

HYDROPOWER

FUEL FACTS

What is Hydropower?

Hydropower plants use the force of gravity of moving water to generate electrical energy. This is not a new practice, as the power of gravity has been harnessed as far back as the late 1800s to assist in labor-intensive tasks, such as grinding grain into flour. Hydroelectric power currently serves less than 1% of Indiana's electricity needs with five operating plants. Although hydropower does not dominate Indiana's energy mix, it is a clean and reliable energy source that serves as a stable option to respond to increased energy demands. There are currently five utility-operated hydroelectric facilities in Indiana. Each of these are run-of-river facilities, using the flow of the river.

Utility	MW	Water Source	County
I&M	3.0	St. Joseph River	Elkhart
I&M	4.0	St. Joseph River	St. Joseph
NIPSCO	7.2	Tippecanoe River; Lake Shafer	White
NIPSCO	9.2	Tippecanoe River; Lake Freeman	Carroll
Duke Energy	45.0	Ohio River	Switzerland

Forms of Hydropower

Hydropower comprises approximately 6% of utility-scale electricity generation in the U.S. according to the U.S. Department of Energy. This energy source for multiple types of hydro facilities, including impoundment, diversion, pumped storage, and offshore facilities. Diversion facilities account for the bulk of hydropower in Indiana as it suits our geography of rivers best.

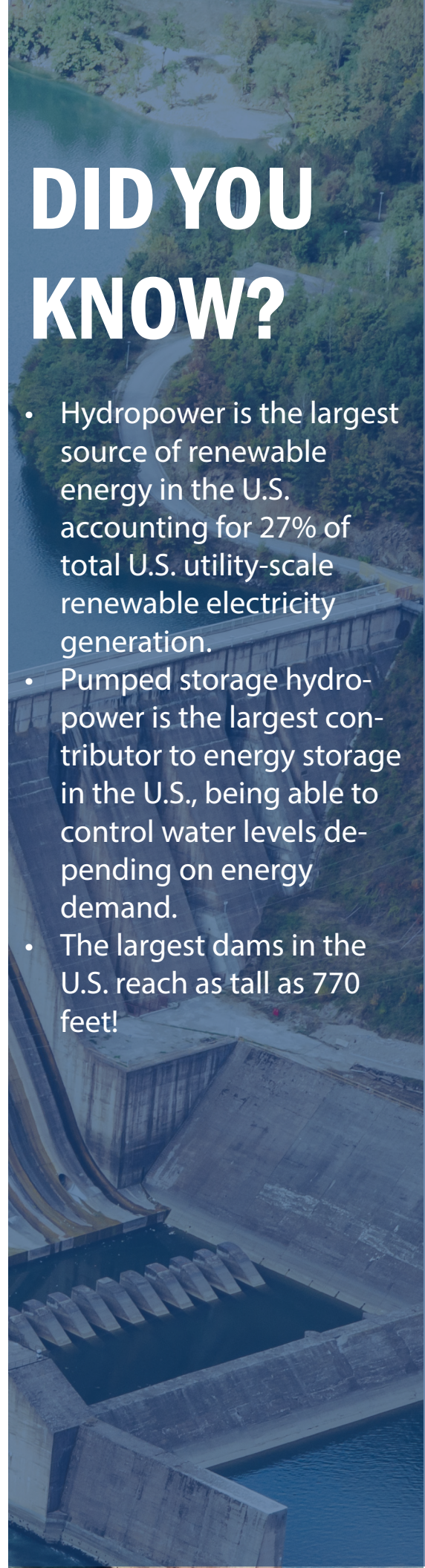


Impoundments

Water is collected by a dam and released upon energy demands. Impoundments facilitate better water management as they support flood control and irrigation.

DID YOU KNOW?

- Hydropower is the largest source of renewable energy in the U.S. accounting for 27% of total U.S. utility-scale renewable electricity generation.
- Pumped storage hydropower is the largest contributor to energy storage in the U.S., being able to control water levels depending on energy demand.
- The largest dams in the U.S. reach as tall as 770 feet!





Diversion Facilities

Water travels through a series of canals that power turbines.



Pumped Storage Facilities

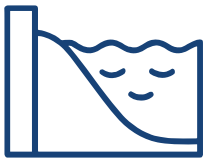
Water is pumped from a lower elevation to higher elevation as energy demands increase, as the water moves, it spins turbines, generating electricity.



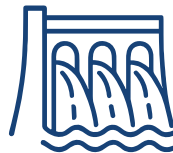
Offshore (Marine)

Technologies use power of ocean currents to generate power.

How does Hydropower Work in Indiana?



Water is stored in a reservoir; typically behind a dam



Water is released, gaining kinetic energy through gravitational force



Kinetic energy of water causes a turbine to spin



The spinning turbine converts motion to electrical energy



Energy is sent to the grid

For thousands of years, the power of water from gravity has been harnessed for labor-intensive tasks, such as waterwheels in mills to grind grain into flour or to cut lumber.



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