

ENERGY STAR® Unit Shipment and Market Penetration Report Calendar Year 2016 Summary

This is the 15th year in which EPA has collected unit shipment data for the ENERGY STAR Program from program partners and/or their representative associations and used it to project the market penetration of ENERGY STAR certified products.

Data:

For 2016, data was collected for the following ENERGY STAR certified products:

- | | |
|------------------------------------------------------------------|----------------------------------|
| • Audio/Video | • Displays |
| • Boilers | • Furnaces |
| • Ceiling Fans | • Geothermal Heat Pumps |
| • Central Air Conditioners and Air-Source Heat Pumps (CAC/ASHPs) | • Imaging Equipment |
| • Clothes Dryers | • Lamps |
| • Clothes Washers | • Light Commercial HVAC |
| • Commercial Dishwashers | • Luminaires |
| • Commercial Fryers | • Pool Pumps |
| • Commercial Griddles | • Refrigerators and Freezers |
| • Commercial Hot Food Holding Cabinets | • Roof Products |
| • Commercial Ice Machines | • Room Air Cleaners |
| • Commercial Ovens | • Room Air Conditioners |
| • Commercial Refrigerators and Freezers | • Set-top Boxes |
| • Commercial Steam Cookers | • Set-top Box Service Providers |
| • Commercial Water Heaters | • Small Network Equipment |
| • Computer Servers | • Telephony |
| • Computers | • Televisions |
| • Data Center Storage | • Uninterruptible Power Supplies |
| • Decorative Light Strings (DLS) | • Vending Machines |
| • Dehumidifiers | • Ventilating Fans |
| • Dishwashers | • Water Coolers |
| | • Water Heaters |

Methodology:

ENERGY STAR market penetrations for a given year are derived by dividing U.S. ENERGY STAR certified product shipments by total U.S. shipments.

U.S. ENERGY STAR Shipment Data

ENERGY STAR shipment data is collected from program partners for each calendar year. EPA uses this data as the representative value of all ENERGY STAR certified product shipments for the respective year; that is, no adjustments are made to the totals to account for partners that fail to report their shipments. Using the reported data represents a conservative approach. Though this method may underestimate ENERGY STAR market penetration, the data are reliable and the method is easily replicated. Further, response rates for all collected product categories average approximately 87%. Since many non-responsive partners are no longer shipping ENERGY STAR products, the shipments reported approximate actual ENERGY STAR certified product shipments.

Total U.S. Shipment Data

Total U.S. shipments are based on modeled and documented data. Industry data is used as a direct input whenever available and compared to forecast assumptions to ensure data comparability. Industry sources include trade associations, publications, and commercially-available market research.

Response Rates:

Percent of Partners that Submitted CY2016 Unit Shipment Data:

Product Category	Response Rate	Number of Partners Required to Respond
Audio/Video	86%	29
Boilers	98%	41
Ceiling Fans	90%	42
Central ACs and Air-Source Heat Pumps	89%	47
Clothes Dryers	100%	10
Clothes Washers	100%	14
Commercial Dishwashers	100%	17
Commercial Fryers	100%	10
Commercial Griddles	100%	10
Commercial Hot Food Holding Cabinets	100%	10
Commercial Ice Machines	94%	17
Commercial Ovens	100%	21
Commercial Refrigerators and Freezers	92%	48
Commercial Steam Cookers	89%	9
Commercial Water Heaters	100%	13
Computers	86%	80
Computer Servers	86%	23
Data Center Storage	100%	13
Decorative Light Strings	72%	43
Dehumidifiers	92%	50
Dishwashers	90%	30
Displays ¹	82%	57
Furnaces	100%	19
Geothermal Heat Pumps	86%	28
Imaging Equipment	95%	78
Lamps ¹	78%	307
Light Commercial HVAC	100%	8
Luminaires ¹	81%	458
Pool Pumps	86%	14
Refrigerators and Freezers	89%	74
Roof Products	92%	228
Room Air Cleaners	90%	42
Room Air Conditioners	90%	30
Set-top Box Service Providers	67%	3
Set-top Box Brand Owners	100%	9
Small Network Equipment	100%	7
Telephony	71%	7
Televisions	97%	29
Uninterruptible Power Supplies	83%	18
Vending Machines	100%	6
Ventilating Fans	97%	34
Water Coolers	92%	25
Water Heaters	97%	31
Total	87%	2089

¹ Response rates for products with specification revisions effective a few months prior to the reporting deadline typically have lower response rates due to partners who have not yet certified models to the new specification version.

Results:

The goal of the ENERGY STAR program is to reduce greenhouse gas and other emissions associated with avoidable energy consumption by transforming the market for energy-efficient products, buildings and services, so that more energy-efficient options become the norm and persist in the marketplace. As this occurs, EPA looks for additional opportunities to improve efficiency by tightening energy and environmental performance criteria for a given product or service, and revising specifications accordingly.

The below estimates of market penetration for calendar year 2016 provide a key indicator of whether the market is being transformed for a given product, and are used to inform the specification revision process. As noted in highlights, significant market penetration was anticipated for some product categories, and new criteria have already been established or are currently being developed.

ENERGY STAR CY2016 Certified Units Shipped, Corresponding Estimated Market Penetration, and Relevant Specification Updates:

<i>Key and notes</i>			
	New specification version effective in 2016 or 2017; market penetration under the new version is likely to be lower.		
	New specification version effective in 2018 or later.		
Product Category ²	2016 Units Shipped (thousand units unless otherwise stated)	2016 Estimated Market Penetration	Specification Revisions Affecting Future Market Penetration (Version - Effective Date)
Audio/Video Products			Revision Planned 2018
<i>Blu-ray Players</i>	4,641	65%	
<i>DVD Players</i>	3,746	62%	
<i>Soundbars</i>	2,772	40%	
Boilers	129	42%	
<i>Residential Gas Boilers</i>	112	45%	
<i>Residential Oil Boilers</i>	17	31%	
Ceiling Fans			
<i>Ceiling Fan – Fan Only</i>	1,597	20%	
<i>Ceiling Fan - With Lights</i>	490	5%	
<i>Ceiling Fan – Light Kit Only</i>	73	3%	
CAC/ASHP	2,038	28%	
<i>ASHP³</i>	943	39%	
<i>CAC</i>	1,095	22%	

² The number of ENERGY STAR certified products shipped and market penetrations are provided for select, notable subcategories of products.

³ As percent of heat pump market.

Clothes Dryers	2,411	32%	
<i>Electric</i>	1,926	31%	
<i>Gas</i>	485	35%	
Clothes Washers	4,030	41%	Version 8.0 – February 5, 2018
<i>Residential Use</i>	3,957	41%	
<i>Commercial Use</i>	73	37%	
Commercial Dishwashers	51	69%	Revision Planned 2018
Commercial Fryers	25	26%	
Commercial Griddles	4	29%	
Commercial Hot Food Holding Cabinets	9	22%	
Commercial Ice Machines	134	57%	Version 3.0 - January 28, 2018
Commercial Ovens	41	59%	Revision Planned 2019
Commercial Refrigerators & Freezers	522	69%	Version 4.0 - March 27, 2017
Commercial Steam Cookers	7	50%	Revision Planned 2018
Commercial Water Heaters - Gas	51	53%	Revision Planned 2018
Computer Servers	682	18%	
Computers	71,810	56%	Revision Planned 2018
<i>Desktop</i>	9,238	51%	
<i>Notebooks</i>	37,904	81%	
<i>Tablets</i>	24,491	40%	
<i>Thin Clients</i>	850	N/A	
<i>Workstations</i>	177	21%	
Data Center Storage	32	N/A	
Decorative Light Strings	37,000	21%	
Dehumidifiers	1,665	63%	Version 4.0 – October 25, 2016
Dishwashers ⁴	6,739	87%	Revision Planned 2019
Displays	10,837	51%	Version 7.0 – July 1, 2016
<i>LCD Monitors</i>	10,752	52%	
<i>Signage Displays</i>	85	13%	
Freezers ⁵	720	35%	
Furnaces	733	25%	
<i>Residential Gas Furnaces</i>	727	25%	
<i>Residential Oil Furnaces</i>	7	18%	
Geothermal Heat Pumps	36	N/A	

⁴ Market penetration for dishwashers includes compact products.

⁵ Market penetration for freezers includes compact products.

Imaging Equipment			Revision Planned 2018
<i>Multi-function Devices and Printers</i>	22,327	100%	
Lamps ⁶	308,992	18%	
<i>Compact Fluorescent Lamps (CFL)⁷</i>	105,361	80%	
<i>LED Lamps⁸</i>	203,631	N/A	
Light Commercial HVAC	69	14%	
Luminaires ⁹	29,878	15%	
<i>Indoor</i>	27,435	16%	
<i>Outdoor</i>	2,443	8%	
<i>Solid State Retrofit Kits</i>	37,103	N/A	
Pool Pumps	234	34%	
Refrigerators ¹⁰	5,183	48%	
Roof Products ¹¹			
<i>Coatings and Spray Polyurethane Foam</i>	330 million gallons	N/A	
<i>Built-up Roof, Metal, Modified Bitumen, Single-Ply, Shingles and Tile Products</i>	4.10 billion sq. ft.	N/A	
Room Air Cleaners	1,500	33%	
Room Air Conditioners	2,616	38%	
Set-top Boxes ¹²	17,661	38%	Version 5.0 – January 1, 2017 (Thin Client – January 1, 2018)
<i>Cable</i>	1,171	8%	
<i>Satellite</i>	4,519	96%	
<i>Over the Top IP</i>	2,409	16%	
<i>MVPD IP</i>	648	17%	
<i>Thin Client/Remote</i>	8,915	100%	
Small Network Equipment	805	1%	
Telephony	4,241	22%	
<i>Analog</i>	2,851	22%	
<i>VOIP</i>	1,389	18%	

⁶ This includes ENERGY STAR certified lamps as a percentage of all lamps, including incandescent, fluorescent, halogen and solid state.

⁷ CFL shipments do not include pin-based lamps.

⁸ Market penetration for LED lamps not included due to uncertainty in market information.

⁹ Shipments and market penetration for luminaires and indoor luminaires do not include solid state lighting retrofit kits or ceiling fan light kits.

¹⁰ Market penetration for refrigerators does not include compact products.

¹¹ Shipments of roof products only reflect OEM products since it is assumed that those products are used to produce the privately labeled products. Some portion of the coatings shipped are used in the production of ENERGY STAR metal roofs.

¹² Includes shipments to consumers, retailers, and set-top box service providers including both ENERGY STAR partners and non-partners.

Televisions	28,434	71%	Revision Planned 2018
<i>LCD</i>	28,413	71%	
<i>LCD < 40</i>	10,395	69%	
<i>LCD ≥ 40</i>	18,018	72%	
<i>OLED</i>	21	12%	
Uninterruptible Power Supplies	3,070	64%	Revision Planned 2018
Vending Machines	56	23%	
Ventilating Fans	3,551	N/A	
Water Coolers	1,520	63%	Revision Planned 2018
Water Heaters	635	8%	
<i>Gas Storage</i>	271	6%	
<i>Gas Tankless</i>	304	N/A	
<i>Heat Pump</i>	52	1%	
<i>Solar</i>	8	N/A	
Windows, Doors and Skylights ¹³	49,930	83%	

¹³ Shipment data and market share for windows, door, and skylights is determined by Ducker Worldwide, LLC through a separate process.