

As the world seeks new ways to reduce its environmental footprint, Canada stands at the forefront of the cleantech boom. Thanks to abundant renewable resources and cutting-edge research, Canada is an emerging leader in cleantech products and solutions, with best-in-class strengths in sectors such as bioenergy and waste management. Canada also offers investors a strong manufacturing base, with tariffs on manufacturing inputs set to fall to zero by 2015, and financial, tax and R&D incentives to build the sustainable technologies of tomorrow.

## Renewable-energy Technologies



The Robert Bourassa dam. Hydro-Québec's La Grande complex is the world's largest hydroelectric generating system.

WHEN IT COMES TO RENEWABLE ENERGY, Canada's advantages are only natural. Among developed economies, Canada is the second-largest generator of electricity from renewable and waste sources. Canada is the world's #2 producer of hydropower, and has the potential to become the world's largest producer of wind and ocean energy. It is also on par with the United States for its supply of scientists and engineers specializing in cleantech research and product development.<sup>1</sup> Globally, Canada ranks #3 in biomass and fuel-cell patents and #4 in energy and photovoltaic patents.<sup>2</sup>

### Wind and Solar Power

Every province in Canada is now producing wind energy, with the total installed capacity across the country coming in at 3,319 MW in 2009. In 2009, seven Canadian cities ranked among the Top 20 internationally in competitiveness as a wind-power plant location, according to data produced by *IBM Plant Location International*.<sup>3</sup> And in 2009, the World Wind Energy Association named Ontario North America's leading wind-power jurisdiction.<sup>4</sup>

To encourage investment in renewable-energy technologies, Ontario recently introduced North America's first comprehensive guaranteed pricing for renewable energy. In 2010, the province signed a \$7-billion investment agreement with **Samsung C&T Corp.** and the **Korea Electric Power Corp. (KEPCO)**. Over the next 20 years—in the biggest energy

project of its kind anywhere—Samsung and KEPCO will build and operate wind and solar power clusters throughout Ontario.

Canada's clean, affordable electricity—the cheapest in the G7, according to KPMG's *Competitive Alternatives 2010*—and its wealth of raw materials make it an ideal location to produce silicon for photovoltaic (PV) modules. In 2009, **Umoe Solar** of Norway announced plans to build a \$700-million solar PV module plant in New Brunswick, one of the largest investments of its kind in the world.

### Bioenergy

From having more biomass per capita than any other country in the world to maintaining a growing biofuel industry, Canada is a bioenergy powerhouse. A number of investors have leveraged their investments in Canadian agriculture to establish bioenergy facilities in Canada. In 2009, **Archer Daniels Midland Co.** and Vancouver-based **Canadian Bioenergy Corp.** announced plans to build the country's biggest canola biodiesel plant in Lloydminster, Alberta. Canada is also home to **logen Corporation**, which has built and operates the world's only demonstration-scale facility to convert biomass to cellulosic ethanol using enzyme technology. This facility is located in Ottawa, Ontario.

### Fuel Cells

With key clusters in British Columbia and Ontario, the hydrogen and fuel-cell subsector is another Canadian strength in renewable energy. British Columbia's fuel-

<sup>1</sup> Loewendahl, H. *Future Challenges of Investment Promotion*. fDi Intelligence. September 23, 2009. p. 37.

<sup>2</sup> Ibid. p. 37.

<sup>3</sup> IBM. *Plant Location International*. 2009. Rankings based on relative quality scores associated with manufacturing turbines or components for on- and offshore wind farms.

<sup>4</sup> World Wind Energy Association. <[www.windea.org/home/index2.php?option=com\\_content&do\\_pdf=1&id=246](http://www.windea.org/home/index2.php?option=com_content&do_pdf=1&id=246)>. Downloaded March 19, 2010.

<sup>5</sup> Loewendahl, H. *Future Challenges of Investment Promotion*. fDi Intelligence. September 23, 2009. p. 37.

<sup>6</sup> Sustainable Development Technology Canada. <[http://www.sdtc.ca/en/news/V15\\_Public\\_Meeting.pdf](http://www.sdtc.ca/en/news/V15_Public_Meeting.pdf)>. Downloaded March 26, 2010. p. 7.