ERCOT manages a diverse mix of power generation resources which complement one another to reliably deliver power at the most affordable price for consumers. Nuclear, for example, offers an extremely high capacity factor, clean-burning natural gas offers fast-ramping flexibility, and renewable resources offer the cleanest and most affordably priced power. No one resource can do this alone.

Knowing the difference between capacity, capacity factor, and forecast capacity is critical to assessing how power generation resources perform, as well as understanding that all resources face reliability challenges.

**Capacity** the maximum amount of power a generator can theoretically produce.

The term capacity, sometimes preceded by “installed” or “nameplate,” is one way to measure the output of generation resources. But, in the same way that a car’s engine seldom uses 100% of its available horsepower, generators rarely operate at 100% of their capacity. For this reason, using nameplate capacity is deliberately misleading and ignores the reality that **every generation type has a capacity factor less than nameplate.**

**Capacity Factor** the difference between capacity and actual output over an extended period of time.

In practice, capacity factor is the most appropriate term to inform policy discussions on generator availability since output varies greatly based on maintenance issues, transmission availability, weather conditions, fuel costs and availability, and dispatch instructions from ERCOT. Still, some are intentionally misleading policymakers by ignoring that varied capacity factors are anticipated and do not translate into a failure of resources; rather they are a mechanical and operational reality that investors, grid operators, and utilities understand well.

**Forecast Capacity** the amount of power a grid operator expects and plans for from each generation resource, based on data from Moody’s and published in ERCOT’s Seasonal Assessment of Resource Adequacy (SARA).

Confusion is further exacerbated when generator performance, especially during extreme weather events, is compared to nameplate capacity. The **most appropriate measure to determine performance is forecast capacity,** based on the SARA Report from ERCOT. The grid operator uses these assumptions to call for supply to meet demand and balance system conditions. These predictions are based on projected weather conditions, seasonal variations, past performance of generation resources, generator additions and retirements, and many other factors.

### U.S. Capacity Factor by Energy Source (2021)

![Capacity Factor Chart](chart.png)

**Source:** U.S. Energy Information Administration