

INNOVATION

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EDF RENEWABLE ENERGY AGREED TO SUPPLY GOOGLE WITH 201 MW OF WIND POWER



Google, Inc. recently announced that it has signed a deal with EDF Renewable Energy (EDF RE), as well as with five other renewable energy companies including Invenenergy LLC and RES Americas, to purchase renewable energy for its data center. The power purchase agreement (PPA) will provide Google with the full output of the 201-MW Great Western Wind Project

located in Woodward and Ellis counties near the base of the Oklahoma panhandle. The project will commence construction in the first quarter of 2016 and be fully operational by the end of the year.

The deal was announced in Paris as part of Google's presence at the 21st Conference of the Parties to the United Nations Framework Convention on Climate

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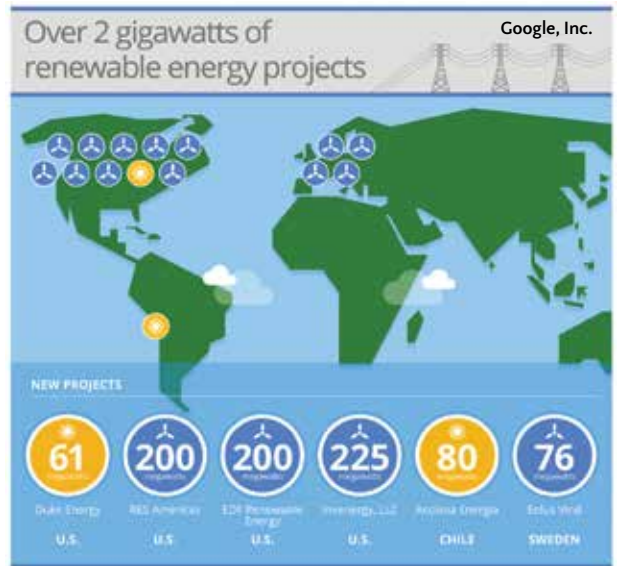
Change (COP21). The announcement brings Google one step closer to its commitment to triple the purchases of renewable energy by 2025 and eventually powering 100 percent of its operations with clean energy. One of the key actions on the ambitious journey to rely more on renewable energy is to partner with EDF RE to build the Great Western Wind Project and place more clean energy on the grid.

The Great Western Wind Project will be comprised of 30 V117 (unit capacity of 3.3 MW) and 51 V100 (unit capacity of 2.2 MW) wind turbines supplied by Vestas. The amount of power generated will be equivalent to avoiding more than 600,000 metric tons of CO2 emissions annually. This is equivalent to the emissions of 125,000 passenger vehicles driven over the course of one year.

“The participation of Google to directly procure wind power demonstrates their understanding of both the environmental benefits of renewable energy as well as the business opportunity,” said Tristan Grimbert, CEO and president of EDF Renewable Energy. “Wind not only emits zero greenhouse gas emissions, but it also delivers long-term energy price stability. We applaud their leadership in action around the climate change conversation and providing the financial certainty through the power purchase agreement to remove a key barrier to building a wind project.”

According to Gary Demasi, Google’s director of operations for Data Center Energy and Location Strategy, Google has already committed to purchase more renewable energy than any other company.

Google joins EDF’s growing North America portfolio of corporate purchasers including Procter & Gamble, Microsoft, Yahoo, Grupo Modelo, and Walmart.



This new PPA builds on the relationship forged between the two companies in December 2012 when Google made an approximately \$200 million equity investment in EDF RE’s Spinning Spur Wind Project, a 161-MW facility located in Oldham County, Texas, demonstrating that corporations can serve as a new source of capital for the renewable energy sector.

Google is already the largest corporate purchaser of renewable energy in the world, and the Great Western Wind Project adds to the company’s long-term contracts to buy green electricity from wind generation, bringing the total portfolio of renewables to nearly 2 GW. ↙

— Source: EDF Renewable Energy

For more information, go to www.edf-re.com and www.google.com/green/energy.

TURBINE OWNERS ESTABLISH GLOBAL PEER-TO-PEER PLATFORM TO SOLVE O&M ISSUES

Wind farm owners representing 12 percent of global turbine assets have founded a new peer-to-peer online platform called o2owind International, meaning owner-to-owner, dedicated to the exchange of knowledge and experience on operation and maintenance issues. The o2owind forum is the first initiative of its kind aimed at fostering wind farm O&M best practice through a collaborative approach.

Wind energy giants such as EDPR, Vattenfall, RWE, DONG Energy, and Acciona Energia have already joined this exclusive network, along with numerous other wind turbine owners.

“When it comes to troubleshooting the O&M issues they encounter, wind farm owners are not competitors,” said Märten Nilsson, who is heading o2owind. “On the contrary, they are in the same boat, and that’s why

adopting a collaborative approach to problem solving makes a lot of sense. Our members recognize that the most valuable information for turbine owners is the hands-on experience held by their peers.”

Members share the common objective of optimizing turbine yields, and many specialized discussions revolve around issues with main components such as rotor blades, gearboxes, or substations.

With o2owind members owning more than 60 percent of all offshore turbines in the world, the platform is also strong on offshore O&M. Although the topics treated on the forum are mainly technical, they can also be connected to major investment decisions.

O2owind takes down the usual barriers to information exchange that get in the way of the performance optimization of wind assets.

“Compared to other industries, wind still has some teething issues that are difficult to change when we operate in isolation,” said Sverre Trollnes, manager of operation and maintenance at Statoil.

According to Alan Henderson, head of technical asset management at RWE Innogy,

“Low yields and costly stand-stills have plagued the industry for too long, with no long-term gains for anyone. We need to collaborate to reach the goal. It’s that simple.”

The strict member selection criteria are designed to weed out noise and maintain a high level of expertise throughout the network.



“I consider the o2owind group as the best forum to share experiences with other wind farm owners regarding technical problems and their solution from the point of view of the owners,” said Cristobal Courret, director of production at Acciona Energia. ↴

— Source: o2owind

For more information, go to o2owind.com.

SIEMENS TO SUPPLY 126 MW TO ONSHORE WIND POWER PLANTS IN SCOTLAND



The Siemens SWT-3.2-101 and other models of the Siemens D3 product platform provide high energy yields and efficient operation for three Scottish onshore wind projects.

Siemens has been awarded orders for three onshore wind projects in Scotland, supplying up to 50,000 households in

South and North Ayrshire and Lockerbie. The contracts also include long-term service and maintenance.

For the Dersalloch wind farm in the South Ayrshire region, Siemens will construct, install, and commission 23 units of its D3 direct drive wind turbines, providing a combined output of 69 MW. The installation of the turbines is scheduled to begin in the spring of 2016 with the official handover of the site to developers ScottishPower Renewables in the fall of 2016. Siemens will also be responsible for servicing the wind turbines.

In addition, Siemens will supply six SWT-2.3-93 wind turbines to the Ewe Hill Phase 1 located 15 kilometers from Lockerbie in Dumfries and Galloway. Furthermore, 16 wind turbines of the same type will be installed for Phase 2, bringing both sites up to 22 wind turbines with a potential generating capacity of up to 51 MW. The installation of the turbines for Phase 1 is scheduled for the spring of 2016, followed by Phase 2 installation in the fall of 2016.

For Millour Hill Community Wind Co Ltd, Siemens will deliver two SWT-3.2-101 turbines to North

Ayrshire where six 3.0 MW-rated wind turbines were already installed. Three years ago, the installed turbines marked a product premiere for the Siemens' D3-product platform in the British market. Within the scope of a 20-year services agreement, Siemens is taking charge of maintaining the two SWT-3.2-101 turbines.

"We are delighted to continue our partnership with ScottishPower Renewables and Community Windpower Limited," said Thomas Richterich, CEO of onshore at Siemens' wind power and renewables division. "With their combined rating of 126 MW, these three projects will provide reliable, clean energy for the region, equivalent to the demand of both Scotland's Orkney and Shetland Islands." ↵

— Source: Siemens

For more information, go to www.siemens.com/wind.

XCEL ENERGY PROPOSES OPTION FOR 100-PERCENT RENEWABLE ENERGY

Xcel Energy recently proposed a new program that would allow its Minnesota customers to choose energy generated exclusively from wind and solar resources.

The company submitted its proposal for Renewable*Connect in a filing with the Minnesota Public Utilities Commission (PUC).

If approved by the commission, Xcel Energy customers who subscribe to Renewable*Connect will be able to secure up to 100 percent of their electricity from a blend of wind and solar resources dedicated to the program.

In addition to allowing customers the option of choosing all renewable energy, this new program would provide price predictability as the fuel charge is tied to the wind and solar energy used in this project.

"Our customers want more options when it comes to energy use, and this new program will help them meet their sustainability goals," said Chris Clark, president of Xcel Energy. "Renewable*Connect will give

customers a new choice for wind and solar energy, flexible terms, and no up-front costs. This proposal builds on the success of Windsource, a renewable energy program that generated 173,000 MWh of sales in 2014."

Program Details

If approved by the commission, Xcel Energy customers will be able to sign up for Renewable*Connect on month-to-month, five-year or ten-year contracts. In addition to reviewing the overall program, Xcel Energy is asking the PUC to approve a portion of wind and solar projects coming online in 2016 for the program with the resources dedicated to the equivalent amount of electric demand of program participants. Initially, the program will be offered on a first-come, first-served basis, with plans to expand as the utility adds new wind and solar projects.

Meeting Customer Sustainability Goals

The program provides benefits to business customers with

sustainability programs as it will deliver a verifiable method to track renewable energy use. Xcel Energy will seek Green-e certification from the Center for Resource Solutions and retire Renewable Energy Credits associated with the wind and solar projects on behalf of participating customers. The Renewable Energy Credits will be registered with the Midwest Renewable Energy Tracking System.

The program will also meet the unique needs of new or expanding businesses in the region, according to Michael Langley, CEO of Greater MSP (Minneapolis Saint Paul Regional Economic Development Partnership).

"Sustainable energy options are an advantage for businesses expanding in our region," Langley said. "Our region is a leader in many aspects of sustainable energy and this program will meet business' needs. It will be another tool for regional economic development."

Industry Organizations Are Similarly Encouraged

“This sort of innovation is exactly what the large buyers were hoping to spur when they drafted the Corporate Renewable Energy Buyers’ Principles,” said Letha Tawney, director of Utility Innovation and Polsky Chair for Renewable Energy at the World Resources Institute. “Xcel Energy has thought in a creative way about features like simplicity, predictable pricing, program flexibility, and shielding other rate payers. We’re looking forward to sharing the details with our corporate partners and hearing what the Minnesota

Public Utilities Commission and other stakeholders think of the program.”

Long-Term Price Predictability

Current customer bills include a fuel surcharge that can change on a monthly basis depending on the price of fuel used in generating electricity. The Renewable*Connect program will reflect only the cost of the utility-scale wind and solar resources dedicated to the project, providing more price stability, particularly for long-term contracts.

The filing also includes incentives for customers who have signed up

for a separate electric vehicle meter who will receive exemptions from some program charges. Businesses that locate or expand under the existing Business Incentive and Sustainability (BIS) Rider are also exemptions from some program charges.

Minnesota PUC’s review of the program is expected to last approximately one year. Customers can start signing up for the program when approved, which is expected to occur in early 2017. ↘

— Source: Xcel Energy

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

GE RENEWABLE ENERGY SIGNS 60 MW WIND DEAL IN THAILAND

GE Renewable Energy recently announced it has signed a contract with Khao Kor Wind Power Co., Ltd., to supply wind turbines for the Khao Kor wind farm in Petchaboon, Thailand. The 60-MW project is expected to supply power to the northern part of the country, generating enough equivalent energy to power approximately 36,000 Thai households for a year.

“This region has huge potential for wind power, and our technology is competitive, reliable, and innovative,” said Peter Cowling, general manager of GE’s wind business in the Asia Pacific region. “GE is committed to supporting local developers in Thailand, and we hope to continue collaborating with regional customers to build additional wind power capacity in the future.”

Wind energy has been making progress in Thailand. The Department of Alternative Energy Development and Efficiency’s (DEDE) Alternative Energy Development Plan (AEDP) aims to increase the share of renewable electricity in Thailand’s total electricity mix from approximately 12 percent in 2014 to 25 percent by 2021.

“The Khao Kor wind farm will be GE’s first wind facility in the country,”

said GE Thailand President and CEO Kovit Kantapasara. “GE is proud to

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help Thailand change its energy mix and reach its renewable energy goals.”

The 24 wind turbines that will deliver the power each utilize a 120-meter rotor diameter to provide 2.5 MW of power per unit. With its hub sitting atop a tubular steel tower 110 meters off the ground, the 2.5-120 specializes in increasing power yields for low-to-medium wind speed regions, like the conditions anticipated at the Khao Kor wind farm.

“We are delighted to collaborate with GE in this endeavor, as we aim to contribute to the country’s cleaner sources of energy,” said Dr. Surachet Tamronglak, managing director for Charoen Energy and Water Asia Co., Ltd. “We are anxious to begin construction on the project and expect to have the wind farm up and running by mid-2016.” ↵

— Source: GE

For more information, go to renewables.gepower.com.



GE

UPWIND AND SUSPENDEM BRING VORTEX GENERATORS TO CANADIAN MARKET

UpWind Solutions, Inc., North America’s leading independent full-service provider for the wind industry, and Suspendem Inc., a leader in Canadian wind turbine O&M services, have recently entered into a strategic relationship in which Suspendem will be able to provide UpWind’s Vortex Generator (VG) Solution to the Canadian wind market for the first time.

UpWind partnered with Smart Blade®, the wind industry aerodynamics experts and 3M™ to deliver the best-in-class VG solution for wind turbine rotor blades. The vortex generators have successfully increased Annual Energy Production (AEP) by 1 to 3 percent for 10 or more turbine technologies. UpWind developed a proprietary installation process with Smart Blade that is customized to each turbine blade type, utilizes precise installation lines and repeatable installation procedures, and uses a strong adhesive from 3M that can last the life of the turbine.

With guidance and training from UpWind, the strategic alliance will allow Suspendem to use this custom installation process and provide the VG Solution to both parties’ customers in Canada.

“This is an important expansion of our VG solution into the Canadian market,” said Jason Shelby, vice president of services at UpWind Solutions. “We’re excited to have Suspendem join our team, where they are positioned for exceptional service and support in the Canadian market”

Suspendem performs specialized inspection, repair and maintenance services for the wind energy industry. They are the leading provider of at-height services in the Canadian wind energy market.

“Suspendem is pleased to add UpWind’s VG Solution to our gamut of O&M service offerings for the Canadian market,” said Bill Talbot, managing director at Suspendem. “We will utilize our experienced, pan-Canadian service teams to install this VG solution and help Canadian wind farm owners increase AEP with a short return on investment.”

The strategic alliance brings North America’s top rope-access providers together to give Canadian wind farm owners access to UpWind’s VG Solution. ↵

— Source: UpWind Solutions

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