

# ENERGY STAR® Unit Shipment and Market Penetration Report Calendar Year 2021 Summary

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This is the 20th 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 2021, data was collected for the following ENERGY STAR certified products:

- Audio/Video Products
- Boilers
- Ceiling Fans
- Central Air Conditioners and Air-Source Heat Pumps
- Clothes Dryers
- Clothes Washers
- Commercial Boilers
- Commercial Coffee Brewers
- Commercial Dishwashers
- Commercial Fryers
- Commercial Griddles
- Commercial Hot Food Holding Cabinets
- Commercial Ice Makers
- Commercial Ovens
- Commercial Refrigerators and Freezers
- Commercial Steam Cookers
- Commercial Water Heaters
- Computers
- Connected Thermostats
- Data Center Storage
- Decorative Light Strings
- Dehumidifiers
- Dishwashers
- Displays
- Electric Vehicle Supply Equipment
- Enterprise Servers
- Freezers
- Furnaces
- Geothermal Heat Pumps
- Imaging Equipment
- Laboratory Grade Refrigerators and Freezers
- Lamps
- Light Commercial HVAC
- Luminaires
- Pool Pumps
- Refrigerators
- Room Air Cleaners
- Room Air Conditioners
- Storm Windows
- Telephony
- Televisions
- Uninterruptible Power Supplies
- Vending Machines
- Ventilating Fans
- 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 82%. 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 Calendar Year (CY) 2021 Unit Shipment Data:**

<b>Product Category</b>	<b>Response Rate</b>	<b>Number of Partners Required to Respond</b>
Audio/Video	88%	24
Boilers	100%	41
Ceiling Fans	96%	25
Central ACs and Air-source Heat Pumps	84%	74
Clothes Washers	100%	20
Commercial Boilers	100%	13
Commercial Coffee Brewers	100%	3
Commercial Dishwashers	100%	17
Commercial Fryers	100%	11
Commercial Griddles	75%	8
Commercial Hot Food Holding Cabinets	100%	9
Commercial Ice Machines	100%	20
Commercial Ovens	94%	32
Commercial Refrigerators and Freezers	79%	48
Commercial Steam Cookers	100%	9
Commercial Water Heaters	100%	13
Computers	89%	55
Connected Thermostats	94%	18
Data Center Storage	85%	13
Decorative Light Strings	71%	42
Dehumidifiers	89%	66
Displays	85%	66
Electrical Vehicle Supply Equipment	96%	24
Enterprise Servers	100%	16
Furnaces	100%	23
Geothermal Heat Pumps	88%	26
Imaging Equipment	95%	62
Laboratory Grade Refrigerators and Freezers	100%	23
Lamps	73%	209
Light Commercial HVAC	100%	4
Luminaires	66%	503
Pool Pumps	83%	18
Refrigerated Beverage Vending Machines	100%	4
Refrigerators and/or Freezers	86%	111
Residential Clothes Dryers	100%	18
Residential Dishwashers	96%	47
Residential Storm Windows	100%	3
Residential Water Heaters	95%	38
Room Air Cleaners	91%	53
Room Air Conditioners	88%	58
Telephones	86%	7
Televisions	100%	16
Uninterruptible Power Supplies	71%	17
Ventilating Fans	94%	51
Water Coolers	74%	34
<b>Total</b>	<b>82%</b>	<b>1992</b>

## 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 2021 provide a key indicator of whether the market is being transformed for a given product, and are used to inform the [specification revision process and the annual ENERGY STAR Product Development Workplan](#). For most products with high market share, new criteria have already been established or are currently being developed.

### ENERGY STAR CY2021 Certified Units Shipped, Corresponding Estimated Market Penetration, and Relevant Specification Updates:

Product Category <sup>1</sup>	2021 Units Shipped (thousands unless otherwise stated)	2021 Estimated Market Penetration <sup>2</sup>	Specification Revisions Affecting Future Market Penetration (Version – Effective Date)
Audio/Video Products			Revision In Process/Planned
<i>Blu-ray Players</i>	1,382	58% <sup>3</sup>	
<i>DVD Players</i>	601	53%	
<i>Soundbars</i>	273	2%	
Boilers	222	65% <sup>4</sup>	
<i>Residential Gas Boilers</i>	188	69% <sup>4</sup>	
<i>Residential Oil Boilers</i>	34	49% <sup>4</sup>	
CAC/ASHP <sup>5</sup>	2,816	28%	Version 6.1 - January 1, 2023
<i>CAC</i>	1,298	21%	
<i>ASHP</i>	1,518	39%	
Ceiling Fans	847	4%	
<i>Ceiling Fan - Fan Only</i>	239	10%	
<i>Ceiling Fan - With Light Kit</i>	609	3%	
<i>Ceiling Fan - Light Kit Only</i>	44	8%	
Clothes Dryers	3,923	42%	Revision In Process/Planned
<i>Clothes Dryers - Electric</i>	3,092	40%	
<i>Clothes Dryers - Gas</i>	832	50%	

<sup>1</sup> The number of ENERGY STAR certified products shipped and market penetrations are provided for select, notable subcategories of products. The totals and market penetrations for each main product category may be comprised of additional subcategories.

<sup>2</sup> For product categories where 2021 Market Penetration reads “N/A”, market penetration was unable to be calculated due to a lack of current market data.

<sup>3</sup> Market Penetration for Blu-ray Players was updated based on updated market information.

<sup>4</sup> Market Penetration for Boilers was updated based on updated market information.

<sup>5</sup> AHRI updated the methodology for collecting data for CY2021 to align with their process for collecting overall market data, so shipments more accurately reflect ES certified combinations of split system installed in homes. This methodology change resulted in a reduction in shipments of 5% for air source heat pumps and 8% for central air conditioners.

Product Category	2021 Units Shipped (thousands unless otherwise stated)	2021 Estimated Market Penetration	Specification Revisions Affecting Future Market Penetration (Version – Effective Date)
Clothes Washers	6,155	53%	
<i>Residential Use</i>	6,088	53%	
<i>Commercial Use</i>	67	N/A	
Commercial Boilers	11	18%	
Commercial Coffee Brewers	12	14%	
Commercial Dishwashers	48	65%	Version 3.0 - July 21, 2021
Commercial Fryers	34	27%	
Commercial Griddles	3	20%	
Commercial Hot Food Holding Cabinets	8	14%	
Commercial Ice Makers	79	26%	
Commercial Ovens	44	53%	Version 3.0 - January 12, 2023
Commercial Refrigerators & Freezers	519	50%	Version 5.0 - December 22, 2022
Commercial Steam Cookers	6	46%	
Commercial Water Heaters - Gas	44	49%	
Computers	110,903	76%	Revision In Process/Planned
<i>Desktop</i>	6,223	42%	
<i>Notebooks</i>	64,832	85%	
<i>Tablets</i>	39,342	75%	
<i>Thin Clients</i>	490	N/A	
<i>Workstations</i>	506	42%	
Connected Thermostats	4,352	60%	Revision In Process/Planned
Data Center Storage	37	N/A	Version 2.0 - March 15, 2021
Decorative Light Strings	48,603	29%	
Dehumidifiers	3,474	94%	
Dishwashers <sup>6</sup>	8,212	93%	Version 7.0 - July 19, 2023
Displays	23,905	N/A <sup>7</sup>	
<i>LCD Monitors</i>	23,030	67% <sup>8</sup>	
<i>Signage Display</i>	876	N/A <sup>7</sup>	Revision In Process/Planned
Electric Vehicle Supply Equipment	154	27%	
Enterprise Servers	1,329	27%	Revision In Process/Planned
Freezers <sup>9</sup>	792	30%	Revision In Process/Planned
Furnaces	1,643	41%	
<i>Residential Gas Furnaces</i>	1,634	41%	
<i>Residential Oil Furnaces</i>	9	22%	
Geothermal Heat Pumps	27	3% <sup>10</sup>	
Imaging Equipment - Multi- function Devices and Printers	17,698	N/A <sup>5</sup>	

<sup>6</sup> Market penetration for dishwashers includes compact products.

<sup>7</sup> Market penetration is not available due to dramatic changes in the market starting in 2020 that are inconsistent with previous market trends.

<sup>8</sup> Market Penetration for Monitors was updated based on updated market information.

<sup>9</sup> Market penetration for freezers includes compact products.

<sup>10</sup> Market Penetration for Geothermal Heat Pumps was updated based on updated market information.

Product Category	2021 Units Shipped (thousands unless otherwise stated)	2021 Estimated Market Penetration	Specification Revisions Affecting Future Market Penetration (Version – Effective Date)
Laboratory Grade Refrigerators and Freezers	70	N/A	
Lamps <sup>11</sup>	533,110	38%	
<i>LED Lamps</i>	533,107	63%	
Light Commercial HVAC	47	17%	Version 4.0 - January 1, 2023
Luminaires <sup>12</sup>	89,380	34%	
<i>Indoor</i>	85,464	42%	
<i>Outdoor</i>	3,916	13%	
<i>Solid State Retrofit Kits</i>	55,214	N/A	
Pool Pumps	574	40%	Version 3.0 – July 19, 2021
Refrigerators <sup>13</sup>	6,943	54%	Revision In Process/Planned
Room Air Cleaners	7,738	84% <sup>14</sup>	
Room Air Conditioners	4,588	55%	Revision In Process/Planned
Storm Windows	132	9% <sup>15</sup>	
Telephony	6,181	40%	
<i>Analog</i> <sup>10</sup>	3,097	48%	
<i>VOIP</i>	3,084	34%	
Televisions	1,248	3%	Version 9.0 - October 20, 2022
<i>LCD</i>	1,480	3%	
<i>LCD less than 40 inches</i>	745	7%	
<i>LCD greater than 40 inches</i>	736	2%	
<i>OLED</i>	0	0%	
Uninterruptible Power Supplies	3,582	73%	
Vending Machines	19	27%	
Ventilating Fans <sup>16</sup>	6,279	N/A	
Water Coolers	2,002	59%	Version 3.0 - March 23, 2022
Water Heaters	1,271	N/A	Version 4.0 - January 5, 2022 Version 5.0 - April 18, 2023
<i>Gas Storage</i>	415	8%	
<i>Gas Tankless</i>	736	N/A	
<i>Heat Pump</i>	112	2%	
<i>Solar</i>	8	N/A	
Windows, Doors, and Skylights <sup>17</sup>	N/A	N/A	Revision In Process/Planned

<sup>11</sup> This includes ENERGY STAR certified lamps as a percentage of all lamps, including fluorescent, incandescent, halogen and solid state. Starting this year, the market data for incandescent and halogen bulbs is only based on U.S. Census import data and assumes that all lamps are being imported to the U.S. It does not account for any products being manufactured and shipped in the U.S.

<sup>12</sup> Market penetration for refrigerators does not include compact products.

<sup>13</sup> Shipments and market penetration for telephony include corded and cordless analog telephones but do not include additional handsets.

<sup>14</sup> Market Penetration for Room Air Cleaners was updated based on updated market information.

<sup>15</sup> Market Penetration for Storm Windows was updated based on updated market information.

<sup>16</sup> Shipments for ventilating fans do not include in-line ventilating fans.

<sup>17</sup> Shipment data and market penetration for windows, doors, and skylights will not be available until 2023 due to a transition in the data collection process.