

Oklahoma's Hydroelectric Power Dams

Objective

Students will read about hydroelectric power dams in Oklahoma and locate the rivers on which the dams are built.

Procedures

Provide copies of the Reading Page and the map of Oklahoma rivers, included with this lesson.a

- Students will read the Reading Page about hydroelectric power dams in Oklahoma.
- On the map of Oklahoma Rivers provided, students will locate the rivers on which each of the dams is built.

Oklahoma Academic
Standards

OKLAHOMA HISTORY
Geography: 1. Post-War: 2B

Oklahoma's Hydroelectric Dams

Worldwide, hydroelectric power plants produce about 24 percent of the world's electricity and supply more than 1 billion people with power. Utilities in the U.S. operate about 2,000 hydropower plants, making hydropower the nation's largest renewable energy source. Hydroelectricity accounts for about 7% of total energy production in the US.

Oklahoma has four hydroelectric power dams—Denison Dam, Eufaula Dam, Fort Gibson Dam, and Pensacola Dam—and one pumped storage plant—the Salina Pumped Storage Project.

Denison Dam, also known as Lake Texoma Dam, is located on the Red River between Texas and Oklahoma. The dam impounds Lake Texoma. The purpose of the dam is flood control, water supply, hydroelectric power production, river regulation, navigation and recreation. It produces roughly 25,000 megawatt hours of electricity per year. The dam was completed in 1943.

Eufaula Dam is a dam across the Canadian River in southeastern Oklahoma. Completed in 1964, it impounds Eufaula Lake, one of the world's largest man-made lakes, covering 102,500 acres. The dam provides flood control, water supply, navigation and hydroelectric power generation. It supports a 90-megawatt power station. Three generators produce 30 megawatts each.

The Fort Gibson Dam is a gravity dam on the Grand (Neosho) River in northeastern Oklahoma. The purpose of the dam is flood control and hydroelectric power production. It was authorized by the Flood Control Act of 1941 and construction began the next year. During World War II construction was suspended and it continued in May 1946. In June 1949, the river was closed and the entire project was complete in September 1953. Four generators produce 208,482 megawatts of electricity each year.

The Pensacola Dam, also known as the Grand River Dam, is located on the Grand River between Disney and Langley. The dam is operated by the Grand River Dam Authority and creates Grand Lake of the Cherokees. It was constructed between 1938 and 1940 for the purposes of hydroelectric power generation, flood control and recreation. It is Oklahoma's first hydroelectric power plant and is the longest multiple-arch dam in the world. The idea to construct a dam on the Grand River originated in the late 1800s with Henry C. Holderman, a Cherokee Nation citizen, who wanted to provide electric power to the Cherokee Nation. Holderman and a few colleagues conducted the first survey of the river in 1895 on their own handmade houseboat.

The Salina Pumped Storage Project is a 260-megawatt pumped-storage power station near Salina. Its construction was in response to growing power demands and a lack of dam sites on the Grand River. The first phase was completed in 1968 and the second in 1971. The upper reservoir for the power station is Lake W. R. Holway which was built on Saline Creek, and the lower reservoir is Lake Hudson on the Grand River. During periods of lower power demand, water is pumped from Lake Hudson to Lake Holway and released back down through the pump-generators during periods of high energy demand.

1.

Oklahoma Rivers



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