

Renewable Energy Makes the Grid More Reliable



Renewable energy sources make important contributions to the country's electricity mix and help keep the lights on in a cost-effective manner for millions of American families and businesses.

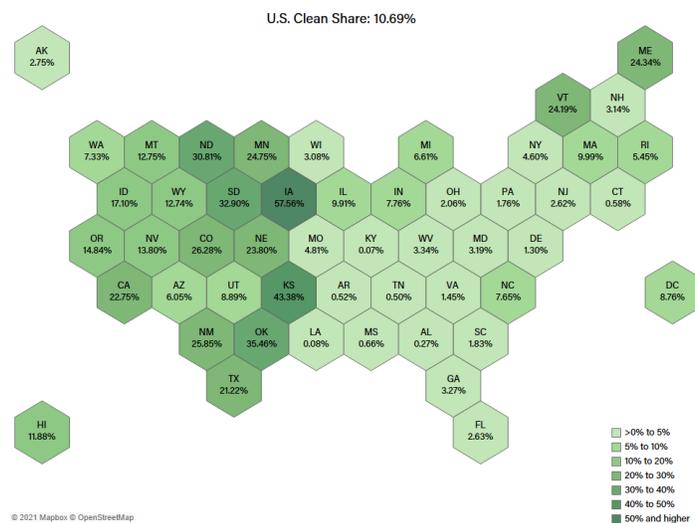
Renewables diversify the country's energy mix and help ensure predictable rates for consumers given the absence of fuel costs impacted by market fluctuations. We need to make smart investments in our electrical grid in order to ensure the continued reliability of clean energy in the U.S.

No energy source is capable of generating electricity 100 percent of the time. Continued investments in wind, solar, battery storage, and transmission will result in more market flexibility and predictability, both of which contribute to a reliable energy grid. Renewables also directly benefit energy consumers by keeping electricity rates low, delivering long-term affordability and protection from market volatility.

Some grids in the U.S. already reliably depend on large amounts of renewable energy. Wind is the largest source of power in the Southwest Power Pool, the grid operator in the Great Plains.

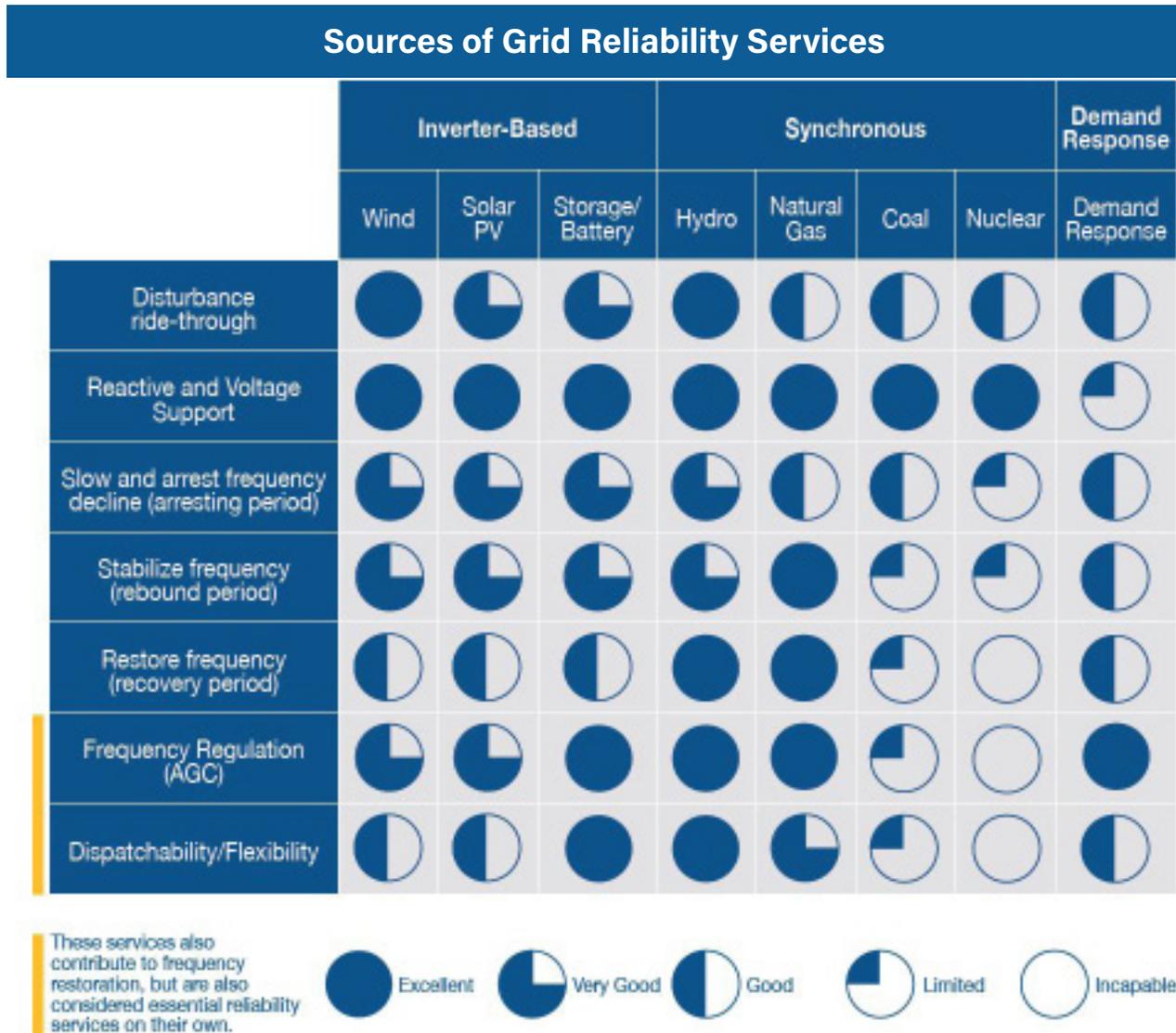
Clean power invests in local communities across the country, providing property, state and local taxes in 2020 totaling **\$1.5 billion**. Renewables also generated over **\$1 billion in land lease payments** to local farmers and land owners in 2020. The clean power workforce currently **employs over 300,000 Americans** and wind turbine technician and solar installer are the first and third fastest-growing jobs in the United States, according to the [U.S. Bureau of Labor Statistics](#).

U.S. Wind and Solar Energy Share of Electricity Generation, By State



Markets are key for grid reliability

Technology advances like smart inverters and fast controls expand the reliability services clean power sources can cost-effectively supply to the market. Advanced power electronics and output controls enable clean energy sources to provide automatic generation control and fast frequency response, among other services. The chart below provides a concise comparison of the ability to provide grid reliability services across different generation technologies.



Source: ACP, Milligan Grid Solutions

The electrical power system is in the midst of a digital revolution. Modern inverter-based generation and storage are electronically coupled to the power system, and using their digital controls, they can provide a wide range of grid services. This table provides a conceptual comparison of the ability of key resources to provide essential reliability services to the grid, and is derived from recent and ongoing efforts by the North American Electric Reliability Corporation (NERC), which sets the reliability rules for the power system.