2009

Missouri River Recovery Program: River Power to Clean Energy

Missouri River Recovery Program

US Army Corps of Engineers

River Power to Clean Energy

The overall vision of the Missouri River Recovery Program is to create a sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values. Many of these social and economic values are authorized by the U.S. Congress as crucial uses of the river's resources. Hydroelectric power is one of these authorized purposes. Hydroelectric power uses the power of the river to provide electricity to homes and businesses within the Missouri River Basin and beyond.

Corps Congressionally-Authorized Purposes on Missouri River

- *flood risk management*
- *navigation*
- *environmental stewardship including fish and wildlife*
- *hydropower*
- *irrigation*
- *water quality*
- *water supply*
- *recreation*

Corps Power Production

Hydropower currently fulfills 13 percent of the country's energy demands, and the U.S. Army Corps of Engineers (Corps) is the largest owner/operator of hydroelectric power plants in the United States. The Corps' 75 plants produce nearly 21 million kilowatt-hours a year, which is nearly one-fourth of the nation's total hydropower output.

Hydropower is an especially valuable method of producing electricity for several reasons:

Renewable. Hydropower is the country's most productive source of renewable energy. The earth provides a continual supply of water from rainfall and snowmelt. In addition, hydroelectric energy saves scarce, non-renewable fossil fuels. Hydropower is also used in conjunction with the Nation's investment in wind energy, providing consistent energy production.

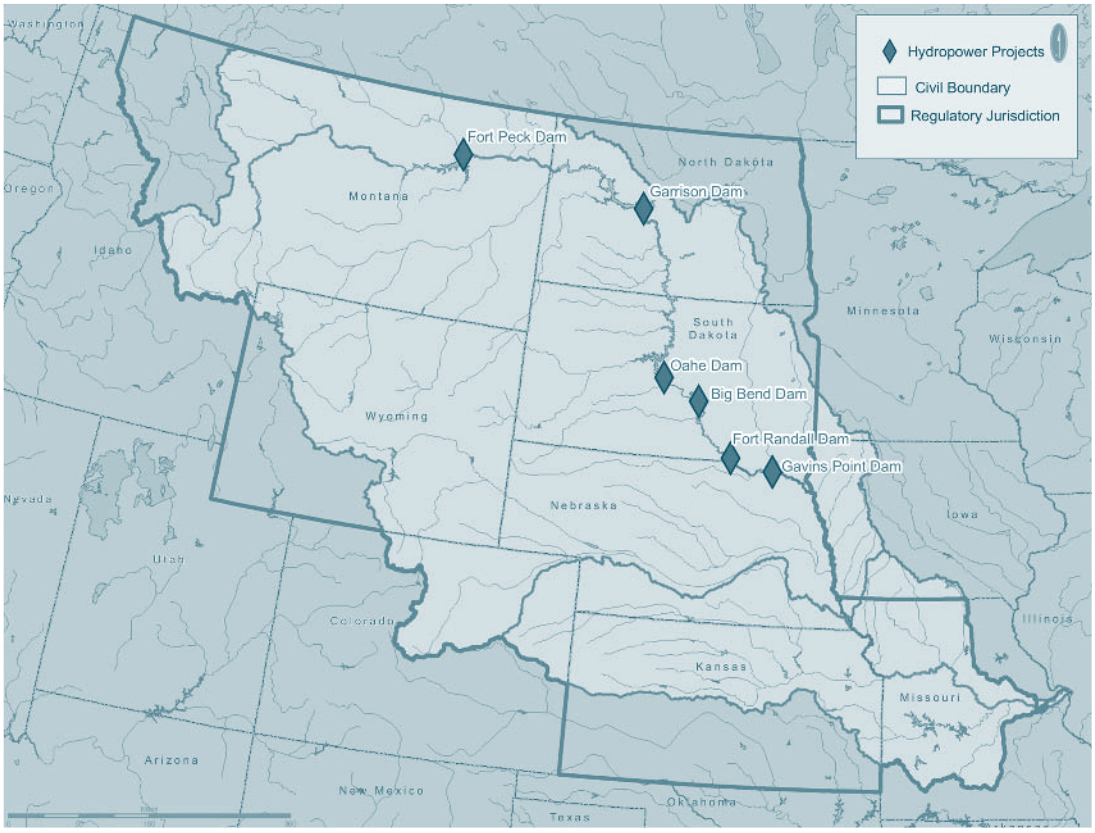
Efficient. Hydropower plants convert about 90 percent of the energy of falling water into electric energy. This is much more efficient than fossil fuel power plants, which lose more than half of the energy content of fuel as waste heat and gases.

Clean. Hydropower plants do not emit any waste gases that contribute to air pollution, acid rain and global warming. No trucks, trains, barges or pipelines are needed to bring fuel to the power plant site.

Low Cost Reliable Power. Hydropower plant machinery is relatively simple and runs at slow speeds, which make it reliable and durable. Much of the power generated at these facilities on the Missouri River is marketed by the Department of Energy's Western Area Power Administration at the cost of production to the public. Hydropower production costs are among the lowest of all forms of electrical power generation.

Flexible. Hydropower units can start quickly and adjust rapidly to changes in demand for electricity. This makes them valuable for providing extra energy during times of high energy demand and for serving at reserve capacity to protect power system reliability and stability. The ability of hydropower to store water during periods of low demand and start quickly makes it a natural partner with the variable generation provided by wind energy. In additional to generating power, the hydrogenerator units also provide voltage control for the transmission lines terminated at these projects.

O&M Civil/Regulatory Boundaries



Hydropower and a Healthy River

The Corps works hard to balance the multiple uses of the Missouri River. The Missouri Mainstem Corps-operated dams with hydropower plants also serve other purposes, such as flood risk management, navigation, and environmental stewardship including fish and wildlife protection, water supply, recreation and irrigation. The Corps continually assesses how well operating plans are satisfying basin-wide water needs.

In addition, maintaining multiple uses on the river involves working closely with the many different government agencies and entities that are affected by or regulate Corps projects. At hydroelectric plants on the Missouri River, these agencies include the Department of Energy (Western Area Power Administration), Federal Energy Regulatory Commission, Environmental Protection Agency, and Department of Interior (U.S. Fish and Wildlife Service).

Hydropower on the Missouri River

Six hydroelectric power plants are located on the Missouri River. Together, these plants can produce more than 2,500 megawatts of electricity (see map above).

Missouri River Hydropower Plants

- Fort Peck, MT – peak times
- Garrison, ND – peak times
- Oahe, SD – peak times
- Big Bend, SD – peak times
- Fort Randall, SD – peak times
- Gavins Point, SD – baseload

Most of these plants are used for peaking or semi-peaking purposes, which means they generate more energy during the hours of highest energy demand. Gavins Point Dam is the only dam on the Missouri River consistently used for baseload energy production, which means the plant provides a continuous energy supply. While power generation at these dams generally follows the seasonal pattern of water movement through the river system, adjustments can be made to provide the maximum power production during the months when energy demand is highest.

The mission of the Missouri River Recovery Program is to implement actions to accomplish Missouri River ecosystem recovery goals in coordination and collaboration with agency partners and stakeholders. The vision of the program is to create a sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values.

For more information on the Missouri River Recovery Program, please visit ***www.moriverrecovery.org****.*

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