

DIRECTION

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GULF POWER CUSTOMERS SEE LOWER PRICES AND USE OF WIND-GENERATED ENERGY

As of January 1, Gulf Power customers saw a 2.7 percent decrease in their electricity bills. The average residential bill for 1,000 kWh of electricity dropped by \$3.71. Every year in January, the Florida Public Service Commission adjusts Gulf Power's prices to reflect cost changes in fuel, environmental compliance, and energy conservation programs.

According to Rick DelaHaya, a Gulf Power spokesperson, the price decrease is a result of Gulf Power employees' commitment to use the most cost-effective fuel resources available to generate electricity.

"We work hard to manage our fuel mix to provide affordable and reliable electric service for our customers," DelaHaya said. "This is great news for all of our customers. We work diligently to keep prices down, and the result is lower electric bills."

Gulf Power customers also saw the addition of another source of renewable energy added to the utility's energy portfolio. As of January 1, Gulf Power's first wind project became operational in central Oklahoma.

"The power we get from this project is expected to represent approximately 5 percent of our projected energy mix," DelaHaya said. "Wind power helps diversify our power supply and, in this case, is projected to provide lower overall energy costs."

Under the first agreement of its kind in the state, Gulf Power will be a leading purchaser of



Lars Schmidt / Gulf Power

The Macho Springs Wind Farm in New Mexico

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wind generation among all Florida utilities. Built in central Oklahoma where conditions are favorable for wind energy, the project will supply 178 MW of renewable energy to Gulf Power, enough energy to power approximately 50,700 homes per year.

“Wind power is an integral part of our diverse renewable energy portfolio,” DelaHaya said. “The best part of these new renewable energy projects is that they are cost effective for customers. It’s cost-effective renewable energy that di-

versifies our power supply. That makes environmental and economic sense.”

This will be Gulf Power’s fifth renewable energy project following the Perdido Landfill Gas-to-Energy Facility, which has produced more than 100 million kWh of electricity since 2010. ↵

— Source: Gulf Power

For more information, go to www.gulfpower.com.

WIND ENERGY CONTINUED RAPID GROWTH IN CANADA IN 2015

2015 was another remarkable year for wind energy in Canada. The Canadian Wind Energy Association (CanWEA) reported that Canada closed 2015 as seventh in the world for total installed wind energy capacity with 11,205 MW and sixth in the world for the amount of capacity added in 2015. Over the year, Canada added 1,506 MW of new wind capacity by commissioning 36 projects, 23 of which involved Aboriginal peoples, municipal, or local ownership. Wind energy supplied approximately 5 percent of Canada’s electricity demand in 2015, enough to power over 3 million Canadian homes.

“Not only has the wind energy industry continued its five-year trend as the largest source of new electricity generation in Canada, but the industry in Canada has demonstrated a five-year annual average growth rate of 23 percent per year and an average of 1,438 MW per year,” said CanWEA President Robert Hornung.

Ontario continued to lead the way in market size and growth by adding 871 MW of installed capacity in 2015 for a new total of 4,361 MW. Between contracts signed and planned new purchases through the province’s new Large Renewable Procurement process, there remains more than 2,000 MW of wind slated to be built in Ontario over the next few years.

Quebec, which is Canada’s second largest wind energy market, was also

11,205 MW total installed wind energy capacity in Canada...
enough to power over
3 million homes
That’s 5% of Canada’s electricity demand!



the second largest contributor of new installed capacity in 2015, adding 397 MW for a total of 3,262 MW. This included the largest multi-phase project commissioned in Canada to date — the 350-MW wind farm in Riviere du Moulin. The first phase with 150 MW was commissioned in 2014, and the remaining 200 MW was commissioned in 2015. The province has another 700 MW due to come online in the next two years.

Nova Scotia, which currently has 552 MW, commissioned 186 MW in 2015, including one of the largest municipal-owned wind projects in Canada (14-MW Sable Wind Farm), bringing the total installed capacity in Atlantic Canada to 1,104 MW (294 MW in New Brunswick, 204 MW in Prince Edward Island, and 55 MW in Newfoundland). Notably, Prince Edward

Island currently receives approximately 40 percent of its electricity supply from wind energy and Nova Scotia receives almost 10 percent from wind energy.

Alberta, which is Canada’s third largest wind energy market at 1,500 MW, added 29 MW in 2015. More remarkable was the commitment in November by the province to replace two-thirds of coal generation with renewable generation, which is expected to increase installed wind energy capacity in Alberta by thousands of megawatts over the next 15 years.

Similarly in November, Saskatchewan, which added 23 MW of installed wind energy capacity in 2015, committed to significantly grow this capacity from 221 MW presently to more than 2,000 MW by 2030 starting with an initial procurement of new wind energy capacity in 2016.

British Columbia held steady in 2015 at 489 MW of installed wind energy capacity, as did Manitoba with 258 MW, the Northwest Territories at 9 MW, and Yukon with just under 1 MW.

Six wind turbine OEMs, all CanWEA members, supplied the technology for the new wind capacity commissioned in 2015 in Canada. Siemens Canada Limited led installations with close to 50 percent, followed by Senvion Canada Inc., GE Renewable Energy, Enercon, Acciona Wind Energy Canada, and Vestas Canada.

“Canada’s new wind energy projects in 2015 represent over \$3 billion in investment,” Hornung said. “Wind energy is now providing economic growth and diversification to well over 100 rural communities across Canada through land lease income, tax payments, and community benefits agreements.”

With the cost of utility-scale wind plummeting 60 percent over the past six years, as reported in November by U.S. investment bank Lazard, wind energy is now cost-competitive with virtually every other potential source of new electricity generation. That down-

ward trajectory is expected to continue while the costs of natural gas are exposed to both future carbon and commodity price risk.

“As we look ahead in Canada, we expect at least another 1,000 MW to be installed by the end of 2016,” Hornung said. “The recent policy decisions in Alberta and Saskatchewan provide clear evidence that wind energy’s growth prospects will remain strong beyond then.” ↵

— Source: CanWEA

For more information, go to www.canwea.ca.

NORTHERN POWER SYSTEMS ANNOUNCES LEASE FACILITY FOR DISTRIBUTED GENERATION WIND FINANCING

Northern Power Systems Corp., a next-generation renewable energy technology company, recently announced that its flagship distributed generation wind platform is available to businesses, farms, and other property owners with a compelling financing solution.

Northern Power Systems is now offering a lease program to allow users to take advantage of wind energy with 100-percent financing and no increase of payments during the lease period. According to the U.S. Energy Information Agency, U.S. electricity prices are forecasted to increase every year by at least 2.7 percent in the next 20 to 30 years, surpassing the expected rate of inflation.

The NPS 100 wind platform is a state-of-the-art product in its third generation of technology that is optimized for efficiency and proven to be reliable with a fleet of nearly 500 turbines deployed around the globe. It is targeted to medium-level power users such as a wind garden feeding 15-20 homes, a farm with substantial agricultural machinery, or a small factory or business that is keen to lock in flat electricity rates, save substantial money, and eventually own the asset.

“Over a period of 20 years, the Northern Power solution will save our customers significant amounts on their electricity bill with no upfront equipment costs and a path to full ownership within seven years,” said Diego Tebaldi, vice president of global business development at Northern Power

Systems. “The Northern Power offering comes as a turnkey solution including installation, maintenance, and servicing to assure maximum value and peace-of-mind. This agreement with LFC gives yet another option for people to go green.”

LFC Capital, Inc., with more than \$1.5 billion of equipment leasing experience, has created the LFC Clean Energy Ownership Program for commercial and industrial companies seeking greater overall value from clean energy systems than the limited cost savings offered by power purchase agreements. The program is especially appealing to companies such as LLCs that cannot directly benefit from a federal tax credit.

“We’re very pleased that Northern Power Systems has selected the LFC program as an effective way to make wind systems affordable for their business customers,” said Stanley S. Fishbein, managing director of LFC Capital, Inc.

The LFC program uses a traditional operating lease and innovative purchase options after six to seven years to provide companies with a predictable low cost of ownership while satisfying tax rules. Companies obtain an attractive return on investment by keeping all energy savings over the long life of these wind systems. The program is available in all 50 states. ↵

— Source: Northern Power Systems

For more information, go to www.northernpower.com.

SGURRENERGY MOVES INTO MEXICO

SgurrEnergy has boosted its presence in the Americas by opening an office in Mexico City. This latest venture provides a base for SgurrEnergy, a

Wood Group company, to strategically support the development of renewable energy in Mexico and surrounding countries. The office is headed up

by David Barrie, the company’s business development coordinator.

Already active in Mexico, SgurrEnergy has worked on wind projects

across the country, including energy yield prediction and wind feasibility and operational management of wind projects.

Mexico has ambitious renewables targets, aiming to add 20 GW of renewable energy by 2030 and generate 35 percent of the country's energy from clean resources by 2024.

These targets have been backed up by legislation to open up the electricity market with further development of renewables, and there are plans for extensive grid infrastructure improvements in the country to cope with this energy growth.

"The opening of the Mexican office comes just a few months after we announced our expansion into Chile, representing healthy growth for SgurrEnergy and a strong presence in South and Central America," said Molly Iliffe, SgurrEnergy's international office manager. "With on-



the-ground specialists in the region, we are looking forward to effectively supporting our clients toward their renewable energy goals."

According to Barrie, there is a huge amount of potential for renewable energy solutions in Mexico.

"With ambitious energy targets in place, this paves the way for significant growth and market development," Barrie said. "I'm looking

forward to driving SgurrEnergy's presence in the region."

With nine locations across North and South America, SgurrEnergy is working extensively across both continents, utilizing the expertise and capabilities of its 250 employees in 17 locations. ↴

— Source: SgurrEnergy

For more information, go to www.sgurrenergy.com.



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PROSPECTS FOR THE NORTH AMERICAN WIND INDUSTRY AND LESSONS FROM THE WIND INDUSTRY IN EUROPE

By Gordon Moran

Globally, there has been an increase in the amount of installed wind capacity for electricity generation in recent years. However, only a few countries and regions account for the vast majority of it, including China, which has the largest proportion of installed wind capacity, followed by the United States and the European Union.

The majority of this is made up by onshore wind turbines with a smaller, but rapidly growing, offshore sector. Both technologies are increasingly being installed around the world to meet climate change goals and address energy security concerns. While the rate of installation in countries such as China has been very high, Europe and North America provide a helpful comparison to assess the future prospects for the industry in these locations, as they are two regions with comparable markets and support structures for the development of wind energy.

Governments in both regions have provided feed-in tariff contracts, tax incentives, and capital grants to support the industry, resulting in installations — largely for onshore wind farms — that have been developed at a rapid rate in many European countries as well as many parts of the U.S. Offshore wind farms have also been built, but they have been restricted to a few nations including the U.K., Denmark, and Germany due to higher capital costs and complexities in their construction.

WIND ENERGY IN EUROPE

A number of countries in Europe have successfully developed large-scale wind industries. Denmark was one of the first countries to develop an onshore wind industry and has since developed a large manufacturing base. Other countries such as Spain, Ireland, Germany, and the U.K. have installed sufficient numbers of turbines to provide a substantial proportion of overall electricity generation.

The rate of installation depends in part on social acceptance of wind technology. In some countries, it has been much more readily accepted than others. For example, there has been a high level of public support for the installation of onshore wind farms in Germany and Denmark for many years with widespread community ownership of projects, which is encouraging development. In other countries, including the U.K., there has been social and political opposition to onshore wind with stronger support for offshore wind farms, as they do not have the same impact on landscapes that onshore projects can face.

WIND ENERGY IN NORTH AMERICA

In the U.S., there has been a great deal of success with the installation of onshore wind. Since 2008, installed capacity has increased more than 300 percent from 16.7 GW to 69.5 GW at the end of 2015. This has led to individual states generating a substantial proportion of their electricity from wind. The current support available for constructing wind farms in many parts of the U.S. is robust, with strong tax incentives for installations in states such as California, Texas, and Iowa.

There is also strong support on a federal level. President Obama recently passed a five-year extension to the production tax credit (PTC). Under the legislation, the 2.3-cent-per-kilowatt-hour PTC for wind will be extended through next year, and then the credit will be reduced by 20 percent each year through 2020. The PTC extension means that predictable financial support is guaranteed for the next five years for the industry, which will mean a greater number of projects that will likely be installed to bolster the development of the industry nationally.

There is also a reasonable market in Canada. Provinces such as Ontario, Quebec, and Alberta have substantial installed capacity with tax incentives for further development. However, there is currently very little offshore wind development in the U.S. or Canada. Some farms have been proposed in the Great Lakes region and on the East Coast, although these have been beset by funding issues and local opposition to their construction. One project that is currently under construction is the Block Island Offshore Wind Farm in Rhode Island. While there have been controversies about the approval of the project, once it has been constructed it should make it easier for other projects to be built.

LESSONS FROM EUROPE'S WIND INDUSTRY

Governments have provided support for the wind industry through feed-in tariff contracts, tax incentives, and capital grants, providing long-term financial incentives to encourage investment. However, changes in the regulatory environment can occur quickly if a country is facing financial difficulties or a new government has different priorities for future energy provision.

This has been the case in a number of European countries — including the U.K. where the government has substantially reduced financial support to the onshore wind sector, leading to a decline in predicted rates of future installation and affecting levels of private sector investment.

This is due to a perceived reduction in financial stability and long-term support for the sector.

Due to the variable nature of the output of electricity from wind farms, there is a limit on the proportion of power that can be generated using the technology on a conventional power grid system.

Germany is now facing issues with balancing its national grid due to the success of increasing the proportion of electricity generated from renewable sources. This is a design issue that can be mitigated with sufficient energy storage capacity and interconnectors with other nations. However, the timescales and financial considerations on which such solutions can be implemented do place limitations on the amount of wind power that can be installed on a grid.

FUTURE OPPORTUNITIES FOR WIND ENERGY IN NORTH AMERICA

From the experiences of the wind industry in Europe, it pays to watch the regulatory landscape. While the current investment climate looks favorable with a five-year extension to the PTC and support at the state level, large-scale projects that rely on large-scale infrastructure and long-term guarantees of government support could potentially be disrupted. Other factors such as local planning regu-

lations, environmental considerations, and infrastructure capacity for new projects should also be taken into account.

The issues that face an individual project will depend on contextual factors such as the scale of the development and the type of turbines used, but some general points can be applied. Large-scale onshore wind farms are at greater risk of delays or cancellations in construction with higher risks of planning issues and disruptions in government support.

Small-scale onshore installations, on the other hand, are relatively low-cost, easy to install, effective in a wide variety of locations, and can be used in conjunction with other technologies. This means that a diverse market for them is likely to continue even if government support is withdrawn or in areas where such support is not provided on a local level.

Studying and comparing the ways in which Europe and North America have managed the development and deployment of wind power while navigating technical, political, and economic challenges can provide insights to avoid some of the potential pitfalls that can beset projects and help to harness the wind in both regions. ↗

To learn more about renewable energy and energy efficiency through training courses, go to www.EUenergycentre.org.

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