficiency requirements for product categories not coveredby ENERGY STAR;
- Electronic Product Environmental Assessment Tool (EPEAT), which covers a number of energy and environmental characteristics for someelectronics product categories;
- FEMP Low Standby, which provides guidance on purchasing products with low standby power consumption (a measure of power consumption when a device is in its lowest power-consuming mode—typically when the product is switched off or not performing its primary purpose); and
- WaterSense, which labels water-using products that meet particular water efficiency requirements.

Federal agencies and their contracting activities are subject to a wide range of sustainable acquisition requirements covering numerous environmental attributes beyond energy and water efficiency. Visit GSA's Green Procurement Compilation, discussed in the Resources section of this document, for comprehensive coverage of green procurement requirements.

Although federal buyers are required to purchase products that meet all of the above standards, the focus of this guide is contracting for energy-efficient products. We emphasize how to specify products covered by ENERGY STAR and FEMP efficiency requirements. The practices presented in this guide, however, can be broadly applied to other sustainable acquisition requirements.

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1 Sustainable Acquisition Requirements

FEMP supports federal agencies in meeting federal energy and water management goals. FEMP's Energy-Efficient Product Procurement (EEPP) program provides guidance to agencies with regard to federal sustainable acquisition requirements related to energy and water consumption. This guidance, in turn, depends on several programs that identify the energy or water performance of various commercially-available products. These programs include:

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- FEMP designation, which sets efficiency requirements for product categories not coveredby ENERGY STAR;
- EPEAT, which covers a number of energy and environmental characteristics for some electronics product categories;
- FEMP Low Standby, which provides guidance on purchasing products with low standby power consumption (a measure of power consumption when a device is in its lowest power-consuming mode—typically when the product is switched off or not performing its primary purpose); and
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Federal Energy Performance Requirements

Federal Acquisition Regulation (FAR) Subpart 23.2 requires federal buyers to specify and acquire ENERGY STAR certified and FEMP-designated products for all acquisitions that include products in categories covered by either program.

The FEMP-designated and ENERGY STAR certified programs cover:

- **Heating and cooling equipment:** Including boilers, chillers, heat pumps, and package units;
- **Domestic water heating equipment:** Including gas storage, gas instantaneous, and electric resistance units;
- **Interior lighting equipment:** Including recessed, suspended, and high and low bay luminaires;
- **Exterior lighting equipment:** Including outdoor pole-mounted luminaires, wall- mounted luminaires, parking garage luminaires and floodlight luminaires;
- **Food service equipment:** Including dishwashers, fryers, ice machines, ovens, and refrigerators;
- **Information technology (IT) equipment:** Including computers, servers, uninterruptible power supplies; and
- Additional product categories listed in Table 1-1 of this section.

Federal energy performance requirements are developed such that:

1. Cost-effective and significant savings can be realized without compromising the functional performance of the product;
2. The energy efficiency specifications can be achieved by more than one manufacturer; and
3. The energy efficiency specification can be measured and verified through testing.

For product categories covered by ENERGY STAR, compliant products must have earned the ENERGY STAR label, and can be identified on the ENERGY STAR Product Finder web page.[1] When writing a contract, federal buyers should require that the vendor provide ENERGY STAR certified products. For product categories covered by FEMP-designation, products must meet or exceed the FEMP-designated efficiency level. When writing a contract, federal buyers should include the FEMP efficiency requirements and require the vendor to provide a product that meets or exceeds these levels.

Buying Efficient Equipment Saves Money and Energy and Reduces Greenhouse Gas Emissions

Energy-efficient products deliver the same or better service as inefficient models but use less energy. When equipment does not meet FEMP-designated and ENERGY STAR certified criteria, agencies incur losses caused by the inefficient energy performance of the equipment compared to a FEMP-designated and ENERGY STAR certified model. Buying efficient

[1] ENERGY STAR Product Finder web page can be found at https://www.energystar.gov/products/spec. Accessed August 2021.

equipment saves money on energy costs and can help agencies meet energy intensity and greenhouse gas reduction goals.

Exceptions from the Acquisition Requirement

Exceptions are available to the acquisition requirement if the head of the agency finds in writing that:

- No ENERGY STAR or FEMP-designated product is reasonably available that meets the functional requirements of the agency; or
- No ENERGY STAR or FEMP-designated product is cost effective over the life of the product taking energy cost savings into account.

There are many products that meet these requirements, provided by a variety of manufacturers, and buying inefficient products usually means leaving money on the table. Exceptions to the requirement are rare.

List of Covered Product Categories

Table 1-1. All Energy-Efficient Covered Product Categories

Product Type	Product Category	Efficiency Program	Product Type	Product Category	Efficiency Program
Appliances	Air Purifiers and Cleaners	ENERGY STAR	Appliances	Clothes Dryers (Residential)	ENERGY STAR
Appliances	Clothes Washers (Commercial)	ENERGY STAR	Appliances	Clothes Washers (Residential)	ENERGY STAR
Appliances	Dehumidifiers	ENERGY STAR	Appliances	Dishwashers (Residential)	ENERGY STAR
Appliances	Freezers (Residential)	ENERGY STAR	Appliances	Refrigerators (Residential)	ENERGY STAR
Food Service Equipment (Commercial)	Coffee Brewers (Commercial)	ENERGY STAR	Food Service Equipment (Commercial)	Dishwashers (Commercial)	ENERGY STAR
Food Service Equipment (Commercial)	Fryers (Commercial)	ENERGY STAR	Food Service Equipment (Commercial)	Griddles (Commercial)	ENERGY STAR
Food Service Equipment (Commercial)	Hot Food Holding Cabinets	ENERGY STAR	Food Service Equipment (Commercial)	Ice Machines, Air-Cooled	ENERGY STAR
Food Service Equipment (Commercial)	Ice Machines, Water-Cooled	FEMP	Food Service Equipment (Commercial)	Ovens (Commercial)	ENERGY STAR
Food Service Equipment (Commercial)	Refrigerated Beverage Vending Machines	ENERGY STAR	Food Service Equipment (Commercial)	Refrigerators and Freezers (Commercial)	ENERGY STAR
Food Service Equipment (Commercial)	Steam Cookers (Commercial)	ENERGY STAR			
Heating and Cooling	Air-Source Heat Pumps (Residential)	ENERGY STAR	Heating and Cooling	Boilers (Commercial)	FEMP
Heating and Cooling	Boilers (Residential)	ENERGY STAR	Heating and Cooling	Ceiling Fans (Residential)	ENERGY STAR
Heating and Cooling	Central Air Conditioners (Residential)	ENERGY STAR	Heating and Cooling	Electric Chillers, Air-Cooled (Commercial)	FEMP
Heating and Cooling	Electric Resistance Water Heaters (Residential)	FEMP	Heating and Cooling	Gas Furnaces (Residential)	ENERGY STAR
Heating and Cooling	Gas Storage Water Heaters (Residential)	ENERGY STAR	Heating and Cooling	Gas Water Heaters (Commercial)	ENERGY STAR
Heating and Cooling	Geothermal Heat Pumps (Residential)	ENERGY STAR	Heating and Cooling	Heat Pump Water Heaters (Residential)	ENERGY STAR
Heating and Cooling	Light Commercial Heating and Cooling Equipment	ENERGY STAR	Heating and Cooling	Room Air Conditioners (Residential)	ENERGY STAR
Heating and Cooling	Solar Water Heaters (Residential)	ENERGY STAR	Heating and Cooling	Ventilation Fans (Residential)	ENERGY STAR
Heating and Cooling	Whole-Home Tankless Water Heaters (Residential)	ENERGY STAR			
IT and Electronics	Audio/Video Equipment	ENERGY STAR	IT and Electronics	Computers: Desktops, Workstations, and Thin Clients	ENERGY STAR/EPEAT
IT and Electronics	Computers: Notebooks, Integrated Computers, and Tablets	ENERGY STAR/EPEAT	IT and Electronics	Computers: Small-Scale Servers	ENERGY STAR

Product Type	Product Category	Efficiency Program	Product Type	Product Category	Efficiency Program
IT and Electronics	Data Center Storage	ENERGY STAR	IT and Electronics	Displays	ENERGY STAR/EPEAT
IT and Electronics	Enterprise Servers	ENERGY STAR	IT and Electronics	Imaging Equipment	ENERGY STAR/EPEAT
IT and Electronics	Large Network Equipment	ENERGY STAR	IT and Electronics	Set-Top and Cable Boxes	ENERGY STAR
IT and Electronics	Small Network Equipment	ENERGY STAR	IT and Electronics	Telephones, including VOIP Phones[a]	ENERGY STAR
IT and Electronics	Televisions	ENERGY STAR/EPEAT	IT and Electronics	Uninterruptible Power Supplies	ENERGY STAR
Lighting	Decorative Light Strings	ENERGY STAR	Lighting	Exterior Lighting	FEMP
Lighting	Floodlights	FEMP	Lighting	Fluorescent Ballasts	FEMP
Lighting	Fluorescent Lamps, General Service	FEMP	Lighting	Fluorescent Luminaires	FEMP
Lighting	Industrial Lighting (High/Low Bay)	FEMP	Lighting	LED Luminaires, Commercial and Industrial	FEMP
Lighting	Light Bulbs	ENERGY STAR	Lighting	Light Fixtures (Residential)	ENERGY STAR
Lighting	Light Fixtures, Luminaires (Commercial)	FEMP	Lighting	Suspended Luminaires	FEMP
Other	Cool Roof Products	ENERGY STAR	Other	Electric Vehicle Supply Equipment	ENERGY STAR
Other	Faucets	WaterSense	Other	Irrigation Controllers	WaterSense
Other	Laboratory-Grade Refrigerators and Freezers	ENERGY STAR	Other	Pool Pumps	WaterSense
Other	Pre-Rinse Spray Valves	WaterSense	Other	Showerheads	WaterSense
Other	Spray Sprinkler Bodies	WaterSense	Other	Storm Windows	ENERGY STAR
Other	Toilets	WaterSense	Other	Urinals	WaterSense
Other	Water Coolers	ENERGY STAR	Other	Windows, Doors, and Skylights	ENERGY STAR

[a] Voice over Internet Protocol (VoIP) Telephone is a telephone or component of a telephone system that converts sound into Internet Protocol data packets for transmission through an Ethernet connection.

Available at: https://www.energy.gov/eere/femp/search-energy-efficient-products

2 Best Practices Guide Overview

Purchasing energy-efficient equipment can save federal agencies money and energy, reduce their greenhouse gas emissions, and allow agencies to meet procurement objectives legally required by statute and executive order. Often, however, contract actions may contain unclear information that can lead to the procurement of inefficient equipment. Contract actions include any verbal or written action that results in the purchase, rent, or lease of products and services. These include the procurement of supplies, equipment, services, or executing construction projects using government appropriated dollars. This guide is focused in particular on solicitations as covered in FAR sections 13-15. Although other contract actions like Multiple Award Schedules, Government Acquisition Contracts, and employee purchases under the micro-purchase threshold are covered by procurement requirements for energy-efficient products, those types of contract actions are not the subject of this guide.

Our guide emphasizes the following broad principles:

- Solicitations should clearly communicate to contractors the requirement for energy-efficient equipment. This means that solicitations should include references to the efficiency requirement in multiple locations, rather than simply the legal requirement to include the applicable FAR clause.
- Buyers should not expect that offerors know which product categories are subject to the requirements. Buyers should take responsibility to ensure that the vendor is aware of the efficiency requirements for specific products. Buyers should include specific efficiency requirements in the same section of the contract as other product characteristics and technical specifications, rather than providing general statements requiring vendors to comply with laws and executive orders for products subject to efficiency requirements.
- Post award, equipment should be evaluated to ensure it meets the efficiency requirements specified. By requiring vendors to provide specific information on equipment, the government can verify that it meets or exceeds required efficiency levels.

How to Use This Guide

The following section includes an overview of the best practice recommendations, followed by a list of resources. We have organized this guide by solicitation type, including the following categories:

- IT and Electronics Product Procurement
- Appliances Product Procurement
- Lighting Installation/Replacement Services
- Building Renovation and Heating, Ventilation, and Air Conditioning (HVAC)/Water Heating Equipment Replacement and/or Installation Services

- Architecture/Engineering and Design-Build/Design-Bid-Build Services
- Operations and Maintenance (O&M) Services
- Food Services
- Laundry Services

We recommend finding the example project that is most closely tied to yours and reviewing each step of the guidance. For each entry, we walk you through a three-step process to help:

1. Identify applicable covered product categories and efficiency requirements,
2. Incorporate efficiency requirements into solicitations,
3. Confirm the delivery of compliant products.

Sample model language is also provided to adapt to specific purposes, as well as examples of real solicitations to further demonstrate how to incorporate these requirements.

A note on project types included in this guide:

The project examples included in this guide are designed to cover a wide range of project types that may involve the purchase of covered product categories subject to efficiency requirements. However, the examples are not exhaustive– there are certainly other contracting scenarios that may be subject to efficiency requirements that are not included in this guide. One notable omission is new construction, when buyers may have limited ability to modify existing plans for new buildings. These types of projects and others are still subject to efficiency requirements, and the principles outlined in this guide still apply. The more explicitly the buyer is able to communicate the efficiency requirement to the vendor, the more likely that the government will receive efficient products that save energy and money and reduce greenhouse gas emissions.

FEMP staff are available for technical assistance on procuring energy-efficient products. Please visit femp.energy.gov for more information.

Three Steps to Buying and Verifying Efficient Products

Step 1: Identify covered product categories and efficiency requirements

The requirement to purchase efficient products applies if a covered product category will be delivered by the contractor, acquired by the contractor for use in a federal facility, furnished by the contractor for use by the government, specified in the design of a building or work, and/or incorporated into construction, renovation, or maintenance. For each example project type in this guide, we provide a list of the covered product categories often purchased for that project type and identify whether each is covered by ENERGY STAR or FEMP. If a product category is covered by FEMP, we list the applicable efficiency requirements. The goal here is to help you quickly identify which products are relevant for a given project type so that you can more easily communicate this information to offerors in Step 2.

Step 2: Incorporate efficiency requirements into solicitations

For each project type included in this guide, we make recommendations on how to incorporate efficiency requirements into various stages of the solicitation process and different sections of the solicitation itself. This section provides an overview of why these recommendations are important for each stage of procurement.

Sources sought notices

Even during the earlier stages of a procurement, it is important that you communicate efficiency requirements to ensure that potentially interested offerors can deliver compliant products.

Incorporating efficiency into your sources sought notices to identify small business or women-owned concerns can even expand the number of potential suppliers in your procurement phase by allowing potential offerors time to ensure they can secure efficient products. When conducting market research, you should describe how you will verify that offers meet the requirements so that vendors are aware of the requirements upfront. Communicating the efficiency requirement throughout the procurement process will help ensure you receive efficient products post-award.

Presolicitation notices

Presolicitation notices provide an opportunity to notify vendors of the efficiency requirements that will apply to the procurement. This allows vendors time to bulk up their inventory of efficient products or confirm with their supply sources that they will be able to deliver efficient products. We recommend either listing the specific covered product categories included in the solicitation or including a list of all the ENERGY STAR and FEMP-designated covered product categories. There are additional materials that may be useful to include in presolicitation notices depending on the project type.

Solicitation

It is important to include efficiency requirements in multiple sections of the solicitation to emphasize the requirement and ensure that you have requested sufficient information from the vendor to verify compliance.

Section I: Contract clauses

The contract clauses section includes all the clauses required by law that apply to the contract.For solicitations that included covered product categories, buyers should include FAR clause 52.223-15 – Energy Efficiency in Energy-Consuming Products, which reads:

(a) *Definition*. As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use ofthe Energy Star trademark label; or **(ii)** Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 United States Code [U.S.C.] 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction,renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Including this clause is legally required for solicitations that include energy-consuming products and is the first step in communicating to the vendor that they must deliver efficient products.

Section C: Statement of work

The statement of work describes the project and is an excellent opportunity to emphasize the efficiency requirement. Although the statement of work and other descriptive sections do not typically contain detailed product information, you can communicate to offerors that energy efficiency is a priority for your project. They will know instantly upon reading the project description that the energy efficiency requirement applies.

Section C (or in attachments): Technical specifications

Offerors look to the technical specifications to understand what the individual product requirements are for a given project. Technical specifications will typically include a wide range of characteristics including size, color, and various performance requirements. It is important to include efficiency requirements in the technical specifications section so that they are tied to

other product characteristics. Vendors may not know the federal efficiency requirements for individual products or may be unaware that the requirement applies.

Section L: Instructions to offerors

Requesting certain items from offerors will better allow you to evaluate offers for compliance with efficiency requirements. Requiring offerors to submit manufacturer cut sheets (technical descriptions generated by the manufacturer that include efficiency information) for individual products will allow the government to confirm that they meet efficiency requirements. Providing energy cost information in the solicitation will allow offerors to demonstrate the cost savings associated with efficient products. Allowing offerors to submit multiple models gives them the opportunity to provide products that may exceed the stated efficiency requirements.

Section M: Evaluation factors

The evaluation factors section of the solicitation outlines the factors you will consider in awarding the contract. Although purchasing efficient products is legally required, it is worthwhile to emphasize this requirement in the evaluation factors because vendors may be uncertain about the requirements. First, reiterate to vendors that offers that include products that do not meet ENERGY STAR or FEMP-designated efficiency requirements will be considered non-compliant, and you will only evaluate compliant offers. You can match the cut sheets provided to the list of covered product categories and associated efficiency information to determine if they are compliant. If a product is covered by ENERGY STAR, an ENERGY STAR certified product will be marked with the ENERGY STAR label. If the product has efficiency requirements set by FEMP, confirm that the information in the cut sheet meets these standards.

When evaluating compliant offers, you may wish to go beyond a baseline level of efficiency to evaluate based on lifecycle costs. Evaluating solicitations on lifecycle cost allows vendors to offer packages that may have higher upfront costs but will ultimately save your agency money. Evaluating based on lifecycle cost and/or the inclusion of energy-efficient products in offers can help ensure you receive offers that comply with efficiency requirements, or even exceed them.

Step 3: Confirm the delivery of compliant products

After issuing an award, verification is an important component of energy-efficient product procurement. There are a number of ways to verify and report on the delivery of these products. When recording the procurement in the Federal Procurement Data System (FPDS), mark it as containing energy-efficient products in the sustainability data field. As products are delivered, verify that the cut sheets provided match the products on the invoice. You can even consider requiring the vendor to report on how they are complying with the efficiency requirements.

3 Resources

Federal Energy Management Program

https://www.energy.gov/eere/femp/federal-energy-management-program

FEMP provides a wide variety of resources to help federal agencies procure energy- and water-efficient products.

Covered Product Category List

https://www.energy.gov/eere/femp/search-energy-efficient-products

FEMP maintains a list of all the covered product categories subject to efficiency requirements.

Product Overview Documents

For product categories covered by FEMP and several priority categories covered by ENERGY STAR, FEMP provides product overview documents that include comprehensive guidance on federal procurements for the given product category, including a summary of efficiency requirements, a cost-effectiveness example, and additional buying considerations for the federal sector. Product overview documents can be accessed by clicking on a given product category on the covered product category list.

United Nations Standard Products and Services Codes (UNSPSC) and Environmental Attribute Code (ENAC) Mappings

https://www.energy.gov/eere/femp/downloads/product-codes-tracking-energy-efficient-product-purchases

FEMP has mapped UNSPSCs and ENACs to the FEMP-designated and ENERGY STAR certified product categories subject to federal efficiency requirements. Federal agencies may find this mapping useful in tracking and reporting on sustainable acquisition activities.

Energy and Cost Savings Calculators

https://energy.gov/eere/femp/energy-and-cost-savings-calculators-energy-efficient-products

Federal buyers can estimate energy and cost savings for energy- and water-efficient product categories using FEMP and ENERGY STAR's interactive calculators.

Energy-Efficient Product Procurement Training

FEMP's First Thursday Seminar explains executive order and FAR requirements on purchasing products designated by FEMP and labeled by ENERGY STAR. FEMP also offers additional trainings in energy management in the federal sector, with new trainings released periodically.

http://energy.gov/eere/femp/federal-energy-management-program-training

ENERGY STAR

https://www.energystar.gov/

Covered Products List

https://www.energystar.gov/products

ENERGY STAR lists all its covered product categories. Federal buyers are required to buy ENERGY STAR certified products for all products covered by ENERGY STAR.

Product Finder Page

https://www.energystar.gov/productfinder/

ENERGY STAR maintains a database of certified products for each ENERGY STAR product category. For any given product, users can search on the Product Finder page for specific model numbers, or filter by manufacturer, size, and other product characteristics.

Program Requirements Documents

The efficiency requirements for any given covered product category are included on the ENERGY STAR website, which can be helpful when trying to identify whether a given product is covered by an ENERGY STAR product category. The program requirements documents provide a list of included and excluded products, and provide the efficiency requirements based on various product characteristics such as size or type. Here is the program requirements document for light commercial heating and cooling products, which covers a wide range of product categories federal agencies often purchase.
https://www.energystar.gov/sites/default/files/Light%20Commercial%20HVAC%20Version%203.1%20Program%20Requirements_1.pdf

Program requirements documents are updated as ENERGY STAR releases new efficiency requirements. Remember, if a product is not covered by ENERGY STAR, it may be covered by FEMP. For instance, ENERGY STAR does not cover commercial fluorescent luminaires, but FEMP does.

Green Procurement Compilation

https://sftool.gov/

The General Services Administration maintains the Green Procurement Compilation, a comprehensive green purchasing resource designed for federal contracting personnel and program managers. It includes information on sustainable purchasing requirements and model contract language for a wide range of products and services. The site also includes resources for acquisition planning and verification, covering a wide range of environmental attributes.

4 IT and Electronics Product Procurement

Step 1: Identify Covered Product Categories and Efficiency Requirements

Some IT and electronics products are covered by EPEAT, a standard that incorporates both efficiency requirements and additional environmental criteria. Federal buyers are required to procure products that are EPEAT-registered. Note that products that are EPEAT-registered meet ENERGY STAR efficiency requirements. A list of EPEAT-registered products is available at: https://www.epeat.net/.

EPEAT covers the following product categories:

- Computers (desktops, workstations, and thin clients; notebooks, integrated computers, and tablets; and small-scale servers) and displays
- Imaging equipment like copiers, printers, scanners, and multifunction devices
- Televisions.

In Step 2, buyers may change "ENERGY STAR certified" to "EPEAT-registered" for products covered by EPEAT.

Other IT and electronics products not covered by EPEAT are covered by ENERGY STAR. Common products bought in the federal sector include:

- Enterprise servers
- Uninterruptible power supplies, data center storage, network equipment, and other data center equipment.

Check the ENERGY STAR Product Finder page for examples of product models that have earned the ENERGY STAR label.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 4-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notices that emphasizes the requirement for any IT and electronics products to be ENERGY STAR certified.
Presolicitation	
☐	Include language in the presolicitation notice that emphasizes the requirement for any IT and electronics products to be ENERGY STAR certified.
☐	If you know which covered product categories will be in your solicitation, list them here with the requirement that they be ENERGY STAR certified. Or, attach the full list of covered product categories.

Solicitation	
☐	**Section C/Description:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that all products delivered must be ENERGY STAR certified.
☐	**Section C/Specifications or Section B/Supplies:** Specify the requirement for products to be ENERGY STAR certified in the same section as other product characteristics, like size and other features. Some IT and electronics products, such as workstations, have customizable configurations. Be sure to require an ENERGY STAR configuration when you list other product characteristics.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with the ENERGY STAR requirement. This means showing that the given products are on the ENERGY STAR Product Finder page, or providing cut sheets that include the ENERGY STAR label. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with the ENERGY STAR. Emphasize that technical acceptability means products must be ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Compare the invoices you receive to the cut sheets the vendor provided. Check that the delivered products are on the ENERGY STAR Product Finder page. Mark the contract as containing energy-efficient products in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Additional Resources

The Green Procurement Compilation provides an overview of buying guidance for office electronic products. https://sftool.gov/greenprocurement/green-products/10/office-electronics/0.

Excellence in contracting: Department of Homeland Security, United States Customs and Border Protection

In June 2017, the Department of Homeland Security issued a solicitation for the lease and maintenance of copiers at Customs and Border Protection offices in San Diego. The Department of Homeland Security referenced the requirement to purchase ENERGY STAR Certified products in multiple places throughout the solicitation process. The solicitation contained language requiring Energy Star certified multi-function copiers in the scope of work, using the language *"The lease of the copiers shall include all supplies including, but not limited to, toner, parts, adaptors, staples and cartridges, maintenance, and labor at no additional fee. The copiers shall also be Energy Star certified."* They again identified the need for these products by including FAR Clause 52.223-15 Energy Efficiency in Energy-Consuming Products. Through referencing the requirements in two different places the contractor highlighted the importance of supplying energy efficient products and this will likely result in the Department of Homeland Security receiving products that meet federal energy efficiency standards.

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified products in delivery of IT and Electronics products.

The Contractor shall provide products that are EPEAT-registered for products covered by EPEAT or have earned the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency for other IT and Electronics products. The Contractor shall use these products to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user. Products with different configuration options should use the ENERGY STAR configuration.

The following is a list of IT and Electronics product categories for which EPEAT-registered products are available. The most current list is available at https://epeat.net/:

- Computers and displays
- Televisions
- Imaging equipment including copiers, printers, scanners, and mailing machines.

The following is a list of IT and Electronics products for which ENERGY STAR certified products are available. It is not all-inclusive and is evolving; the most current list is available at www.energystar.gov/products.

- Audio/video equipment
- Data center storage and enterprise servers
- Large and small network equipment
- Telephones
- Uninterruptible power supplies.

The Contractor shall comply with the clause at FAR 52.223-15, Energy Efficiency in Energy-Consuming Products.

The Contractor shall report quarterly on the purchases of ENERGY STAR certified and EPEAT-registered products in the performance of this contract. The report shall include the following:

- A list of all energy consuming products purchased during the past quarter;
- A list of all ENERGY STAR certified-products purchased during the past quarter;
- Manufacturer cut sheets or other documentation that confirms the products are ENERGY STAR certified.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall identify the ENERGY STAR certified and EPEAT-registered products to be purchased and supplied or used under this contract. The Offeror shall demonstrate that these products to be supplied or used under this contract comply with the ENERGY STAR guidelines.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified and EPEAT-registered products. The Offeror shall provide a list of all relevant contracts over the past two years involving the specification, purchase, and use of ENERGY STAR certified and EPEAT-registered products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach with an emphasis on the identification of all ENERGY STAR certified and EPEAT-registered products to be purchased and delivered under this contract.

5 Appliances Product Procurement

Step 1: Identify Covered Product Categories and Efficiency Requirements

Appliance products are covered by ENERGY STAR. Appliances commonly bought in the federal sector include:

- Clothes washers (commercial and residential)
- Clothes dryers (residential)
- Residential refrigerators, freezers, and dishwashers.

Check the ENERGY STAR Product Finder page for examples of model numbers that have earned the ENERGY STAR label when buying appliances.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 5-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notices that emphasizes the requirement for appliances to be ENERGY STAR certified.
Presolicitation	
☐	Include language in the presolicitation notice that emphasizes the requirement for appliances to be ENERGY STAR certified.
☐	If you know which covered product categories will be in your solicitation, list them here with the requirement that they be ENERGY STAR certified. Or, attach the full list of covered product categories.
Solicitation	
☐	**Section C/Description:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that all products delivered must be ENERGY STAR certified.
☐	**Section C/Specifications or Section B/Supplies:** Specify the requirement for products to be ENERGY STAR certified in the same section as other product characteristics, like size and other features.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with efficiency requirements. This means showing that the given products are on the ENERGY STAR Product Finder page, or providing cut sheets that include the ENERGY STAR label. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with requirements. Emphasize that technical acceptability means products must be ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Compare the invoices you receive to the cut sheets the vendor provided. Confirm that the products purchased are on the ENERGY STAR Product Finder page. Mark the contract as containing energy-efficient products in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Additional Resources

The Green Procurement Compilation provides an overview of buying guidance for appliances: https://sftool.gov/greenprocurement/green-products/21/appliances/0.

Excellence in Contracting: Department of the Air Force, Air Mobility Command

The Air Mobility Command of the United States Department of the Air Force issued a solicitation in April 2018 to procure residential appliances like residential dishwashers and refrigerators. The Air Force referenced the need to meet ENERGY STAR standards via the technical specifications in this solicitation using the language, *"Needs to meet or exceed the following requirements: ...Energy Star certified,"* as well as through FAR clause 52.223-15 Energy Efficiency in Energy Consuming products. Through referencing the standard in two different places the contractor highlighted the importance of supplying energy efficient products and likely will result in the Air Force receiving products that meet the minimum efficiency requirements.

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified products in delivery of appliance products.

The Contractor shall provide products that earn the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency. The Contractor shall use these products to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user.

The following is a list of appliances for which ENERGY STAR certified products are available. It is not all-inclusive and is evolving; the most current list is available at www.energystar.gov/products.

- Air purifiers and cleaners
- Clothes dryers

- Clothes washers
- Dehumidifiers
- Dishwashers
- Refrigerators and freezers.

The Contractor shall comply with the clause at FAR 52.223-15, Energy Efficiency in Energy-Consuming Products.

The Contractor shall report quarterly on the purchases of ENERGY STAR certified products in the performance of this contract. The report shall include the following:

- A list of all energy consuming products purchased during the past quarter;
- A list of all ENERGY STAR certified-products purchased during the past quarter;
- Manufacturer cut sheets or other documentation that confirms the products are ENERGY STAR certified.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR ® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall identify the ENERGY STAR certified products to be purchased and supplied or used under this contract. The Offeror shall demonstrate that these products to be supplied or used under this contract comply with the ENERGY STAR guidelines.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified products. The Offeror shall provide a list of all relevant contracts over the past two years involving the specification, purchase, and use of ENERGY STAR certified products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach with an emphasis on the identification of all ENERGY STAR certified products to be purchased and delivered under this contract.

6 Lighting Installation and Replacement Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

There are a number of different lighting products covered by federal purchasing requirements. ENERGY STAR covers residential lighting and some commercial lighting products, including:

- Compact fluorescent and light-emitting diode (LED) light bulbs
- Under-cabinet, accent, task, and downlighting (including recessed, surface mount, and pendant).

Other commercial lighting products are covered by FEMP, including:

- Exterior lighting
- Suspended luminaires
- Fluorescent luminaires (like those used in an office building)
- Industrial lighting
- LED commercial and industrial luminaires.

In some cases it may be challenging to know which product category a given lighting product falls under. A good way to think about it is whether you could go buy the item at a retail store like Home Depot. If so, it is probably covered by ENERGY STAR and you should look for the ENERGY STAR label. If not, it is likely covered by FEMP. FEMP sets minimum requirements in Luminaire Efficacy Rating (LER), which is measured in lumens/watt. The efficiency requirements for FEMP-designated lighting products are included at the end of this section.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 6-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notices that emphasizes the requirement for lighting equipment to be energy-efficient.
Presolicitation	
☐	Include language in the presolicitation notice that emphasizes the requirement for lighting to be energy-efficient.
☐	If you know which covered product categories will be in your solicitation, list them here with the requirement that they be ENERGY STAR certified or meet FEMP-designated efficiency requirements. Or, attach the full list of covered product categories.
Solicitation	
☐	**Section C/Statement of Work:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that all lighting products delivered must be ENERGY STAR certified or meet FEMP-designated LER requirements.
☐	**Section C/Specifications:** Specify the requirement for products to be ENERGY STAR certified or meet FEMP-designated efficiency requirements in the same section as other product characteristics, like size and other features. Include a copy of the FEMP efficiency requirements if applicable.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with efficiency requirements. This means showing that the given products are on the ENERGY STAR Product Finder page, or providing cut sheets that include the LER rating for FEMP-designated products. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with requirements. Emphasize that technical acceptability means products meet FEMP efficiency requirements or are ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Compare the invoices you receive to the cut sheets the vendor provided. Ensure that lighting products covered by ENERGY STAR display the ENERGY STAR label. Ensure that for FEMP-designated products that the LER on the cut sheet meets or exceeds the efficiency requirement. Mark the contract as containing energy-efficient products in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Additional Resources

The Green Procurement Compilation provides an overview of buying guidance for lighting products: https://sftool.gov/greenprocurement/green-products/22/lighting-ceiling-fans/0.

Excellence in Contracting: Department of the Air Force, Air Education and Training Command

The Air Education and Training Command of the United States Department of the Air Force issued a solicitation in October 2019 to replace fluorescent interior and exterior lighting at an Air Force Base in Texas. All the fluorescent lights were to be replaced with Light Emitting Diode (LED) equivalent fixtures. In addition to highlighting the FAR 52.223-15, the solicitation also clearly identifies the LED fixture models that should replace the currently installed fluorescent luminaires throughout the base. The identified LED fixtures had Luminaire Efficacy Rating (LER) above the minimum FEMP designated values for their respective product categories.

FEMP Efficiency Requirements for Lighting Product Categories

Table 6-2. Exterior Lighting Efficiency Requirements

Category	Luminaire Efficacy (Lumens/Watt)
Fuel Pump Canopy Luminaires	≥ 113
Parking Garage Luminaires	≥ 113
Pole/Arm-Mounted Area and Roadway Luminaires	≥ 119
Pole/Arm-Mounted Decorative Luminaires	≥ 101
Wall-Mounted Luminaires	≥ 109
Bollards	≥ 81
Floodlight Luminaires	≥ 82

Table 6-3. Ceiling-Mounted Fluorescent Luminaires Efficiency Requirements

Luminaire Type and Size	Optical Element	Luminaire Efficacy Rating (Lumens/Watt)		
		T5HO	T5	T8
Recessed 1'x4'	Lensed	≥ 56	≥ 70	≥ 81
	Louvered	≥ 55	≥ 68	≥ 65
	Other	≥ 70	≥ 73	≥ 85
Recessed 2'x4'	Lensed	≥ 75	≥ 82	≥ 89
	Louvered	≥ 66	≥ 65	≥ 81
	Other[a]	≥ 68	≥ 78	≥ 88
Surface-Mounted 1'x4'	Any[b]	≥ 75	≥ 70	≥ 86
Surface-Mounted 2'x4'	Any	≥ 82	≥ 80	≥ 87
Strip Light 1'x4'	=====	≥ 73	≥ 82	≥ 89

Luminaire Type and Size	Optical Element	Luminaire Efficacy Rating (Lumens/Watt)				
		T5HO	T5	T8	Twin Tube	T8 U-Shaped
Recessed 2'x2'	Lensed	≥ 68	≥ 69	≥ 72	≥ 71	≥ 75
	Louvered	≥ 57	≥ 63	≥ 64	≥ 62	≥ 65
	Other[a]	≥ 57	≥ 70	≥ 64	≥ 64	N/A[c]
Surface-Mounted 2'x2'	Any[b]	≥ 66	≥ 65	≥ 64	≥ 68	≥ 66

[a] "Other" indicates a primary optical element other than a lens or louver, such as a perforated diffuser or a combination of optical elements (not including the reflector or housing).

[b] "Any" indicates any optical element.

[c] N/A indicates too few models in the dataset to propose an ER for this lamp type.

Table 6-4. Industrial Luminaires Efficiency Requirements

High Bay, Linear, Fluorescent			
Distribution Pattern[a]	Luminaire Size	Luminaire Efficacy Rating (Lumens/Watt)	
		F32T8	F54T5HO
Direct	1' x 4'	≥ 93	≥ 80
	2' x 4'	≥ 92	≥ 81
Semi-Direct	2' x 4'	≥ 92	≥ 70
Low Bay, Linear, Fluorescent			
Direct and Semi-Direct	1' x 4'	≥ 86	
	2' x 4'	≥ 85	
	1' x 8'	≥ 88	
High Bay, Non-Linear, Metal Halide			
Distribution Pattern	Input Watts (W)	Luminaire Efficacy Rating (Lumens/Watt)	
		Closed	Open
Direct	<150	≥ 55	≥ 54
	150 - 399	≥ 57	≥ 67
	400 - 999	≥ 65	≥ 72
	≥ 1000	≥ 80	≥ 81
Semi-Direct	<150	≥ 65	≥ 68
	150 - 399	≥ 63	≥ 84
	400 - 999	≥ 74	≥ 81
	≥ 1000	N/A[b]	≥ 94
Low Bay, Non-Linear, Metal Halide			
Direct and Semi-Direct	<150	≥ 58	≥ 60
	150 - 399	≥ 71	≥ 71
	400 - 999	≥ 75	≥ 79
	≥ 1000	N/A[b]	≥ 81

[a] Suspended luminaires are designated into categories that differ by the percentage of light emitted in a direction above the horizontal plane of the luminaire. The categories used in this efficiency requirement include direct (0 – 10% upward component) and semi-direct (10 – 40% upward component).

[b] N/A indicates too few models in the dataset to propose an efficiency requirement for this lamp type.

Table 6-5. Suspended Luminaires Efficiency Requirements

Optical Element	Distribution Pattern[a]	Lamp Type		
		T8 (Lumens/Watt)	T5HO (Lumens/Watt)	T5 (Lumens/Watt)
Lensed 1' x 4'	Direct	≥ 85	≥ 71	≥ 66
	Semi-Direct	≥ 90	≥ 68	N/A[c]
	General Diffuse	N/A[c]	N/A[c]	N/A[c]
	Semi-Indirect	≥ 93	≥ 74	≥ 75
	Indirect	≥ 92	≥ 71	≥ 74
Louvered 1' x 4'	Direct	≥ 68	≥ 68	≥ 56
	Semi-direct	≥ 65	≥ 65	≥ 52
	General Diffuse	≥ 76	≥ 59	≥ 55
	Semi-indirect	≥ 87	≥ 70	≥ 71
	Indirect	≥ 84	≥ 68	≥ 70
Other 1' x 4'[b]	Direct	≥ 93	≥ 81	N/A[c]
	Semi-direct	≥ 80	≥ 70	N/A[c]
	General Diffuse	≥ 73	N/A[c]	N/A[c]
	Semi-indirect	≥ 88	≥ 71	N/A[c]
	Indirect	≥ 89	≥ 73	N/A[c]

[a] Suspended luminaires are designated into five categories that differ by the percentage of light emitted in a direction above the horizontal plane of the luminaire. These categories are direct (0%-10% upward component), semi-direct (10%-40% upward), general diffuse (40%-60% upward), semi-indirect (60%-90% upward) and indirect (90%-100% upward).

[b] Other indicates a primary optical element other than a lens or louver, such as a perforated diffuser or a combination of optical elements (not including the reflector or housing).

[c] N/A indicates too few models in the dataset to propose an efficiency requirement for this lamp type.

Table 6-6. LED Luminaires Efficiency Requirements

LED Luminaire Type	Minimum Light Output	Luminaire Efficacy Rating (Lumens/Watt)
Commercial - Linear Ambient[a]	≥ 375 Lumens/Foot	≥ 128
Commercial - 1'x4' Troffers	≥ 1,500 Lumens	≥ 120
Commercial - 2'x2' Troffers	≥ 2,000 Lumens	≥ 123
Commercial - 2'x4' Troffers	≥ 3,000 Lumens	≥ 132
Industrial – Low Bay	≥ 5,000 to < 10,000 Lumens	≥ 125
Industrial – High Bay	≥ 10,000 Lumens	≥ 155
[a] Includes luminaires with both direct and indirect lighting components.		

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified and FEMP-designated lighting products.

The Contractor shall ensure that lighting installation and/or replacement services are performed with products that meet and/or exceed ENERGY STAR certified and FEMP-designated guidelines. The Contractor shall provide products that earn the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency. The Contractor shall provide products that meet FEMP-designated efficiency requirements. The Contractor shall use these products to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user.

The following is a list of lighting products for which ENERGY STAR certified and FEMP-designated products are available. It is not all-inclusive and is evolving; the most current list is available at https://www.energy.gov/eere/femp/search-energy-efficient-products.

- Fluorescent luminaires
- Suspended luminaires
- Exterior lighting
- Industrial luminaires

- LED Luminaires
- Compact fluorescent and LED light bulbs
- Commercial and residential under-cabinet, accent, task, and downlighting.

The Contractor shall comply with the clause at FAR 52.223-15, Energy Efficiency In Energy-Consuming Products.

The Contractor shall report quarterly on the purchases of ENERGY STAR certified and FEMP-designated products in the performance of this contract. The report shall include the following:

- A list of all energy consuming products purchased during the past quarter;
- A list of all ENERGY STAR certified and FEMP-designated products purchased during the past quarter;
- Manufacturer cut sheets or other documentation that confirms the products comply with efficiency requirements.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR ® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall identify the ENERGY STAR certified and FEMP-designated products to be purchased and supplied or used under this contract. The Offeror shall demonstrate that these products to be supplied or used under this contract comply with the ENERGY STAR guidelines and FEMP-designated guidelines.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified and FEMP-designated lighting products. The Offeror shall provide a list of all relevant contracts over the past two years involving the specification, purchase, and use of ENERGY STAR certified and FEMP-designated lighting products.

If Offeror is going to subcontract any work, state sub's experience in the purchasing and use of ENERGY STAR certified and FEMP-designated products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach for fulfilling renovation work with an emphasis of the following areas:

1. Identification of all ENERGY STAR certified and FEMP-designated products to be used and installed in the performance of this contract; and
2. The Offeror's proposed past performance experience with the use of ENERGY STAR certified and FEMP-designated lighting products.

The Agency's utility price is [ ] $/kWh for use in lifecycle cost and energy savings analysis.

7 Building Renovation and HVAC/Water Heating Equipment Replacement and/or Installation Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

HVAC and water heating equipment often needs to be replaced on its own or in the course of building renovation. FEMP covers many larger HVAC and water heating product categories:

- Air-cooled electric chillers
- Water-cooled electric chillers
- Commercial boilers (≥300,000 Btu/h and ≤ 10,000,000 Btu/h)
- Electric resistance water heaters.

Other air conditioning, space heating, and water heating equipment is covered by ENERGY STAR:

- Commercial water heaters
- Residential gas, solar, and geothermal water heaters
- Residential boilers (≤300,000 Btu/h)
- Residential furnaces
- Commercial and residential air conditioners and heat pumps
- Room air conditioners.

It is especially important to pay attention to the size of the equipment you are specifying to identify which efficiency requirements apply, or if they apply at all. For example, there are no federal efficiency requirements for some individual components of HVAC systems such as condensing units, air handling units, or HVAC controls systems. FEMP's Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories, included in the appendix to this document, provide efficiency requirements for all heating and cooling equipment covered by ENERGY STAR and FEMP.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 7-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notice that emphasizes the requirement for all HVAC and water heating equipment to be FEMP-designated or ENERGY STAR certified.
Presolicitation	
☐	Include language in the presolicitation notice emphasizes the requirement for all HVAC and water heating equipment to be ENERGY STAR certified or FEMP- designated.
☐	If you know which covered product categories will be in your solicitation, list them here with the appropriate efficiency requirement. You can also attach the Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories, which list all the covered product categories and associated efficiency requirements for HVAC equipment.
Solicitation	
☐	**Section C/Statement of Work:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that HVAC and water heating equipment should be ENERGY STAR certified or meet FEMP-designated efficiency levels.
☐	**Section C/Specifications:** If you are specifying the equipment the vendor will use, specify the efficiency requirements in the same section as other product characteristics. You can include the Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories, in this section.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with efficiency requirements. This means either showing that a product is on the ENERGY STAR Product Finder page or meets FEMP-designated efficiency requirements. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with requirement. Emphasize that technical acceptability means products meet FEMP efficiency requirements or are ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Confirm that the delivered products match the cut sheets provided and are ENERGY STAR certified or meet FEMP-designated efficiency requirements. Mark the contract as containing energy-efficient products in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Additional Resources

The Green Procurement Compilation provides an overview of buying guidance for HVAC and other mechanical equipment. https://sftool.gov/greenprocurement/green-products/24/hvacmechanical/0.

FEMP has developed Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories, included in the appendix of this document and on the FEMP website, for inclusion in solicitations for HVAC equipment. https://www.energy.gov/eere/femp/incorporate-minimum-efficiency-requirements-heating-and-cooling-products-federal.

Excellence in Contracting: National Guard Bureau, Department of the Army

In December 2020, the National Guard Bureau of the Department of the Army issued a solicitation for installing two packaged air conditioner units at an Air Refueling Wing in Pennsylvania. Besides including the FAR clause 52.223-15, the solicitation document included a number of components to help ensure that the Department of the Army would receive efficient products, such as:

1. Mentioning that the air conditioning units must be ENERGY STAR rated.
2. Clearly specifying Season Energy Efficiency Ratio (SEER) and Energy Efficient Ratio (EER) values that are equal to or greater than the minimum ENERGY STAR ratings for the air conditioning units.

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified and FEMP-designated products in performance of renovation and replacement services.

The Contractor shall ensure that building renovation and HVAC/water heating replacement/installation services are performed with products that meet and/or exceed ENERGY STAR certified and FEMP-designated guidelines. The Contractor shall provide products that earn the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency. The Contractor shall provide products that meet FEMP-designated efficiency requirements. The Contractor shall use these products to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user.

The following is a list of HVAC/water heating products for which ENERGY STAR certified and FEMP-designated products are available. It is not all-inclusive and is evolving; the most current list is available at https://www.energy.gov/eere/femp/search-energy-efficient-products.

- Air Conditioners
- Boilers
- Chillers
- Furnaces
- Heat Pumps
- Water Heaters.

The Contractor shall comply with the clause at FAR 52.223-15, Energy Efficiency In Energy-Consuming Products.

The Contractor shall report quarterly on the purchases of ENERGY STAR certified and FEMP-designated products in the performance of this contract. The report shall include the following:

- A list of all energy consuming products purchased during the past quarter;
- A list of all ENERGY STAR certified and FEMP-designated products purchased during the past quarter;
- Manufacturer cut sheets or other documentation that confirms the products comply with efficiency requirements.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR ® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall identify the ENERGY STAR certified and FEMP-designated products to be purchased and supplied or used under this contract. The Offeror shall demonstrate that these products to be supplied or used under this contract comply with the ENERGY STAR guidelines and FEMP-designated guidelines.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified and FEMP designated products. The Offeror shall provide a list of all relevant contracts over the past two years involving the specification, purchase, and use of ENERGY STAR certified and FEMP designated products.

If Offeror is going to subcontract any work, state sub's experience in the purchasing and use of ENERGY STAR certified and FEMP-designated products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach for fulfilling renovation work with an emphasis of the following areas:

1. Identification of all ENERGY STAR certified and FEMP-designated products to be used and installed in the performance of this construction contract; and
2. The Offeror's proposed past performance experience with the use of ENERGY STAR certified and FEMP-designated products in renovation or construction projects.

The Agency's utility price is [ ] $/kWh for use in lifecycle cost and energy savings analysis.

8 Architecture/Engineering and Design-Build/Design-Bid-Build Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

In the case of architecture/engineering or design-build/design-bid-build services, buyers do not have the opportunity to identify the specific equipment that will be purchased as part of the project. This means that you will need to communicate the federal efficiency requirements even more explicitly in the solicitation to ensure that you receive efficient equipment later on.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 8-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notice that emphasizes the requirement for energy-efficient design, including efficient equipment.
Presolicitation	
☐	Include language in your presolicitation notice that emphasizes the requirement that equipment to be included in future projects be high efficiency. You can also attach the full list of covered product categories.
Solicitation	
☐	**Section C/Statement of Work/Performance Work Statement:** Require contractors to use life-cycle cost analysis in their design approach, and to use ENERGY STAR or FEMP-designated products when applicable. You can also attach the HVAC Equipment Efficiency Requirements table, which lists all the covered product categories and associated efficiency requirements for HVAC equipment.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to include a narrative that identifies how they intend to meet the energy-efficient purchasing requirement. In a two- phase proposal, you can request cut sheets for a selection of the proposed HVAC and lighting equipment to demonstrate compliance.
☐	**Section M:** Evaluate offers based on the offeror's ability to design a building, renovation, or repair that includes FEMP-designated and ENERGY STAR certified equipment, as applicable.

Step 3: Verify the Delivery of Efficient Products

At the 35% design phase, require a list from the contractor of the equipment expected to be used in the project that includes information that confirms it is either ENERGY STAR certified or meets FEMP efficiency requirements. Mark the contract as containing energy-efficient products

in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

FEMP-Designated Efficiency Requirements

FEMP's Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories summarize all the FEMP and ENERGY STAR requirements for federal buyers for HVAC and water heating equipment. Include this table as part of your solicitation package for vendor reference.

Excellence in Contracting: Department of Agriculture, Agricultural Research Service

The United States Department of Agriculture demonstrated how to incorporate efficiency requirements in the procurement process for Architecture/Engineering (A/E) services. In March 2021, they posted a solicitation for A/E services for multiple construction/renovation projects in some Northeastern states in the country. In the solicitation notice, the Department of Agriculture emphasized energy efficiency as a priority and required offerors to demonstrate their ability to meet the requirements in a number of ways, including:

1. Requiring in the Statement of Work that "*Every effort shall be made to design an energy efficient building. The project design shall incorporate the use of advanced technologies and practices to promote energy efficiency, water conservation, heat recovery, and the use of solar and other renewable types of energy*".
2. Attaching a separate document highlighting the Department of Agriculture's "Energy, Water, and Sustainability Policy". Mentioning the importance of incorporating ENERGY STAR and FEMP designated energy efficient products in all buildings that are designed/renovated through the A/E solicitation.

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified and FEMP-designated products in design for renovations or new construction.

The Contractor shall prioritize the inclusion of energy-efficient equipment in developing plans and specifications for projects. A number of covered product categories are often specified in design projects, such as:

- Chillers, boilers, air conditioners, and heat pumps

- Water heaters
- Interior and exterior lighting products.

The Contractor shall specify products that earn the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency and/or that meet FEMP-designated efficiency requirements. A full list of product categories subject to efficiency requirement is available at the most current list is available at https://www.energy.gov/eere/femp/search-energy-efficient-products. The Contractor shall include these products in design to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall include a narrative that describes how the contractor intends to include lifecycle cost analysis and ENERGY STAR certified/FEMP-designated products in the design approach.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified and FEMP-designated products. The Offeror shall provide a list of all relevant contracts over the past two years involving the design of new construction or renovation that included the use of ENERGY STAR certified and FEMP-designated products.

If Offeror is going to subcontract any work, state sub's experience in the purchasing and use of ENERGY STAR certified and FEMP-designated products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach for fulfilling design work with an emphasis of the following areas:

1. The Offeror's ability to incorporate efficiency into building design, renovation, and repair as described in the Offeror's narrative; and
2. The Offeror's proposed past performance experience with the incorporation of ENERGY STAR certified and FEMP-designated products in design and/or construction for buildings, renovations, and/or repairs.

The Agency's utility price is [ ] $/kWh for the Offeror's use in lifecycle cost and energy savings analysis.

9 Operations and Maintenance Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

Almost any covered product category could be included under an O&M contract, whether for a specific product type (e.g., HVAC equipment) or O&M of a building overall. However, in the case of O&M services, the government does not always have the opportunity to identify the specific equipment that may be purchased over the course of the contract. Although O&M services do not explicitly call for purchases of new equipment, there may be times when the O&M contractor replaces equipment. In these cases, it is important that you have communicated the requirement to use only FEMP-designated or ENERGY STAR certified equipment.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 9-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notice that emphasizes the agency's interest in minimizing energy use in the maintenance and operation of buildings and equipment.
Presolicitation	
☐	Include language in your presolicitation notice that emphasizes the requirement for equipment to be maintained to achieve high efficiency. You can also attach the full list of covered product categories.
Solicitation	
☐	**Section C/Statement of Work/Performance Work Statement:** Require contractors to use lifecycle cost analysis in making decisions about investment in products, and to use ENERGY STAR or FEMP-designated products as applicable.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to include a narrative that identifies how they intend to meet the energy-efficient purchasing requirement.
☐	**Section M:** Evaluate offers based on the offeror's proposed sustainability plan and ability to maintain products efficiently and purchase efficient products as needed.

Step 3: Verify the Delivery of Efficient Products

Require the contractor to report quarterly on any equipment installed that is subject to efficiency requirements. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Excellence in Contracting: Department of Veterans Affairs, Network Contracting Office (NCO) 8

In March 2021, the Department of Veterans Affairs issued a presolicitation for Chiller Maintenance Services. The presolicitation included a section on Environmental and Energy Conservation Objectives as part of nine specific tasks listed. An example of the language included under that task is: "*This requirement is in compliance with the advancement of sustainable acquisitions by ensuring that 95 percent of new contract actions for the supply of products and for the acquisition of services (including construction) require that the products are—Energy-efficient (ENERGY STAR® or Federal Energy Management Program (FEMP)-designated)*".

By including this task in the solicitation, the agency is communicating to contractors that energy efficiency is a priority and that any procurement or maintenance of energy-consuming products would be subject to efficiency requirements.

Model Contract Language

Section C – Performance Work Statement/Descriptions, Specifications

The Contractor shall comply with Sections 524 and Sections 525 of the Energy Independence and Security Act of 2007; Section 104 of the Energy Policy Act of 2005; and the FAR to provide ENERGY STAR certified and FEMP-designated products in performance of operation and maintenance services.

The Contractor shall maintain the building or equipment in such a way to ensure that energy savings are maximized. Any replacement equipment required in the operation and maintenance of the building or equipment shall meet and/or exceed ENERGY STAR certified and FEMP-designated guidelines. The Contractor shall provide products that earn the ENERGY STAR label and meet the ENERGY STAR guidelines for energy efficiency. The Contractor shall provide products that meet FEMP-designated efficiency requirements. The Contractor shall use these products to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user.

The following is a list of product types for which ENERGY STAR certified and FEMP-designated products are available.

- Heating and cooling products
- Water heating equipment
- IT and electronics

- Lighting products
- Appliances
- Commercial food service equipment.

The Contractor shall comply with the clause at FAR 52.223-15, Energy Efficiency In Energy-Consuming Products.

The Contractor shall deliver a quarterly efficiency report that includes the following:

- A list of all energy consuming products purchased during the past quarter;
- A list of all ENERGY STAR certified and FEMP-designated products purchased during the past quarter;
- Manufacturer cut sheets or other documentation that confirms the products comply with efficiency requirements.

Section I – Contract Clause

(a) *Definition.* As used in this clause—

Energy-efficient product—(1) Means a product that—

(i) Meets Department of Energy and Environmental Protection Agency criteria for use of the Energy Star trademark label; or

(ii) Is in the upper 25 percent of efficiency for all similar products as designated by the Department of Energy's Federal Energy Management Program.

(2) The term "product" does not include any energy-consuming product or system designed or procured for combat or combat-related missions (42 U.S.C. 8259b).

(b) The Contractor shall ensure that energy-consuming products are energy efficient products (i.e., ENERGY STAR® products or FEMP-designated products) at the time of contract award, for products that are—

(1) Delivered;

(2) Acquired by the Contractor for use in performing services at a Federally-controlled facility;

(3) Furnished by the Contractor for use by the Government; or

(4) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.

(c) The requirements of paragraph (b) apply to the Contractor (including any subcontractor) unless—

(1) The energy-consuming product is not listed in the ENERGY STAR® Program or FEMP; or

(2) Otherwise approved in writing by the Contracting Officer.

(d) Information about these products is available for—

(1) ENERGY STAR® at https://www.energystar.gov/products; and

(2) FEMP at https://www.energy.gov/eere/femp/energy-efficient-products-and-energy-saving-technologies.

Section L – Instructions to Offerors

In the technical proposal, the Offeror shall identify the ENERGY STAR certified and FEMP-designated products to be supplied and purchased or used under this contract. The Offeror shall demonstrate that these products to be supplied or used under this contract comply with the ENERGY STAR guidelines and FEMP-designated guidelines.

The Offeror shall document prior experience in specifying, purchasing, and using ENERGY STAR certified and FEMP designated products. The Offeror shall provide a list of all relevant contracts over the past two years involving the specification, purchase, and use of ENERGY STAR certified and FEMP-designated products.

If Offeror is going to subcontract any work, state sub's experience in the purchasing and use of ENERGY STAR certified and FEMP-designated products.

Section M – Evaluation Factors for Award

Technical Approach/Technical Evaluation Factor

The Government will evaluate the Offeror's technical approach for fulfilling O&M work with an emphasis of the following areas:

1. Identification of all ENERGY STAR certified and FEMP-designated products to be used and installed in the performance of this operation and maintenance contract; and
2. The Offeror's proposed past performance experience with the use of ENERGY STAR certified and FEMP-designated products in operation and maintenance projects.

The Agency's utility price is [ ] $/kWh for the Offeror's use in lifecycle cost and energy savings analysis.

10 Food Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

Food service solicitations often include one or more of the following covered product categories:

- Commercial refrigerators and freezers
- Commercial fryers
- Commercial griddles
- Ice machines, air-cooled or water-cooled
- Commercial ovens
- Hot food holding cabinets
- Commercial steamers or steam cookers.

All of these covered product categories are covered by ENERGY STAR, with the exception of water-cooled ice-machines, which are covered by FEMP. For products covered by ENERGY STAR, you can find a list of certified products on the ENERGY STAR Product Finder page.

Efficiency requirements for water-cooled ice-machines are included at the end of this section and on the FEMP website.

Many of these same items are also frequently procured as product purchases, rather than in the context of food services. The structure will be similar to that described in the Appliances section of this guide.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 10-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notices that emphasizes the requirement for any kitchen equipment to be ENERGY STAR certified or FEMP-designated.
Presolicitation	
☐	Include language in the presolicitation notice emphasizes the requirement for any food service equipment to be ENERGY STAR certified or FEMP-designated.
☐	If you know which covered product categories will be in your solicitation, list them here with the appropriate efficiency requirement. Or, attach the full list of covered product categories.
Solicitation	
☐	**Section C/Statement of Work:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that food service equipment should be ENERGY STAR certified or meet FEMP-designated efficiency levels.
☐	**Section C/Specifications:** If you are specifying the equipment the vendor will use, specify the efficiency requirements in the same section as other product characteristics. For example, when you state the required dimensions of a refrigerator, you should also require it to be ENERGY STAR certified. If you are not specifying the equipment the contractor will use, be sure to attach the list of covered product categories.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with efficiency requirements. This means either showing that a product is on the ENERGY STAR Product Finder page or meets FEMP-designated efficiency requirements. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with requirement. Emphasize that technical acceptability means products meet FEMP efficiency requirements or are ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Confirm that the delivered products match the cut sheets provided and are ENERGY STAR certified, or, if a water-cooled ice machine is delivered, meets FEMP-designated efficiency levels. Mark the contract as containing energy-efficient products in the sustainability data field in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Table 10-2. FEMP-Designated Efficiency Requirements

Water-Cooled Ice Machines			
WCIM Type	**Ice Harvest Rate**	**Energy Use**	**Potable Water Use**
Self-Contained Unit	50 to 100 lb/24 hours	7.6 kWh/100 lb or less	22 gal/100 lb or less
Self-Contained Unit	101 to 150 lb/24 hours	6.6 kWh/100 lb or less	22 gal/100 lb or less
Self-Contained Unit	151 to 200 lb/24 hours	5.8 kWh/100 lb or less	20 gal/100 lb or less
Self-Contained Unit	200 lb/24 hours or greater	5.2 kWh/100 lb or less	20 gal/100 lb or less
Ice Making Head	50 to 300 lb/24 hours	5.5 kWh/100 lb or less	20 gal/100 lb or less
Ice Making Head	301 to 400 lb/24 hours	4.5 kWh/100 lb or less	18 gal/100 lb or less
Ice Making Head	401 to 500 lb/24 hours	4.1 kWh/100 lb or less	19 gal/100 lb or less
Ice Making Head	501 to 750 lb/24 hours	4.1 kWh/100 lb or less	18 gal/100 lb or less
Ice Making Head	751 to 1,435 lb/24 hours	3.5 kWh/100 lb or less	20 gal/100 lb or less
Ice Making Head	1,436 lb/24 hours or greater	3.3 kWh/100 lb or less	20 gal/100 lb or less

Model Contract Language

The Green Procurement Compilation has sample contract language for cafeteria and food services that incorporates efficiency requirements as well as other sustainable acquisition requirements. The model contract language is available here: https://sftool.gov/greenprocurement/green-services/9/cafeteria-food-services.

11 Laundry Services

Step 1: Identify Covered Product Categories and Efficiency Requirements

Commercial and residential clothes washers are both covered by ENERGY STAR. Residential dryers are also covered by ENERGY STAR, although there is currently no efficiency requirement for commercial dryers.

Step 2: Incorporate Efficiency Requirements into the Solicitation

Table 11-1. Guidance for Different Stages of a Solicitation

Market Research	
☐	Include language in your sources sought notices that emphasizes the requirement for laundry equipment to be ENERGY-STAR certified.
Presolicitation	
☐	Include language in the presolicitation notice emphasizes the requirement for any laundry equipment to be ENERGY STAR certified.
Solicitation	
☐	**Section C/Statement of Work:** Prioritize energy efficiency in your statement of work so offerors are immediately aware of the importance of the requirement. Mention in your statement of work that laundry equipment should be ENERGY STAR certified or meet FEMP-designated efficiency levels.
☐	**Section C/Specifications:** If you are specifying the equipment the vendor will use, specify the efficiency requirements in the same section as other product characteristics. For example, when you state the required dimensions of a clothes washer, you should also require it to be ENERGY STAR certified.
☐	**Section I:** Include FAR clause 52.223-15 in the contract clauses section.
☐	**Section L:** Require offerors to submit a list of covered product categories included in the contract and demonstrate compliance with efficiency requirements. This means showing that a product is on the ENERGY STAR Product Finder page. Allow the offeror to submit multiple products.
☐	**Section M:** Evaluate offers based on identification of all covered product categories and demonstrated compliance with requirement. Emphasize that technical acceptability means products are ENERGY STAR certified.

Step 3: Verify the Delivery of Efficient Products

Confirm that the delivered products match the cut sheets provided and are ENERGY STAR certified. Mark the contract as containing energy-efficient products in the sustainability data field

in FPDS. Once verified, mark the delivered products as energy-efficient in property management records, if applicable.

Model Contract Language

The Green Procurement Compilation has sample contract language for laundry services that incorporates efficiency requirements as well as other sustainable acquisition requirements. The model contract language is available here: https://sftool.gov/greenprocurement/green-services/8/laundry-services.

Excellence in Contracting: General Services Administration, on behalf of Department of Education

The General Services Administration (GSA) requested proposals for Cafeteria Services at the Department of Education in November 2019. The solicitation included language emphasizing energy efficiency as a priority throughout the document, such as under the Food Service Management and Consumer Engagement section: "*Utilize cleaning practices and equipment operations that conserve resources, such as water and energy. These could include using ENERGY STAR and WaterSense products and services.*" In addition, there was a full section on Energy Conservation Guidelines under the Contractor Responsibility description which included language specifying the use of ENERGY STAR products: "*The Contractor is to purchase and use Energy Star (energystar.gov) equipment in the performance of this contract.*"

The GSA referenced energy conservation, efficiency, and federal requirements in multiple locations throughout the solicitation. This iteration highlights to contractors the importance of supplying energy efficient products and is more likely to result in the agency receiving products that meet federal efficiency requirements.

12 Conclusion

The examples shown above reflect common projects that may include efficient products, but the topics covered in this guide are by no means exhaustive. Regardless of the product or project type, procurement teams can apply the same approaches outlined in this guide to communicate efficiency requirements to vendors, specify efficient products, and verify the delivery of compliant equipment. Similar principles can be used for other project types or contract vehicles. Key recommendations from this guide include:

- Incorporate efficiency into the entire procurement process, from acquisition planning to verification;
- Check the FEMP and ENERGY STAR websites for current lists of covered product categories and buying guidance;
- Specify efficiency requirements in the same solicitation sections as other technical information; and
- Request information from vendors to evaluate bids based on compliance with efficiency requirements and verify the delivery of efficient products post-award.

We hope procurement officials find this guide useful for purchasing efficient products. If buyers have any questions about specific procurements, please feel free to contact FEMP staff. Visit https://www.energy.gov/eere/femp/federal-energy-management-program for more information.

Appendix A: Minimum Efficiency Requirements Tables for Heating and Cooling Product Categories

FEMP created tables that mirror American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 tables, which include minimum efficiency requirements for FEMP-designated and ENERGY STAR certified heating and cooling product categories. These can be attached to presolicitation notices and solicitations in a wide variety of procurement types, including building renovation, construction, and design. The tables listed below include minimum efficiency requirements for residential and commercial heat pumps, air conditioners, boilers, commercial chillers, water heaters, and furnaces.

Air-Source Heat Pumps (Residential), Central Air Conditioners (Residential), Geothermal Heat Pumps (Residential), and Light Commercial Heating and Cooling Equipment

Table A-1. Minimum Efficiency Requirements for Air-Source Heat Pumps (Residential), Central Air Conditioners (Residential), Geothermal Heat Pumps (Residential), and Light Commercial Heating and Cooling Equipment

Electrically Operated Unitary Heat Pumps: Minimum Efficiency Requirements				
Equipment Type	**Size Category**	**Heating Section Type**	**Subcategory or Rating Condition**	**Minimum Efficiency**
Air-cooled (cooling mode)	<65,000 Btu/h	All	Split system	15.0 SEER[a]; 12.5 EER[b]; 8.5 HSPF[c] (single phase[d])
			Single package	15.0 SEER; 12.0 EER; 8.2 HSPF (single phase[d])
	≥65,000 Btu/h and <135,000 Btu/h	Electric resistance (or none)	Split system and single package	11.8 EER; 12.8 IEER[e]; 3.4 COP[f] at 470F
	≥135,000 Btu/h and <240,000 Btu/h	Electric resistance (or none)	Split system and single package	10.9 EER; 12.0 IEER[e]; 3.3 COP[f] at 470F
	≥240,000 Btu/h[g]	Electric resistance (or none)	Split system and single package	9.5 EER; 10.6 IEER
Geothermal, closed loop water- to-air				17.1 EER; 3.6 COP (single phase)
Geothermal, open loop water-to-air				21.1 EER; 4.1 COP (single phase)
Geothermal, closed loop water- to-water				16.1 EER; 3.1 COP (single phase)
Geothermal, open loop water-to- water				20.1 EER; 3.5 COP (single phase)
Geothermal, DGX				16.0 EER; 3.6 COP (single phase)

[a] Seasonal Energy Efficiency Ratio (SEER) is the total heat removed from the conditioned space during the annual cooling season, expressed in British thermal units (Btu), divided by the total electrical energy consumed by the air conditioner or heat pump during the same season, expressed in Watt-hours.

[b] Energy Efficiency Ratio (EER) is the ratio of the average rate of space cooling delivered to the average rate of electrical energy consumed by the air conditioner or heat pump. This ratio is expressed in Btu/Wh.

[c] Heating Seasonal Performance Factor (HSPF) is the total space heating required in U.S. climate region IV (mixed dry climate) during the space heating season, expressed in Btu, divided by the total electrical energy consumed by the heat pump system during the same season, expressed in Watt-hours.

[d] Three-phase heat pumps in the <65,000 Btu/h category are not covered by ENERGY STAR.

[e] Integrated Energy Efficiency Ratio (IEER) is a weighted average calculation of mechanical cooling EERs determined for four load levels and corresponding rating conditions, as measured in Appendix A of Subpart F of 10 CFR part 431, expressed in Btu/Watt-hour.

[f] Coefficient of Performance (COP) is the ratio of the produced cooling effect of an air conditioner or heat pump (or its produced heating effect, depending on the mode of operation) to its net work input, when both the cooling (or heating) effect and the net work input are expressed in identical units of measurement.

[g] Heat pumps with size equal to or greater than 240,000 Btu/h are not covered by federal purchasing requirements. Minimum efficiency presented is consistent with ASRHAE 90.1 requirements Table 6.8.1-2.

* All definitions are taken from ENERGY STAR or other reputed sources.

Central Air Conditioners and Light Commercial Heating and Cooling Equipment

Table A-2. Minimum Efficiency Requirements for Central Air Conditioners and Light Commercial Heating and Cooling Equipment

Electrically Operated Unitary Air Conditioners: Minimum Efficiency Requirements				
Equipment Type	**Size Category**	**Heating Section Type**	**Subcategory or Rating Condition**	**Minimum Efficiency**
Air conditioners, air-cooled	<65,000 Btu/h	All	Split system	15.0 SEER and 12.5 EER (single phase[a])
			Single package	15.0 SEER and 12.0 EER (single phase[a])
	≥65,000 Btu/h and <135,000 Btu/h	Electric resistance (or none)	Split system and single package	12.2 EER and 14.0 IEER
		All other	Split system and single package	12.0 EER and 13.8 IEER
	≥135,000 Btu/h and <240,000 Btu/h	Electric resistance (or none)	Split system and single package	12.2 EER and 13.2 IEER
		All other	Split system and single package	12.0 and 13.0 IEER
	≥240,000 Btu/h and <760,000 Btu/h[b]	Electric resistance (or none)	Split system and single package	10.0 EER and 11.6 IEER
		All other	Split system and single package	9.8 EER and 11.4 IEER
	≥760,000 Btu/h[b]	Electric resistance (or none)	Split system and single package	9.7 EER and 11.2 IEER
		All other	Split system and single package	9.5 EER and 11.0 IEER

[a] Three-phase air conditioners in the <65,000 Btu/h category are not covered by ENERGY STAR.

[b] Air conditioners with size equal to or greater than 240,000 Btu/h are not covered by federal purchasing requirements. Minimum efficiency presented is consistent with ASRHAE 90.1 Table 6.8.1-1.

Boilers (Residential) and Boilers (Commercial)

Table A-3. Minimum Efficiency Requirements for Boilers (Residential) and Boilers (Commercial)

Gas- and Oil-Fired Boilers: Minimum Efficiency Requirements				
Equipment Type	**Subcategory or Rating Condition**	**Size Category (Input)**	**Efficiency Metric**	**Minimum Efficiency**
Boilers, hot water	Gas-fired	<300,000 Btu/h	AFUE[a]	90%
		≥300,000 Btu/h and ≤2,500,000 Btu/h	E_t[b]	95%
		>2,500,000 Btu/h and ≤10,000,000 Btu/h	E_t	95%
		>10,000,000 Btu/h[c]	E_c[d]	82%
	Oil-fired	<300,000 Btu/h	AFUE	87%
		≥300,000 Btu/h and <2,500,000 Btu/h	E_t	85.5%
		>2,500,000 Btu/h and ≤10,000,000 Btu/h	E_t	88.5%
		>10,000,000 Btu/h[c]	E_c	84%
Boilers, steam	Gas-fired	<300,000 Btu/h	AFUE	90%
	Gas-fired (all, except natural draft)	≥300,000 Btu/h and ≤2,500,000 Btu/h	E_t	81%
		>2,500,000 Btu/h and ≤10,000,000 Btu/h	E_t	83%
		>10,000,000 Btu/h[c]	E_t	79%
	Gas-fired, natural draft	≥300,000 Btu/h and ≤2,500,000 Btu/h	E_t	81%
		>2,500,000 Btu/h and ≤10,000,000 Btu/h	E_t	83%
		>10,000,000 Btu/h[c]	E_t	79%
	Oil-fired	<300,000 Btu/h	AFUE	87%
		≥300,000 Btu/h and ≤2,500,000 Btu/h	E_t	84%
		>2,500,000 Btu/h and ≤10,000,000 Btu/h	E_t	85.5%
		>10,000,000 Btu/h[c]	E_t	81%

[a] Annual Fuel Utilization Efficiency (AFUE) is the ratio of annual output energy to annual input energy, which includes any non-heating season pilot input loss and, for gas or oil-fired furnaces or boilers, does not include electric energy. Residential Boilers are covered by ENERGY STAR and use AFUE as the efficiency metric.

[b] Thermal efficiency (E_t) is based on Hydronics Institute, Method to Determine Efficiency of Commercial Space Heating Boilers (HI BTS-2000, Rev. 06.07). Commercial boilers (with capacity ≥300,000 Btu/h and ≤10,000,000 Btu/h) are covered by FEMP and use Thermal Efficiency as the efficiency metric.

[c] Boilers with input greater than 10,000,000 Btu/h are not covered by federal purchasing requirements. Minimum efficiency presented is consistent with ASRHAE 90.1 Table 6.8.1-6.

[d] Combustion efficiency (E_c) is the total energy input (100%) minus the percent of flue losses. Thermal efficiency (E_t) includes the radiation and convection losses from boiler shell in addition to the flue losses.

Electric Chillers, Air-Cooled and Water-Cooled

Table A-4. Minimum Efficiency Requirements for Electric Chillers, Air-Cooled and Water-Cooled

Water-Chilling Packages: Minimum Efficiency Requirements				
Equipment Type	Size Category	Units	Minimum Efficiency	
			Path A (Full-Load Optimized Applications)	Path B (Part-Load Optimized Applications)
Air-cooled	<150 t	EER[a] (Btu/W)	≥10.70 FL[b]	≥9.70 FL
			≥13.7 IPLV[c]	≥15.9 IPLV
Air-cooled	≥150 t	EER (Btu/W)	≥10.73 FL	≥9.70 FL
			≥14.00 IPLV	≥16.37 IPLV
Water-cooled, electrically operated positive displacement	< 75 t	kW/t	≤0.728 FL	≤0.78 FL
			≤0.60 IPLV	≤0.50 IPLV
Water-cooled, electrically operated positive displacement	≥75 t and <150 t	kW/t	≤0.714 FL	≤0.75 FL
			≤0.56 IPLV	≤0.49 IPLV
Water-cooled, electrically operated positive displacement	≥150 t and <300 t	kW/t	≤0.629 FL	≤0.68 FL
			≤0.54 IPLV	≤0.44 IPLV
Water-cooled, electrically operated positive displacement	≥ 300 t and <600 t	kW/t	≤0.61 FL	≤0.625 FL
			≤0.52 IPLV	≤0.41 IPLV
Water-cooled, electrically operated positive displacement	≥600 t	kW/t	≤0.56 FL	≤0.585 FL
			≤0.50 IPLV	≤0.38 IPLV
Water-cooled, electrically operated centrifugal	< 150 t	kW/t	≤0.61 FL	≤0.695 FL
			≤0.55 IPLV	≤0.44 IPLV
Water-cooled, electrically operated centrifugal	≥150 t and <300 t	kW/t	≤0.544 FL	≤0.635 FL
			≤0.55 IPLV	≤0.40 IPLV
Water-cooled, electrically operated centrifugal	≥300 t and <400 t	kW/t	≤0.544 FL	≤0.595 FL
			≤0.52 IPLV	≤0.39 IPLV
Water-cooled, electrically operated centrifugal	≥400 t and <600 t	kW/t	≤0.541 FL	≤0.585 FL
			≤0.50 IPLV	≤0.38 IPLV
Water-cooled, electrically operated centrifugal	≥ 600 t	kW/t	≤0.55 FL	≤0.585 FL
			≤0.50 IPLV	≤0.38 IPLV

[a] Energy efficiency ratio (EER) is the ratio of the average rate of space cooling delivered to the average rate of electrical energy consumed by the equipment (in this case. chiller). In the case of chillers, it is expressed in British thermal unit/Watt (Btu/W).

[b] FL is Full-Load efficiency. It is calculated while the equipment is operating at 100% load.

[c] IPLV is Integrated Part-Load Value (IPLV) efficiency. It is calculated using the efficiency of the equipment while operating at load capacities of 100%, 75%, 50%, and 25% as prescribed in the Air-Conditioning, Heating, and Refrigeration Institute 550/590 test procedure.

Gas Storage Water Heaters, Gas Water Heaters, Heat Pump Water Heaters, and Solar Water Heaters

Table A-5. Minimum Efficiency Requirements for Gas Storage Water Heaters, Gas Water Heaters, Heat Pump Water Heaters, and Solar Water Heaters

Water-Heating Equipment: Performance Requirements			
Equipment Type	**Size Category (Input)**	**Subcategory or Rating Condition**	**Performance Required**
Electric storage water heaters	≤24 A and ≤250 V	Heat pump ≤55 gal	EF[a] ≥2.0 and FHR[b] ≥50 gal/h
		Heat pump >55 gal and ≤120 gal	EF ≥2.2 and FHR ≥50 gal/h
Gas storage water heaters	≤75,000 Btu/h	≥20 gal and ≤55 gal	EF ≥0.67 and FHR ≥67 gal/h
		>55 gal and ≤100 gal	EF ≥0.77 and FHR ≥67 gal/h
	>75,000 Btu/h	>100 gal and ≤140 gal	TE[c] ≥0.94 or EF ≥0.93 and standby loss ≤0.84 * [(input rate/800) + 100√volume)] Btu/h
Gas instantaneous water heaters	≥50,000 Btu/h and <200,000 Btu/h	<4,000 (Btu/h)/gal	EF ≥0.90 and GPM[d] ≥2.5 over a 77-deg rise
	≥200,000 Btu/h	≥4,000 (Btu/h)/gal	TE ≥0.94 or EF ≥0.93
Solar water heaters	≤75,000 Btu/h	Electric backup	SEF[e] ≥1.8
		Gas backup	SEF ≥1.2

[a] Energy factor (EF) is an efficiency ratio of the energy supplied in heater water divided by the energy input to the water heater.

[b] First-Hour Rating (FHR) is an estimate of the maximum volume of hot water in gallons that a storage water heater can supply within an hour that begins with the water heater fully heated.

[c] Thermal efficiency (TE) is the ratio of the heat transferred to the water flowing through the water heater to the amount of energy consumed by the water heater.

[d] Gallons per Minute (GPM) is the amount of gallons per minute of hot water that can be supplied by an instantaneous water heater while maintaining a nominal temperature rise of 77°F during steady state operation.

[e] Solar Energy Factor (SEF) refers to the energy delivered by the total system divided by the electrical or gas energy put into the system.

Gas Furnaces

Table A-6. Minimum Efficiency Requirements for Gas Furnaces

Warm-Air Furnaces: Minimum Efficiency Requirements			
Equipment Type	**Size Category (Input)**	**Subcategory or Rating Condition**	**Minimum Efficiency**
Warm-air furnace, gas fired	<225,000 Btu/h[a]	Maximum capacity	≥95.0% (U.S. North/Canada)
			≥90.0% (U.S. South)
	≥225,000 Btu/h	Maximum capacity	80% E_t [b]
Warm-air furnace, oil fired	<225,000 Btu/h	Maximum capacity	≥85% AFUE[c]
	≥225,000 Btu/h[a]	Maximum capacity	81% E_t

[a] Furnaces with input equal to or greater than 225,000 British thermal unit/hour (Btu/h) are not covered by federal purchasing requirements. Minimum efficiency presented is consistent with ASRHAE 90.1 Table 6.8.1-5.

[b] Thermal efficiency (E_t) is the total energy input (100%) minus the percent of flue losses, radiation, and convection losses from the furnace shell.

[c] Annual Fuel Utilization Efficiency (AFUE) is the ratio of annual output energy to annual input energy, which includes any non-heating season pilot input loss and, for gas or oil-fired furnaces or boilers, does not include electric energy.

Room Air Conditioners

Table A-7. Minimum Efficiency Requirements for Room Air Conditioners

Electrically Operated Room Air Conditioners: Minimum Efficiency Requirements			
Equipment Type	**Size Category (Input)**	**Subcategory or Rating Condition**	**Minimum Efficiency**
Room air conditioners with louvered sides	<6,000 Btu/h	-	12.1 CEER[a]
	≥6,000 Btu/h and <8,000 Btu/h	-	12.1 CEER
	≥8,000 Btu/h and <14,000 Btu/h	-	12.0 CEER
	≥14,000 Btu/h and <20,000 Btu/h	-	11.8 CEER
	≥20,000 Btu/h and <28,000 Btu/h	-	10.3 CEER
	≥ 28,000		9.9 CEER
Room air conditioners without louvered sides	<8,000 Btu/h	-	11.0 CEER
	≥8,000 Btu/h and <11,000 Btu/h	-	10.6 CEER
	≥11,000 Btu/h and <14,000 Btu/h	-	10.5 CEER
	≥14,000 Btu/h and <20,000 Btu/h	-	10.2 CEER
	≥20,000 Btu/h		10.3 CEER
Room air-conditioner heat pumps with louvered sides	<20,000 Btu/h	-	10.8 CEER
	≥20,000 Btu/h	-	10.2 CEER
Room air-conditioner heat pumps without louvered sides	<14,000 Btu/h	-	10.2 CEER
	≥14,000 Btu/h	-	9.6 CEER
Room air conditioner, casement only	All capacities	-	10.5 CEER
Room air conditioner, casement slider	All capacities	-	11.4 CEER

[a] Combined Energy Efficiency Ratio (CEER) is the energy efficiency of a room air conditioner defined as "The ratio of measured cooling output (in Btu per hour) to measured average electrical energy input (in Watts) and measured standby/off-mode power consumption (in Watts)." It is measured in accordance with the test procedure at 10 CFR 430, Subpart B, Appendix F or, a DOE-approved test procedure waiver pursuant to 10 CFR Part 430.27. CEER is expressed in units of British thermal unit per watt-hour (Btu/Wh).

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