The Primary Energy Fallacy

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Even if you wrapped the entire planet in a solar panel, you would only be producing 20% of global energy.

One of the biggest mistakes politicians can make is equating the ELECTRICITY with ENERGY!

Renewables can only* generate electricity

Electricity generation makes up ~20% of *primary energy* globally.

But it accounts for ~32% of *energy services*.

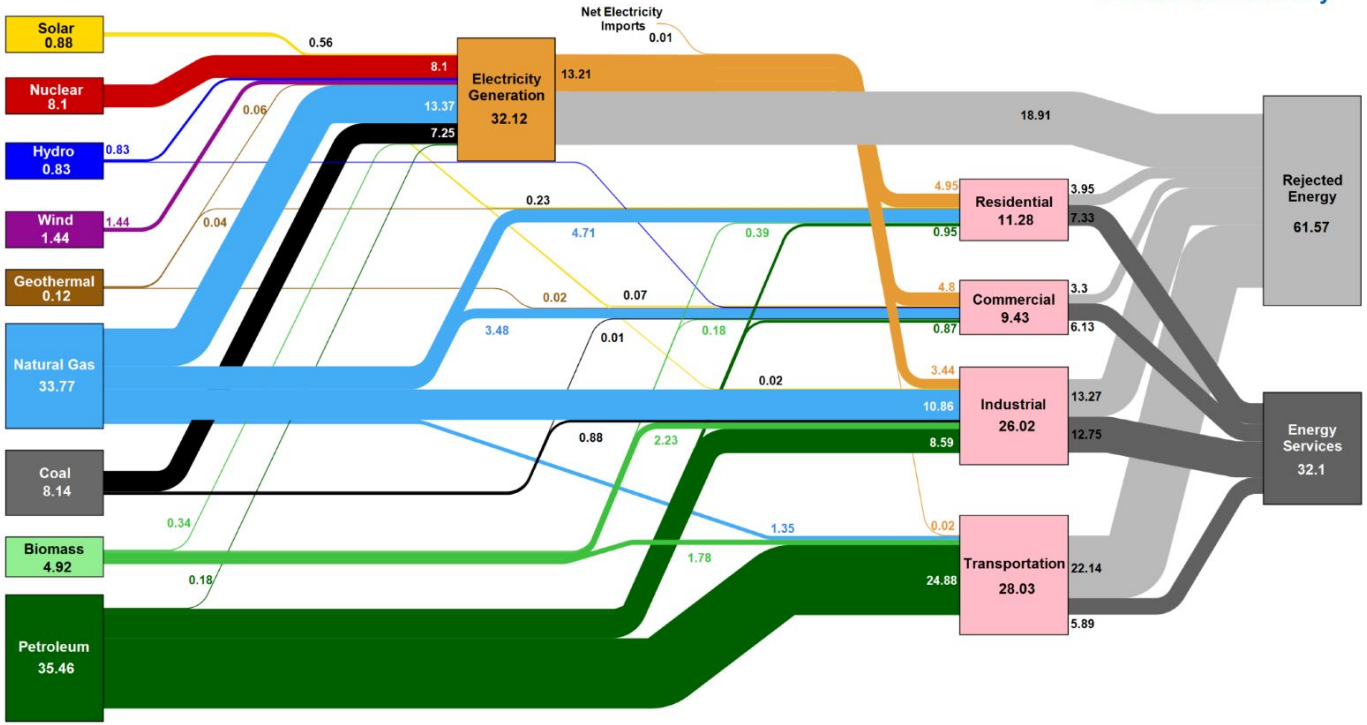
That share is rising as EVs, heat pumps and other electric appliances shift energy demand from fuel to electrons.

Do you care about waste heat? Or do you care about turning the lights on, making your car go, cooking food, cooling your house, etc.?

*They can also make e-fuels but that's a whole 'nother can of worms.

United States Energy Consumption in 2023: 93.7 Quads

Lawrence Livermore National Laboratory

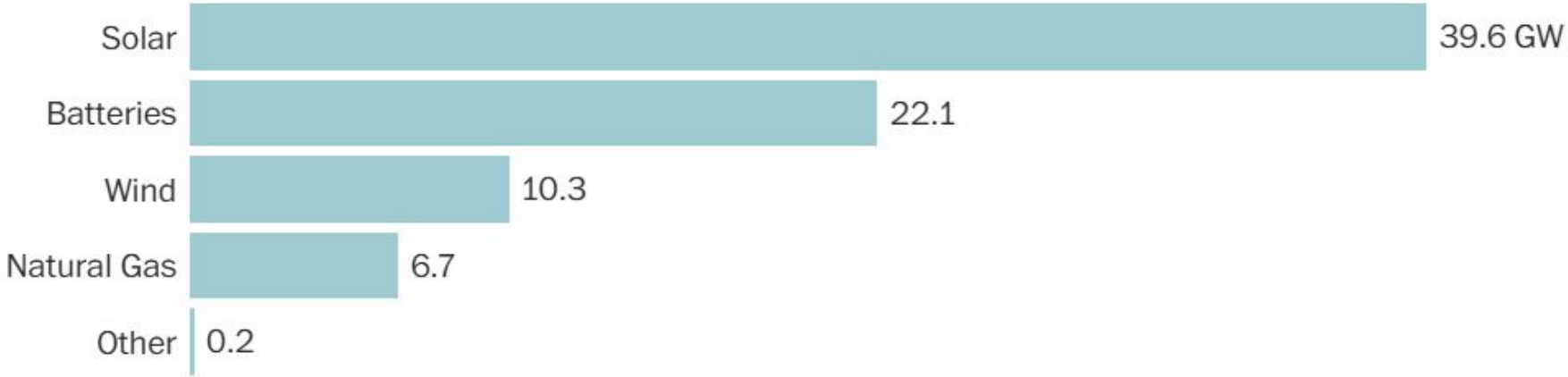


Source: LLNL January, 2026. Data is based on DOE/EIA SEDS (2025). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the Department of Energy, under whose auspices the work was performed. Distributed electricity represents only retail electricity sales and does not include self-generation. Per the October 2023 methodology update, EIA reports consumption of noncombustible renewable energy for electricity generation (i.e., hydro, wind, geothermal and solar) using the captured energy approach, which applies a constant conversion factor of 3,412 British thermal units per kilowatthour (Btu/kWh), that is, the heat content of electricity. This approach is a change from EIA's old methodology, called the fossil fuel equivalency approach. The efficiency of electricity production is calculated as the total retail electricity delivered divided by the primary energy input into electricity generation. End use efficiency is estimated as 65% for the residential sector, 65% for the commercial sector, 49% for the industrial sector, and 21% for the transportation sector. Totals may not equal sum of components due to independent rounding. LLNL-MI-410527

Capacity vs. Generation

Batteries are the second-leading source of new electricity capacity

Planned U.S. utility-scale electricity capacity additions in 2026



Source: U.S. Energy Information Administration, Preliminary Monthly Electric Generator Inventory, October 2025

Unlike solar panels or gas turbines, batteries don't generate energy —

Solar and wind make up a massive share of electricity capacity additions

But their share of actual *generation* is lower than those numbers may imply.

Batteries store, but don’t generate, electricity.

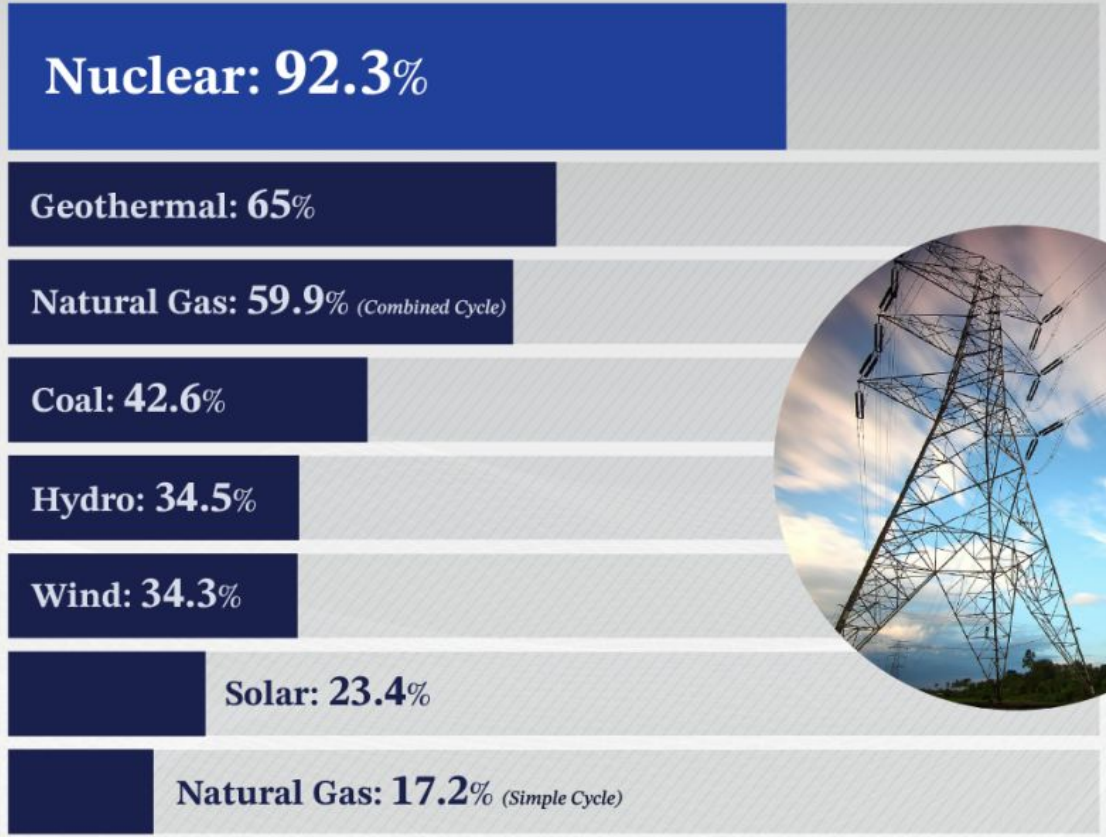
Different generation sources play different roles on the power grid.

Do you care about the number on a nameplate? Or do you care about having power when you flip on a light switch?

Capacity Factor by Energy Source, 2024

Source: U.S. Energy Information Adminisration

Capacity factor measures a power plant's actual generation compared to the maximum amount it could generate in a given period without any interruption.



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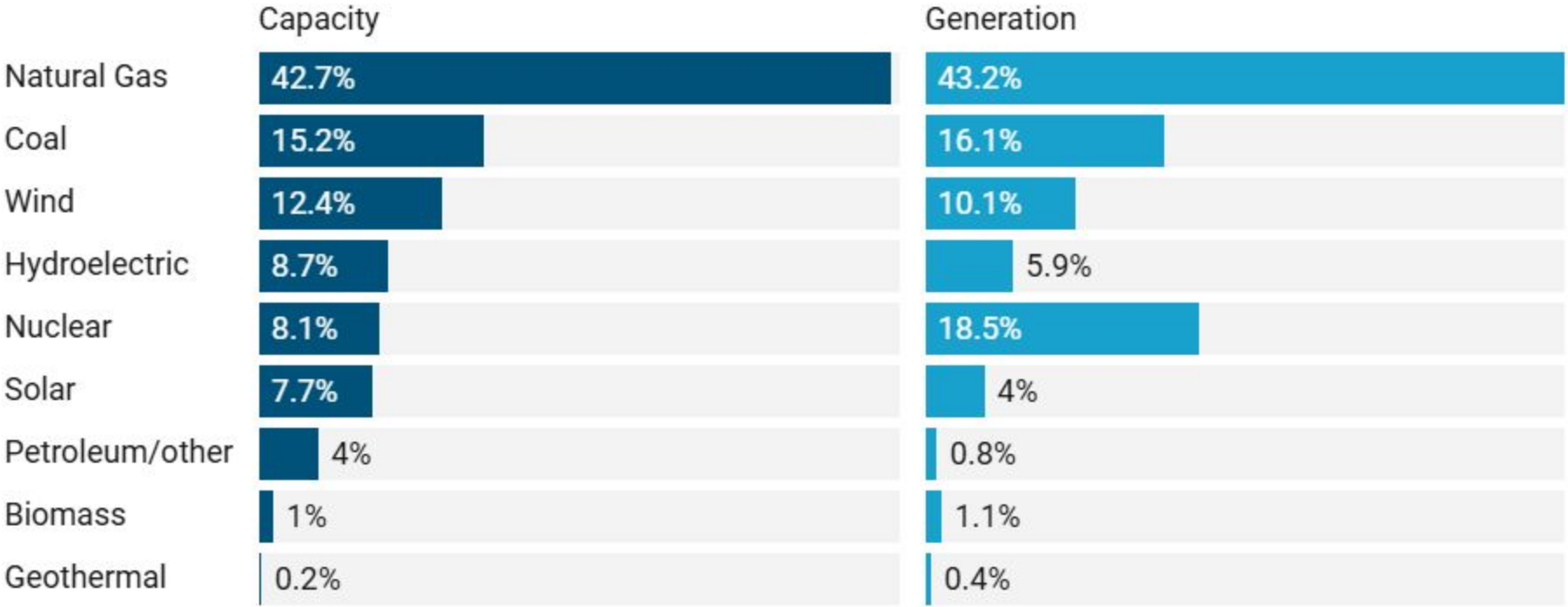
U.S. electricity capacity vs. generation by source, 2023



Source: U.S. Energy Information Administration • Get the data • Created with Datawrapper