8. Nuclear Energy
Figure 8.1 Nuclear Energy Overview

Electricity Net Generation, 1957–2021

Nuclear Share of Electricity Net Generation, 1957–2021

Nuclear Electricity Net Generation–February

Capacity Factor, Monthly

Sources: Tables 7.2a and 8.1.
<table>
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<th>Net Summer Capacity of Operable Units</th>
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</table>

\(^{a}\) Total of nuclear generating units holding full-power licenses, or equivalent permission to operate, at end of period. See Note 1, "Operable Nuclear Reactors," at end of section.

\(^{b}\) At end of period.

\(^{c}\) For the definition of "Net Summer Capacity," see Note 2, "Nuclear Capacity," at end of section. Beginning in 2011, monthly capacity values are estimated in two steps: 1) uprates and derates reported on Form EIA-860M are added to specific units; and 2) the difference between the resulting year-end capacity (from data reported on Form EIA-860M) and final capacity (reported on Form EIA-860) is allocated to the month of January.

\(^{d}\) Beginning in 2008, capacity factor data are calculated using a new methodology. For an explanation of the method of calculating the capacity factor, see Note 1, "Operable Nuclear Reactors," at end of section.

\(^{e}\) E=Estimate. NA=Not available. (s)=Less than 0.05%.

Notes: • For a discussion of nuclear reactor unit coverage, see Note 1, "Operable Nuclear Reactors," at end of section. • Nuclear electricity net generation totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.


Sources: See end of section.
Figure 8.2 Uranium Overview

Production and Trade, 1949–2020

[Graph showing domestic production, purchased imports, exports, and sales over time from 1950 to 2020, with labels for each category.]

Inventories, End of Year 1981–2020

[Graph showing total inventories, domestic supplies, and electric plants inventories over time from 1985 to 2020, with labels for each category.]

Average Prices, 1981–2020

[Graph showing average prices for domestic purchases and purchased imports over time from 1985 to 2020, with labels for each category.]

[a] Prices are not adjusted for inflation. See “Nominal Dollars” in Glossary. Note: See “Uranium Oxide” in Glossary.

Source: Table 8.2.
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<th>Purchased Imports</th>
<th>Export Sales</th>
<th>Electric Plant Purchases From Domestic Suppliers</th>
<th>Loaded Into U.S. Nuclear Reactors</th>
<th>Inventories</th>
<th>Average Price</th>
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Note: See "Uranium Concentrate" in Glossary.


**Nuclear Energy**

**Note 1. Operable Nuclear Reactors.** A reactor is defined as operable when it possesses a full-power license from the Nuclear Regulatory Commission or its predecessor, the Atomic Energy Commission, or equivalent permission to operate, at the end of the year or month shown. The definition includes units retaining full-power licenses during long, non-routine shutdowns that for a time rendered them unable to generate electricity.

**Note 2. Nuclear Capacity.** Nuclear generating units may have more than one type of net capacity rating, including the following:

(a) Net Summer Capacity—The steady hourly output that generating equipment is expected to supply to system load, exclusive of auxiliary power, as demonstrated by test at the time of summer peak demand. Auxiliary power of a typical nuclear power plant is about 5% of gross generation.

(b) Net Design Capacity or Net Design Electrical Rating (DER)—The nominal net electrical output of a unit, specified by the utility and used for plant design.

Through 2007, the monthly capacity factors are calculated as the monthly nuclear electricity net generation divided by the maximum possible nuclear electricity net generation for that month. The maximum possible nuclear electricity net generation is the number of hours in the month (assuming 24-hour days, with no adjustment for changes to or from Daylight Savings Time) multiplied by the net summer capacity of operable nuclear generating units at the end of the month. That fraction is then multiplied by 100 to obtain a percentage. Annual capacity factors are calculated as the annual nuclear electricity net generation divided by the annual maximum possible nuclear electricity net generation (the sum of the monthly values for maximum possible nuclear electricity net generation). For the methodology used to calculate capacity factors beginning in 2008, see U.S. Energy Information Administration, *Electric Power Monthly*, Appendix C notes on “Average Capacity Factors.”

**Table 8.1 Sources**

*Total Operable Units and Net Summer Capacity of Operable Units*


*Nuclear Electricity Net Generation and Nuclear Share of Electricity Net Generation*

1957 forward: Table 7.2a.

**Capacity Factor**

1973–2007: Calculated by EIA using the method described above in Note 2.