Feature story: Nova Scotia Tidal Energy

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Nova Scotia Positioning Itself as a Global Leader in Tidal Energy

Nova Scotia is making waves in the tidal energy industry.

The province announced the second approval of a Community Feed-in Tariff (COMFIT) program tidal project today, February 14, 2012, green-lighting Fundy Tidal Inc.'s proposed tidal array in Petit Passage, between Long Island and Digby Neck. This collection of turbines, along with the company's project in Digby Gut, will be among the first commercial tidal arrays in the world.

The Bay of Fundy, with the world's highest tides, is helping the province become an international leader in tidal energy development. The powerful tides can provide an estimated 2,500 megawatts of power, more than Nova Scotia's peak demand. The challenge is to develop technology that can withstand the incredible force of the bay's currents.

"The Minas Basin is like the Mount Everest of tidal technology," says Sandra Farwell, director of Sustainable and Renewable Energy with the Department of Energy. "If you can deploy a device here, you can deploy one anywhere in the world."

The province has been working hard to balance progress with research and environmental monitoring.

"We have been very strategic in working to become a leader in marine renewable energy," says Energy Minister Charlie Parker. "Tidal energy is a priority for us. We see it as a key to clean, secure energy and also for economic development."

In 2007, the province established North America's only tidal testing centre, the Fundy Ocean Research Center for Energy (FORCE), in the Minas Passage. It also set up two independent, non-profit associations, Offshore Energy Environmental Research (OEER) and Offshore Energy Technical Research (OETR), to research the environmental and technological aspects of tidal deployment.

Nova Scotia's 2010 *Renewable Electricity Plan* established two feed-in tariffs, one for large-scale and one for small-scale tidal development. The feed-in tariffs provide long-term, above-market rates as an incentive to invest in renewable energy.

"What the province has done to create the two FITs is the first in the world," says Dana Morin, president of Fundy Tidal. "This is the only place in the world to make money on tidal power. We are now internationally renowned because of FORCE. With the addition of the feed-in tariffs, we have really set the bar internationally for tidal power development."

Developing tidal energy could boost local economic development and provide export opportunities.

Morin, who wants to develop several projects in rural communities to boost development and reverse population trends, says such projects can rejuvenate local economies.

"I see it as, 'how can we leverage COMFIT to help people stay in our communities, attract new people, encourage tourism and fill up our bed and breakfasts?'"

It could also give Nova Scotia a golden export opportunity. The province is developing a wide range of expertise from small, community-scale to large utility-scale projects.

Developing tidal energy will help the province reach its ambitious renewable electricity goals of having 25 per cent renewable electricity by 2015 and 40 per cent by 2020. Local, renewable electricity is much friendlier to the environment than coal and other fossil fuels, which have accounted for almost 90 per cent of Nova Scotia's power. It also makes Nova Scotia less reliant on volatile international prices for imported fossil fuels.

Nova Scotia intends to hit more milestones in tidal development over the next six months. The Department of Energy will release its *Marine Renewable Energy Strategy* this spring, with legislation in the fall.

It will also do a strategic environmental assessment of the Bras d'or Lakes and Cape Breton coast to assess tidal energy potential outside the Bay of Fundy.

In the bay, FORCE is planning to deploy more test turbines.

Despite the enthusiasm, significant challenges remain. Farwell says key technology questions, such as how to improve efficiency of deploying and retrieving devices, and better securing equipment to the sea floor still need to be answered.

"To bring the costs down for industry as a whole, these processes need to become more efficient so tidal power is comparable in cost to other renewable energy sources," she says. "We continue to lay the foundation for development of tidal devices."