



**TAKE FIVE**  
TO SAVE COSTS  
& THE CLIMATE

# What is Energy Efficiency?

## For Federal Acquisition

Installing energy efficient equipment can lower a building's energy use and reduce energy costs and carbon emissions. Federal agencies are required by law ([42 USC §8259b](#)) to purchase products certified by EPA's ENERGY STAR program or that meet or exceed the efficiency level designated by DOE's Federal Energy Management Program (FEMP).

## What is energy efficiency?

Energy efficiency measures the energy service delivered (output) compared to the energy used (input). A more efficient product provides the **same service** with **less energy**.

$$\frac{\text{Energy Service Delivered}}{\text{Energy Used}} = \frac{\text{Output}}{\text{Input}} = \text{Efficiency} \quad (\text{higher is usually better})$$

Common units of energy are kilowatt hours (kWh) & British Thermal Units (BTUs).

## How to buy an energy efficient product?

Find required efficiency and compliant products



Apply required efficiency to the acquisition



- [GSA Sustainable Facilities Tool \(sftool.gov\)](https://www.sfprocurement.gov/sf-tool)



- [DOE FEMP Efficient Products Search](https://www.energy.gov/femp/search-energy-efficient-products)  
<https://www.energy.gov/femp/search-energy-efficient-products>



- [ENERGY STAR Product Search](https://www.energystar.gov/products)  
<https://www.energystar.gov/products>

Preferred Vendor:

- Ask for product that meets or exceeds required efficiency

Solicitation:

- Identify compliant model and/or required efficiency in technical specifications
- Include energy efficiency in evaluation criteria
- Require vendors to document compliance



For this and other Take Five videos, visit

[FEMP's Energy Efficient Product Procurement training webpage](https://www.energy.gov/femp/energy-efficient-product-procurement-training-federal-agencies)

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### How is energy efficiency measured?

Efficiency is usually measured as output over input and in most cases, a **higher value** means a **more efficient** product. To find efficiency metrics for other covered products, use the [DOE FEMP Efficient Products Search](https://www.energy.gov/femp/search-energy-efficient-products) (<https://www.energy.gov/femp/search-energy-efficient-products>)

PRODUCT	EFFICIENCY METRIC*
Boilers	- Combustion or Thermal Efficiency (%) - AFUE: Annual Fuel Utilization Efficiency (%)
Heat Pumps	- SEER: Seasonal Energy Efficiency Rating (BTU/kWh) - HSPF: Heating Seasonal Performance Factor (BTU/kWh)
Air Conditioners	- SEER: Seasonal Energy Efficiency Rating (BTU/kWh)
Chillers*	- Full Load Efficiency (kW/ton) & IPLV: Integrated Part Load Value (kW/ton)
Lighting	- Luminous Efficacy (lumens of light per watt or lm/W)
Water Heaters	- Thermal Efficiency (%)
Ovens	- Cooking Efficiency (%)
Clothes Washers	- MEF: Modified Energy Factor - IWF: Integrated Water Factor*
Refrigerators & Freezers*	- Annual Energy Consumption (kWh) - Maximum Daily Energy Consumption (kWh)
Ice Makers*	- Maximum Energy Use (kWh/100 lb of ice)
Coffee Makers*	- Normalized Ready-to-Brew Idle Energy Rate (watts/gal) - Normalized Heavy-Use Brew Energy Rate (watt-hours/gal)
Computers*	- TEC: Typical Energy Consumption (kWh)
Enterprise Servers	- Power Supply Efficiency (%)

\*A lower value represents a more efficient product.

For questions, contact:



Federal Energy Management Program  
[Technical Assistance Portal](https://www7.eere.energy.gov/femp/assistance/)

(<https://www7.eere.energy.gov/femp/assistance/>)



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