



AMERICA'S LARGEST SOURCE OF CLEAN, RENEWABLE ELECTRICITY

Hydropower: For a Clean Energy Future and Reliable, Resilient Grid

Hydropower is an available, reliable, affordable and sustainable energy source. Requiring only the power of moving water – in rivers, streams, conduits and with ocean waves and tides – hydropower is domestic and renewable.

AVAILABLE

The United States produces more electricity from hydropower than from any other renewable electricity source – in 2018 hydropower accounted for 39 percent of renewable generation and 7 percent of the nation's overall electricity generation.

Hydropower is available in every region of the country. Every state benefits from the renewable generation and grid services that hydropower provides.

RELIABLE

The first hydropower plant in the U.S. began operations on the Fox River near Appleton, Wisconsin in 1882. Since then, hydropower has been a reliable, renewable energy resource for American homes and businesses.

Hydropower's unique operational flexibility, allows hydro facilities to go quickly from zero power to maximum output, making them exceptionally good at meeting rapidly changing demands for electricity throughout the day.

In addition, pumped storage projects account for 95% of energy storage in the United States, and helps to integrate increasing amounts of variable energy sources into America's energy mix.

AFFORDABLE

Taking into account full project lifetime fuel costs, operations, and maintenance, hydropower has one of the lowest levelized cost of electricity in the energy sector. To illustrate, the Pacific Northwest gets a majority of its electricity from hydro and has the lowest prices in the country.

SUSTAINABLE

Hydropower taps into the natural water cycle to harness water to produce renewable energy. The clean air benefits of hydro include savings from avoided damages from GHG emissions and from cumulative reduction in emissions of SO₂, NO_x, and particulate matter.

HYDRO HAS TREMENDOUS GROWTH POTENTIAL

The current U.S. hydropower capacity is approximately 102 GW, including 22 GW of pumped storage. With the right energy, environmental and market policies in place, the industry can add 50 GW by 2050. Examples include:

- **Modernizing:** New technology and upgrades at existing hydropower projects represents an opportunity for increased capacity and generation. By installing more efficient turbines and enhancing operations, these facilities can generate more power with virtually no additional impacts.
- **Converting Non-Powered Dams:** There are over 80,000 dams across the U.S., but only 3% generate electricity. Converting non-powered facilities to generating assets will increase America's renewable energy supply by maximizing this existing infrastructure.
- **Conduit Technology:** Throughout the country, existing tunnels, canals, pipelines, aqueducts, and other manmade structures that move water can be fitted with electricity-generating equipment, resulting in cost-effective, low-impact projects.
- **Marine Energy and Hydrokinetic Technologies:** A range of technologies are under development to tap the power of waves, tides, and river flows. Marine energy technologies are being examined and tested from New England to the West Coast to Alaska and Hawaii.
- **Pumped Storage:** Long duration, grid-scale energy storage is needed to support America's broader renewable energy and climate goals, but also to provide needed grid services to ensure system reliability. Dozens of projects are currently pursuing approval at FERC.

601 New Jersey Avenue, NW · Suite 660 · Washington, D.C., 20001
202.682.1700 · www.hydro.org