U.S. Department of Energy
Energy Efficiency and Renewable Energy
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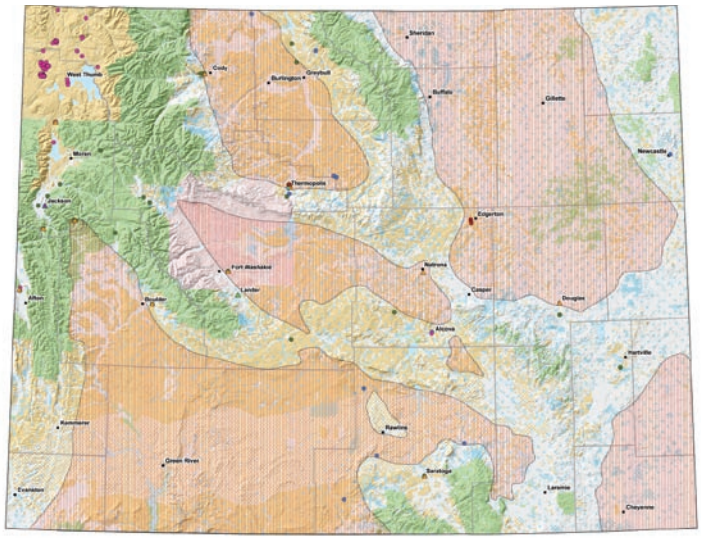
Geothermal Technologies Program
Wyoming

(Credit: Warren Gretz, NREL, PIX 03698)

Yellowstone National Park is the world's premier showcase of the power and beauty of geothermal energy and its visitation makes a major contribution to the Wyoming economy.

Wyoming geothermal—Yellowstone National Park, of course. The National Park Service describes it as having half of the earth's geothermal features and two-thirds of its geysers. A major tourist attraction, it makes a vital contribution to the state's economy. But Wyoming has other places where recreational hot springs are important and large parts of the state have good low-temperature (less than 100°C, or 212°F) geothermal resources. Such low-temperature geothermal resources have the potential for direct-use applications — where hot water may be used directly to heat buildings, grow plants in greenhouses, provide warm water for aquaculture, or serve other applications.



Current Development

In addition to all the development at and around Yellowstone National Park, Wyoming has two tourist-economy towns which have hot springs as their primary attraction. Hot Springs State Park in Thermopolis, in north central Wyoming, has a free public bathhouse and viewpoints of the mineral terraces formed by Big Horn Hot Springs. Two of the town's hotels also have their own hot pools fed by the springs. Saratoga, in southern Wyoming, has a city-owned free public bathhouse and a 50-room resort hotel featuring geothermal hot tubs and a pool. The Chief Washakie Hot Springs Plunge on the Wind River Indian Reservation is developed with a large swimming pool. Several undeveloped hot springs in the Yellowstone/Grand Teton area are open to recreational use and add to the fantastic outdoor resources of the area. The Jackson National Fish Hatchery uses geothermal water.

Economic Benefits

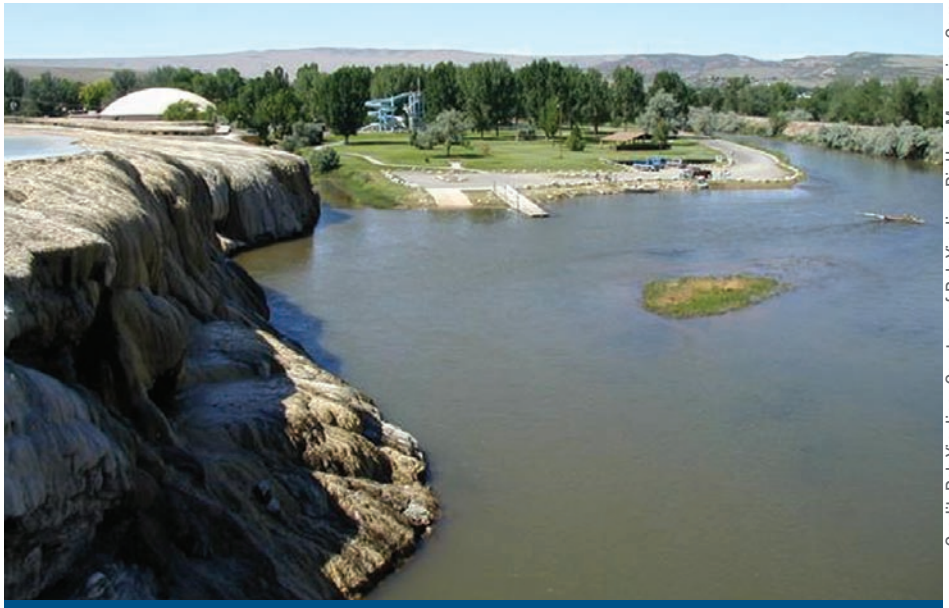
Tourism is one of the most important industries in Wyoming. With Yellowstone National Park and Hot Springs State Park being the first and third most visited parks in this natural beauty-rich state, geothermal features and recreational use are clearly important economic elements.

Potential Development

While the higher temperature resources connected to Yellowstone Park and Hot Springs State Park are likely precluded from development, low-temperature geothermal resources elsewhere in the state do offer potential for development. According to a "Collocated Resources Study," conducted by the Geo-Heat Center, five communities in Wyoming are within 8 km (5 miles) of a geothermal resource with a temperature of at least 50°C (122˚F), making them good candidates for district heating or other geothermal use.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.



Credit: Rob Yingling; Courtesy of Rob Yingling, BigHornMountains.Com

Hot Springs State Park and the Bighorn River. More than 68,000 liters (18,000 gallons) of 57°C- (135°F) water per day flows over the mineral terraces at Wyoming's first state park near Thermopolis. In addition to viewing the fantastic natural beauty, visitors can "take the waters" at the free State Bath House or at hotels and other private facilities in the area with their own hot spring spas.

Policy

With funding from the U.S. Department of Energy GeoPowering the West Program, the Converse Area New Development Organization, a non-profit economic development group, is identifying potential geothermal energy opportunities and developers in the state. That report should be completed by 2007.

Technical Capabilities

The University of Wyoming has an active research program in geothermal heat pumps and can provide expertise in that and other geothermal technology. The Wyoming State Geological Survey has published a number of studies of geothermal resources in the state (www.wsgs.uwyo.edu).

History

Native Americans in the Wyoming area regarded geothermal water as having great healing power, often used hot springs as places for truces or negotiations, and held many of them to be sacred. John Colter, a hunter for the Lewis and Clark expedition, was the first to describe the wonders of Yellowstone in 1807, though his descriptions of hidden dangers and the smell of brimstone coined the name for it of Colter's Hell. Recreational use of Yellowstone hot springs started about the same time as the national park's 1872 creation. Among the most popular was Bath Lake, a natural pool near Mammoth Hot Springs. Official swimming pools were built near Old Faithful in 1914 and near Mammoth Hot Springs in 1925, with the former remaining open until 1950. In the interests of preserving the park's fragile natural resources and preventing injury to visitors, park policy was changed about that time to prohibit bathing in any thermal pools. Swimming is, however, allowed where hot water flows into nonthermal waters, and there are several popular accessible areas.

Captain Benjamin Bonneville discovered the hot springs near Thermopolis in 1832. Chief Washakie of the Shoshone Tribe sold the area around the springs to the U.S. Government in 1896 (celebrated each August as "the gift of the waters"), but stipulated that some of the water was to be available for free public soaking, foresight to which we likely owe the state bath house there. (For more history and for information on current resorts, *Touring Montana and Wyoming Hot Springs* by Jeff Birkby is an excellent resource.)

GeoPowering the West

GeoPowering the West is a cooperative federal, state, and local effort to promote awareness of the vast geothermal energy resources in the western United States, including Alaska and Hawaii. GeoPowering the West partners with businesses, government officials, Native American groups, utilities, and energy consumers to expand the use of geothermal energy.

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