OAK RIDGE NATIONAL LABORATORY

Tracking the Power of Water: The US Hydropower Market Report



Hydropower is a vital component of the US energy landscape, contributing nearly 6% of all utility-scale electricity generation in the US. Hydropower's role in providing reliable, flexible power to support intermittent, non-traditional sources of energy has become increasingly crucial. Despite hydropower's importance, however, comprehensive data on the US fleet's performance, development trends, and challenges were historically lacking, leaving policymakers and industry stakeholders without reliable information to guide the decision-making process.

To address this need, the US Department of Energy (DOE) in 2015 commissioned the US Hydropower Market Report, filling a critical void in publicly available data. Compiled and published by DOE's Oak Ridge National Laboratory (ORNL), the HMR is the only regularly updated source of comprehensive information on the status and direction of US hydropower. The report tracks activities across the life cycle of hydropower plants—from new project permitting and construction to license transfers and performance trends—and serves as an essential reference for the hydropower community, including industry stakeholders and policymakers.

A Decade of Data: Revealing Trends and Key Impacts

The HMR is grounded in data from a combination of public and commercial databases. Since the HMR's inception, five full reports have been published—in 2015, 2018, 2021, 2023, and 2026—with updated summary slides available annually. Data used to produce plots in the reports and slides are also published and accessible through ORNL's HydroSource.

Following are some of the key findings from the 2026 report:

- **Capacity Growth:** From 2010 to 2025, the U.S. conventional hydropower fleet grew by 2.1 gigawatts (GW), reaching a total capacity of 80.55 GW across 2,258 plants. Growth was driven mainly by upgrading existing plants and adding hydropower at non-powered dams and conduits.
- **Pumped Storage Hydropower (PSH) Trends:** The PSH fleet remains a cornerstone of the nation's energy storage capacity, providing 33% of utility-scale power storage capacity and 82% of energy storage. The U.S. added 1.7 GW of PSH capacity from 2010

KEY TRENDS IN HYDROPOWER

- **Strong Capacity Growth**
- **New Capacity From Dam Retrofits**
- **Continued Fleet Reliability**

https://hydropowermarket-report.ornl.gov/

OAK RIDGE National Laboratory

U.S. DEPARTMENT of ENERGY

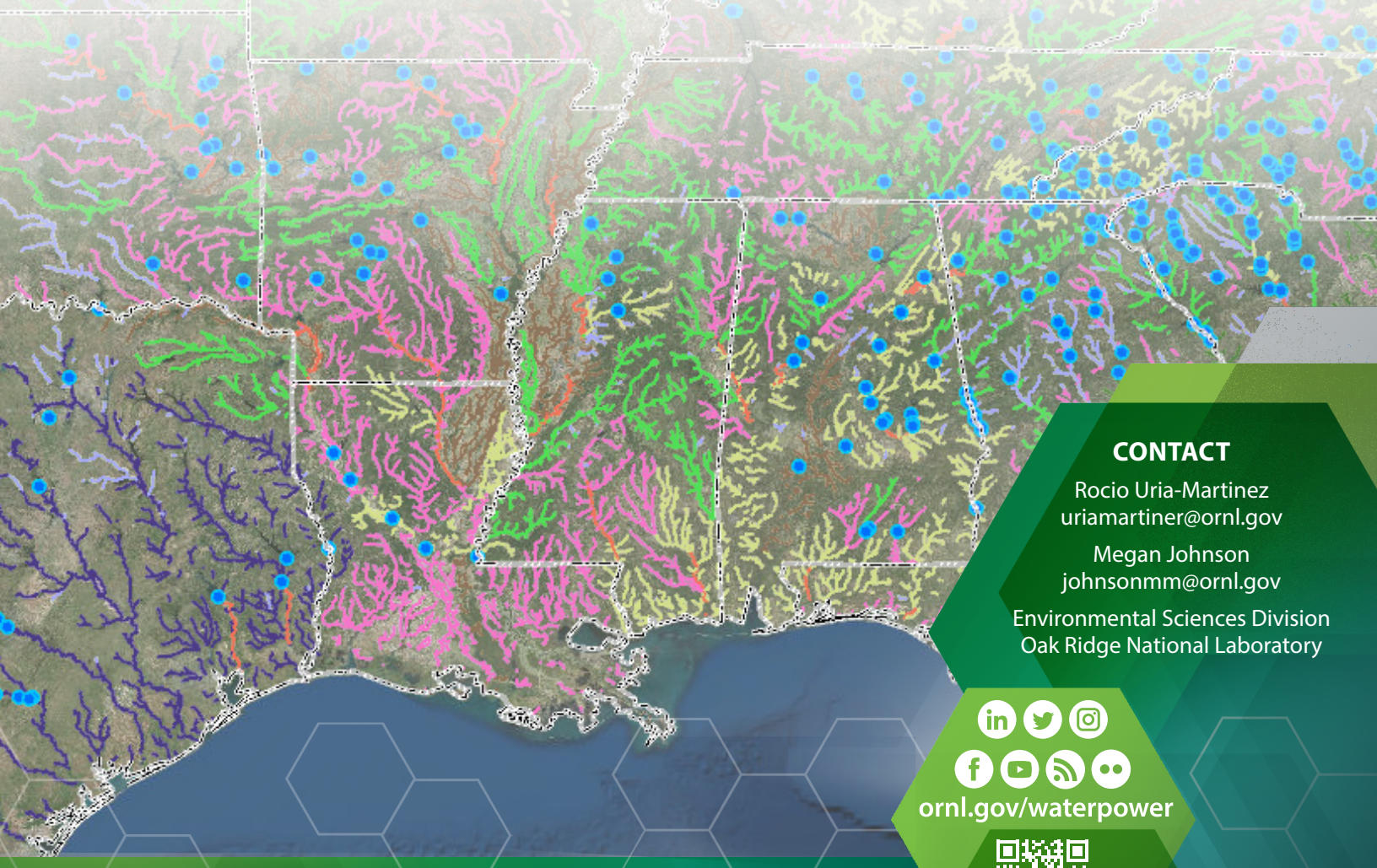
to 2025 through upgrades to existing facilities.

- **Development Pipeline:** By the beginning of 2026, 128 new hydropower facilities with a combined capacity of 1.4 GW were being actively considered for development. About 92% of this proposed new capacity would come from non-powered dam retrofits. The PSH development pipeline included another 71 projects totaling 67 GW. Additionally, 33 hydropower owners and 3 PSH owners are planning to increase capacity at their existing facilities.
- **Performance and Reliability:** Hydropower generation has declined slightly because of drought conditions in the West, with a median capacity factor of 34.2% in 2023 to 2025, down from 38.8% in the 2010s. Hydropower and PSH maintain their highest availability factors—which depend on the number of hours a hydropower unit spends in repairs and forced outages—in the summer months which is the peak demand season in most U.S. markets, reflecting the fleet's continued reliability.

Charting the Future of Hydropower

The HMR serves as an unbiased reference on US hydropower development, prices, and trends for industry stakeholders, federal partners, and policymakers. The report informs strategic planning and policy proposals, providing essential data to illustrate the value, challenges, and opportunities of hydropower in the United States. The report also guides DOE hydropower R&D planning and investment by the Hydropower and Hydrokinetic Office.

Beyond its role in policy and strategy, the HMR is a vital public outreach tool. It improves general understanding of hydropower and its critical role in providing Americans with reliable, affordable, and secure electricity. This outreach is essential for fostering informed discussions, public awareness, and support for hydropower initiatives. By providing clear and accessible information, the HMR helps guide policymakers and industry partners in making decisions that ensure the continued growth and reliability of this vital energy resource.



CONTACT

Rocio Uria-Martinez
uriamartiner@ornl.gov

Megan Johnson
johnsonmm@ornl.gov

Environmental Sciences Division
Oak Ridge National Laboratory

ornl.gov/waterpower

Oak Ridge National Laboratory is managed by UT-Battelle LLC for the US Department of Energy

August 2026