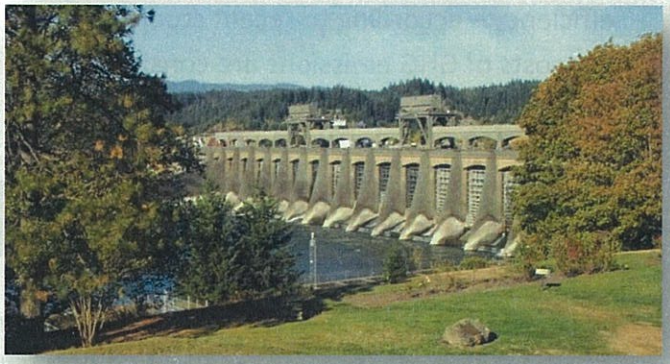
NHA
National Hydropower Association

AVAILABLE. RELIABLE. AFFORDABLE. SUSTAINABLE.

Hydropower: For a Clean Energy Future

Hydropower is the nation's **most available, reliable, affordable and sustainable energy source**. Requiring only the power of moving water – rivers, streams, and ocean waves and tides – hydropower is **domestic and renewable**. Free from a dependence on volatile fuel prices, much of the money spent on hydropower stays in America – and expanding hydro capacity could create up to 1.4 million cumulative U.S. jobs.



Available

The United States produces **more electricity from hydropower than from any other renewable electricity source** – it accounted for 56 percent of renewable generation in 2012 and 7 percent of the nation's overall electricity generation.

Hydropower is **available in every region of the country**. Every state benefits from the services that hydropower provides to the electric grid.

The industry **employs approximately 300,000 workers across the United States**, from project development to manufacturing to facility operations and maintenance.

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, domestic energy source and **today provides electricity to more than 24 million American homes**.

That reliability, combined with unique operational flexibility, also **benefits the nation's electric grid** as a whole. Hydropower facilities can go quickly from zero power to maximum output, making them **exceptionally good at meeting rapidly changing demands for electricity throughout the day**.

Pumped hydropower storage account for 99% of energy storage in the United States and **can store the electricity generated by other renewable power sources like solar and wind**, helping integrate more variable energy sources into America's energy mix.

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Affordable

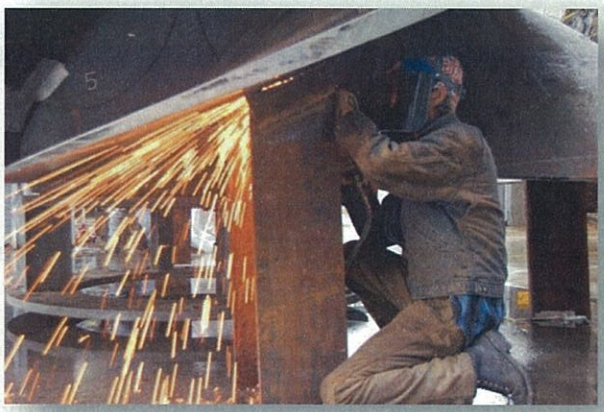
Taking into account full project lifetime fuel costs, operations, and maintenance, **hydropower has the lowest levelized cost of electricity of any energy source** – even energy efficiency – according to recent studies. When the costs of GHG emissions are considered, it's even more competitive.

Sustainable

Hydropower taps into the water cycle, harnessing the power of our clean moving waters to produce renewable electricity. Using **hydropower avoided nearly 200 million metric tons of carbon pollution** in the U.S. in 2012 – equal to the **annual emissions from over 40 million cars**.

Hydro Has the Potential to Grow

The current U.S. hydropower capacity is approximately 100,000 megawatts (MW), and with the right policies in place, **the industry can add 60,000 MW by 2025**. NHA has a goal to double hydropower's contribution to the country's energy portfolio.



Some examples of where this growth is possible include:

***Modernizing*:** New technology employed at existing hydro sites represents an opportunity for new sources of power. By installing **more efficient turbines and enhancing performance**, existing hydropower infrastructure can generate more power, sustainably.

Converting Non-Powered Dams: There are **80,000 dams across the U.S., but only 3% have electricity-generating equipment**. Converting non-powered facilities to electricity-generating assets will **increase America's renewable energy supply by 12 GW**, thereby maximizing 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 projects that are cost-effective and environmentally friendly.

Marine and Hydrokinetic Technologies: A range of technologies are under development to **tap the power of waves, tides, and river flows**. Thousands of megawatts of potential are available from ocean energy projects from New England to the West Coast and Alaska, and from in-river hydrokinetic projects proposed along the Mississippi River and others.

Pumped Storage: This **vital energy storage technology** can support America's broader renewable energy goals by serving as a **battery for intermittent sources**, but federal support is needed to spur development of these projects across long timelines.

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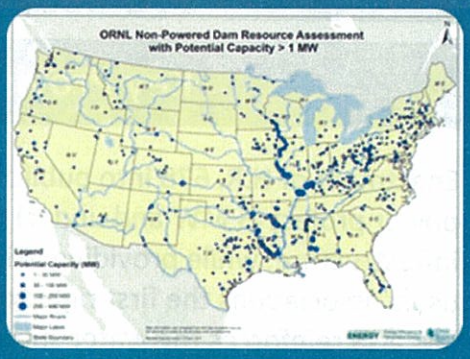
Hydropower Regulatory Efficiency Act (Pub. L. No. 113-23)

Key Provisions

- **Non-powered Dams and Pumped Storage**: Directs the Federal Energy Regulatory Commission (FERC) to explore a potential two-year licensing process for hydropower development at existing non-powered dams and closed-loop pumped storage projects.
- **Small Hydro**: Increases the FERC small hydro exemption from 5 to 10 MW.
- **Conduit Hydro:** Removes conduit projects 5 MW and under from FERC jurisdiction while preserving public review and increases the FERC conduit exemption to 40 MW for all projects.
- **Preliminary Permits:** Authorizes FERC to grant developers preliminary permit extensions to allow continued site investigation and license preparation work for projects that are proceeding in good faith and with reasonable diligence.
- **Studies**: Directs the Department of Energy to study pumped storage project opportunities to support integration of intermittent renewable resource development and provide grid reliability benefits, as well as a study of hydropower potential from existing conduits.



A landmark study by Oak Ridge National Laboratory of U.S. hydropower potential found **12,000 MW** of untapped renewable energy capacity at existing, non-powered dams. The National Hydropower Association estimates that converting these structures to electricity-generating facilities could create hundreds of thousands of jobs and power **12 million homes.**

Jan. 2013 - Bill introduced by Reps. Cathy McMorris Rodgers (R-WA) and Diana DeGette (D-CO)

Feb. 4, 2013 - House Energy and Commerce Committee clears bill for House consideration

Feb. 13, 2013 - House approves the bill unanimously, 422-0

Mar. 2013 - Sens. Lisa Murkowski (R-AK) and Ron Wyden (D-OR) introduce Senate companion legislation

May 2013 - Senate Energy Committee unanimously clears reports bill

Aug. 1, 2013 - Senate passes bill by Unanimous Consent

Aug. 9, 2013 - President Barack Obama signs the bill into public law (113-23)

Oct. 22, 2013 - FERC workshop on two-year licensing process held

Dec. 31, 2013 - 18 conduit projects certifiedby FERC

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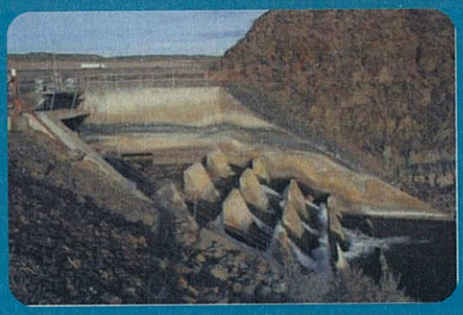
Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act (Pub. L. No. 113-24)

Key Provisions

Enactment of H.R. 678 into public law authorizes small conduit power project (5 MW and under) on Reclamation-owned infrastructure, while providing irrigation districts and water users associations the first right to develop the projects. The law also reinforces the water supply priority for Reclamation facilities used for hydropower development.

Additionally, it directs Reclamation to use its National Environmental Policy Act categorical exclusion process for small conduit applications and grandfathers existing FERC conduit applications on Bureau facilities.

"The enactment of this legislation underscores our efforts to develop renewable energy on canal and conduit sites managed by Reclamation across the west. This unlocks the door to developing new sources of energy at hundreds of our facilities across the West while creating new jobs at the same time." – Michael Connor, Commissioner, Bureau of Reclamation



The Bureau of Reclamation identified 103,628 kW of potential capacity, and 365,218,846 kWh of potential annual generation on 373 Reclamation conduit sites located in 13 western states in a report released in 2012.

The annual generation from those sites could provide over 30,000 American homes with access to low-cost, reliable hydropower.

Feb. 2013 - Bill introduced by Rep. Scott Tipton (R-CO); Sen. John Barrasso (R-WY)

Mar. 2013 - House Natural Resources Committee clears bill for House consideration

Apr. 2013 - House votes 416-7 to approve bill

May 2013 - Senate Energy Committee unanimously clears bill

Aug. 1, 2013 - Senate passes bill by Unanimous Consent

Aug. 9, 2013 - President Barack Obama signs legislation into public law (113-24)

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HYDRO WORKS FOR AMERICA

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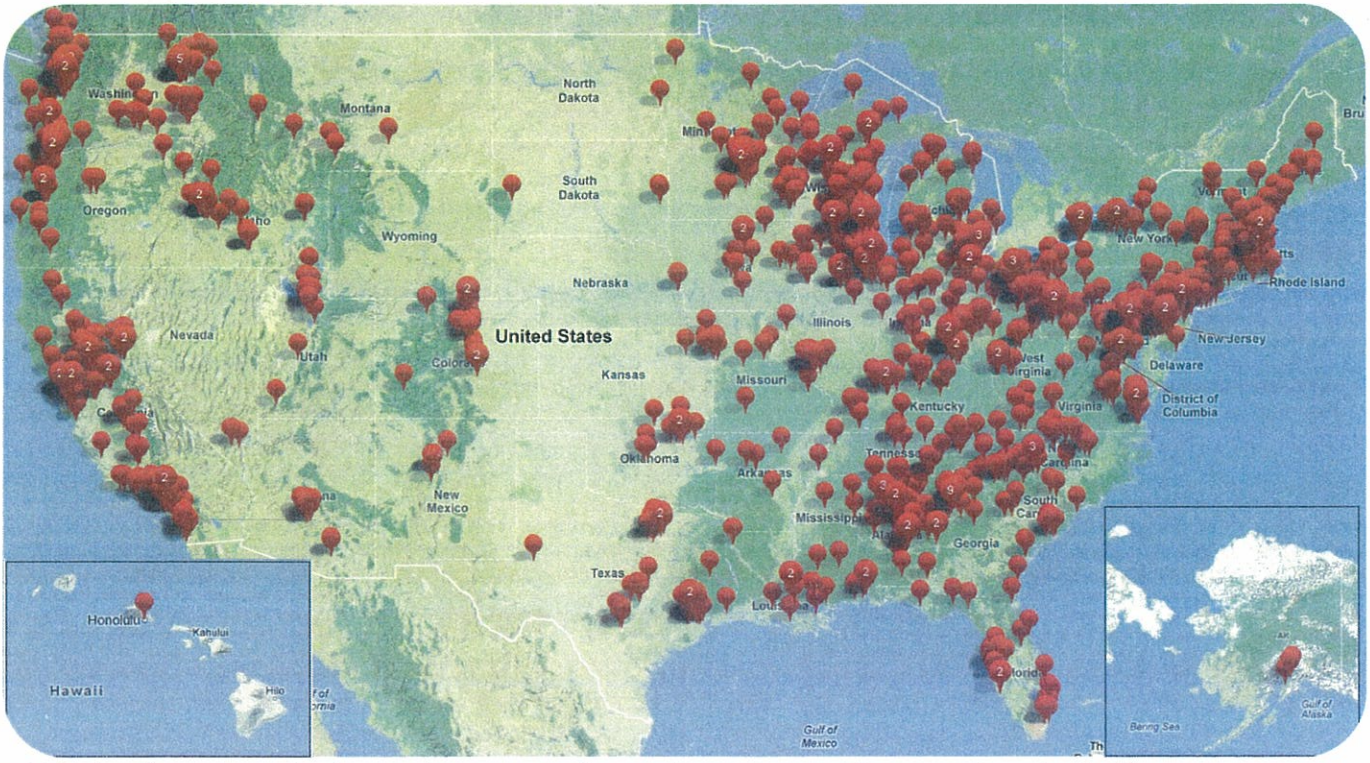
U.S. Hydropower Supply Chain Snapshot

The U.S. hydropower industry supports a growing supply chain that creates jobs and benefits communities across the country. Over 2,500 companies – project developers, construction firms, architecture and engineering companies, electricians, biologists and manufacturers – are part of the industry's supply chain. The hydro supply chain is particularly strong in regions of the country not traditionally associated with renewable energy – including the South and the Rust Belt.



The U.S. hydropower industry is present in regions across the country, including:

- **Midwest:** 505 companies
- **Northeast:** 460 companies
- **South:** 415 companies
- **West:** 544 companies

The U.S. Hydropower Supply Chain Snapshot is an interactive tool that allows users to explore the range of companies in the hydro economy. To view the Snapshot and learn more about the hydro industry's impact on local communities, please visit www.hydro.org/supplychainsnapshot.

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