

HYDROPOWER EVOLUTION AT BONNEYVILLE MILL

During the mid-1830's, Edward Bonney had a vision of a rapidly growing city centered around a sawmill and a grist mill on the Little Elkhart River. He selected the location partly due to its proximity to the Toledo/Chicago trail and the navigable St. Joseph River, providing access to Lake Michigan commerce.



Bonneyville Mill in the mid 1930's.

TURBINE INNOVATION

Mr. Bonney installed two different types of water turbines at his mill: first, a traditional vertical water wheel and later, around 1870, a horizontal turbine, which produced more horsepower. This innovation enabled Bonneyville to function as a progressive mill of the era. During the 1880's, many mills replaced grist stones with roller mills. Bonneyville opted not to expand and chose instead to serve a few local farmers and merchants.

NECESSITY, THE MOTHER OF ELECTRICITY

During the Great Depression, the Bonneyville owners subsidized production by forming Bonneyville Power and Electric Company in 1932, supplying hydroelectric power to about 45 customers into the early 1950's. Advancing technology and regulatory legislation eventually overwhelmed the milling business and the mill owners were forced to sell. The Elkhart County Chapter of Michiana Watershed purchased the mill in 1968 and presented it to the Elkhart County Parks and Recreation Board in 1969.

ELKHART COUNTY PARKS COMMUNITY TREASURE

Bonneyville Mill remains an example of workable antiquity by grinding flour the "old-fashioned way" every day from May through October. Even so, the mill continues to look forward and utilize cutting-edge technology to harness energy from water.

GORLOV HELICAL TURBINE (GHT)

Lucid Energy Technologies approached the Elkhart County Parks Department in 2007 with a proposal to install a GHT at the Mill's bypass gates. Lucid's innovation offers an environmentally friendly means to generate electricity for the entire park without affecting the Mill's normal operation. The GHT was installed under the footbridge in January 2008.



CONTINUED INNOVATION

Lucid Energy Technologies holds the exclusive worldwide license to the Gorlov Helical Turbine (GHT). The turbine is a unique technology that extracts power from wind or moving water such as rivers, tides, and low head dams. The turbines are manufactured from extruded aluminum components making them environmentally benign, lightweight, and recyclable. Most importantly, GHTs provide an opportunity to reduce dependence on fossil fuels for electricity production, the bulk of which is currently derived by burning coal.

LOW-HEAD DAM OPPORTUNITIES

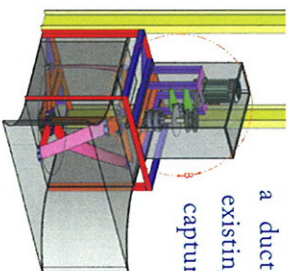
There are thousands of low head dams, much like the one at Bonneville Mill Park, which are too small to economically generate electricity



with traditional hydropower. Because it is scalable, the GHT can be utilized effectively in this type of application.

LUCID ENERGY AT BONNEVILLE

The Lucid System at Bonneville Mill Park is the first full-scale deployment of a Gorlov Helical Turbine (GHT) in a duct. The site is being utilized for research and development as well as power generation.



Lucid installed the GHT inside a duct mounted to the dam's existing bypass gates. The GHT captures energy from the water flowing through these gates and downstream.

VISITING BONNEVILLE

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The mill is open to the public every day from May through October. Mill hours are 10:00 a.m. to 5:00 p.m. daily. Guided tours may be scheduled Monday through Friday.



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LUCID ENERGY TECHNOLOGIES

Innovative Power at
Bonneville Mill Park, Bristol Indiana



Gorlov Helical Turbine