

# Powerbase Energy Systems provides easy-to-use solutions for small-scale bio and hydroelectric producers

*Powerbase Energy Systems is tapping into the small hydroelectric energy sector in China as well as converting animal waste into renewable power in Canadian agricultural communities*

## Fast facts

### Corporate profile

The emergence of small hydroelectric stations is increasingly important as large stations – most of which were built nearly 60 years ago – become less reliable and more labour intensive. Powerbase Energy Systems provides operators of small hydroelectric stations, under 20 MW, with low-cost equipment that controls energy production from water to wire. This includes programmable logic controllers – the digital computers used to automate the flood gates and turbine control.

### Why Ottawa

In the heart of the Ottawa Valley is Carleton Place, Ontario – home of Powerbase Energy Systems. This town of 10,000 residents offers scenic nature trails, beaches and a lively downtown. Its waterfront location, located along the Mississippi River, provides Powerbase Energy Systems with easily accessible resources from the farming and hydroelectric communities to assist with research and development efforts.

### Business advantage

Powerbase Energy Systems and its well-designed, small hydroelectric systems have very little impact on a river's ecosystem. It also provides the station operators with easy automated control solutions that can be controlled remotely, removing the need for on-site staff and, therefore, cutting down on overhead costs.

Increased environmental concerns and decreased fossil fuel reserves have created an influx of demand for suppliers of alternative energy solutions. Powerbase Energy Systems Inc. provides small energy producers in both the agriculture and hydroelectric sectors with cost-effective, reliable methods to generate clean energy.



Hydroelectric power supplies Canada with over 60% of its energy supply – 19% worldwide – by using the energy in flowing water to produce electricity. There are over 45,000 large (over 20 MW) hydroelectric generating stations in the world – with nine on the Ottawa River alone – and construction of new large stations has nearly ceased because all desirable hydroelectric sites already have stations or are unoccupied due to environmental concerns, such as flooding.

The emergence of small hydroelectric stations is increasingly important as large stations – most of which were built nearly 60 years ago – become less reliable and more labour intensive. Powerbase Energy Systems provides operators of small hydroelectric stations, under 20 MW, with low-cost equipment that controls energy production from water to wire. This includes programmable logic controllers – the digital computers used to automate the flood gates and turbine control.

In addition to hydroelectric power, Powerbase Energy Systems is looking to a less traditional form of energy – animal waste – to help meet growing energy demands. By converting methane gas from animal waste, particularly from cattle, Powerbase Energy Systems and its Synergy Biopower system generates renewable energy that is used on-site or sold to the power grid for a profit. This method also provides farmers with animal waste disposal techniques that reduce odour and disease-causing pathogens.

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*The production of energy from animal waste not only alleviates concerns over water contamination from animal waste but also represents huge potential for farmers to capture revenue through the conversion of waste to energy. Powerbase Energy Systems estimates that Ontario's dairy farming sector can contribute 500 MW of electricity to the provincial power grid each year using the company's solutions.*

### **Why Ottawa**

Only 30 minutes from the heart of Ottawa is Carleton Place, Ontario – home of Powerbase Energy Systems. This small town of 10,000 residents offers scenic nature trails and gardens, beaches and a lively downtown with artisan shops and restaurant patios. Its rural and waterfront location, located along the Mississippi River, provides Powerbase Energy Systems with easily accessible resources from the farming and hydroelectric communities to assist

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with research and development efforts. In addition, Powerbase Energy Systems, because it is so close to Ottawa, has been able to forge relationships with top-notch Ottawa-based research institutions – such as Natural Resources Canada, partner in designing and testing of Powerbase Energy Systems technologies.

### **Business advantage**

The production of energy from animal waste not only alleviates concerns over water contamination from animal waste but also represents huge potential for farmers to capture revenue through the conversion of waste to energy. Powerbase Energy Systems estimates that Ontario's dairy farming sector can contribute 500 MW of electricity to the provincial power grid each year using the company's solutions. Benefits include increased income through electricity sales to the power grid, plus decreased fuel dependence and carbon dioxide emissions.

Powerbase Energy Systems and its well-designed, small hydroelectric systems have very little impact on a river's ecosystem. It also provides the station operators with easy automated control solutions that can be controlled remotely, removing the need for on-site staff and, therefore, cutting down on overhead costs. Also, by providing all the necessary tools – from circuit boards to software programs – the operator will benefit from dealing with one company for all servicing needs, eliminating wait times and increasing overall productivity. In addition, hydroelectricity, unlike wind or solar, is predictable and systems can be designed to vary energy production from hour to hour based on need.

### **Future growth plans**

Powerbase Energy Systems hydroelectric technologies currently control 175 MW of power generation in more than half a dozen countries, including China – a country with the most abundant hydro energy resources in the world.

The company supplies control systems to 60 small hydro stations in China and expects to expand its reach as China increases hydroelectric development. China is currently at 20% of its hydroelectric potential and plans to reach 40%, generating 150 million kilowatts of hydroelectric power by 2015.

### **Contact information**

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