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Tennessee board approves Plains and Eastern Clean Line

Proposed line would carry Oklahoma wind to Mid-South and Southeast

Plains and Eastern Clean Line LLC, a subsidiary of Clean Line Energy Partners LLC (Clean Line) of Houston, Texas, received a major regulatory approval in the State of Tennessee. The Tennessee Regulatory Authority (TRA) unanimously voted to approve the application of Plains and Eastern for a Certificate of Public Convenience and Necessity and to grant Plains and Eastern the authority to operate as a wholesale transmission-only public utility in Tennessee.

The Plains & Eastern Clean Line is an approximately 700-mile overhead, direct current electric transmission project that will deliver wind energy from the Oklahoma Panhandle region to utilities and customers in Tennessee, Arkansas, and other markets in the Mid-South and Southeast. The project will provide affordable, renewable energy to more than one million homes annually, create construction jobs in Tennessee, and help reduce air pollution.

Clean Line Energy President, Michael Skelly, said, "We appreciate the TRA's review of our application for a Certificate of Public Convenience and Necessity. We are happy to take another step forward in the development of this important infrastructure project and believe there is an essential role that affordable renewable energy can and should play in the energy mix for Tennessee and the greater Southeast."

There is a need to connect the supply of thousands of megawatts of new wind energy in the Oklahoma Panhandle with the increasing demand of utilities in the Mid-South and Southeast. From May through July of 2014, Clean Line conducted an open solicitation for transmission capacity on the Plains & Eastern Clean Line. Fifteen potential customers submitted more than 17,000 megawatts of requests for transmission service, more than four times the capacity of the line. Clean Line received a Letter of Interest from the Tennessee Valley Authority (TVA) stating that the Plains & Eastern Clean Line transmission project presents a valuable option for TVA to provide affordable clean energy. TVA has completed several key technical studies for interconnection of the project and is continuing detailed engineering work to ensure the safe and reliable interconnection with the TVA transmission system.

"Tennessee Chamber of Commerce & Industry and its manufacturing division the Tennessee Manufacturers Association applauds this decision by the TRA on behalf of the Plains & Eastern Clean Line," said Catherine Glover, President of Tennessee Chamber of Commerce & Industry. "We believe this is a strong example of Tennessee moving forward as a clean energy leader, attracting new business investment and spurring job creation."

In resolutions passed unanimously, both Shelby County (TN) and the City of Memphis expressed support for the development, construction and operation of the Plains & Eastern Clean Line. They cited the investment in western Tennessee and the potential to create a renewable energy hub in the Greater Memphis area as part of their reasoning.

"This is great news for the economic climate in Tennessee. Not only will low-cost, renewable energy benefit current business and residential utility customers, it will send another strong message of why potential companies should relocate to our state," said Al Bright, Jr., EDGE (Economic Development Growth Engine for Memphis and Shelby County) Chairman. "It's going to help bring jobs to Tennessee."

The Department of Energy (DOE), in coordination with the Southwestern Power Administration, is leading an extensive environmental review of the Plains & Eastern Clean Line under the National Environmental Policy Act (NEPA). In December 2014, DOE issued the Draft Environmental Impact Statement (EIS) for the Plains & Eastern Clean Line. The release of the Draft EIS initiated a 90-day public comment period that is scheduled to conclude in March 2015. DOE will host 15 public meetings in Oklahoma, Arkansas, Tennessee, and Texas during January and February of 2015. Based on the current schedule, Clean Line anticipates that DOE would issue a Final EIS later in 2015, which will consider and respond to comments received regarding the Draft EIS. Construction is estimated to begin in 2016 and will require approximately two to three years to complete. The Plains & Eastern Clean Line is expected to begin delivering electricity as early as 2018.

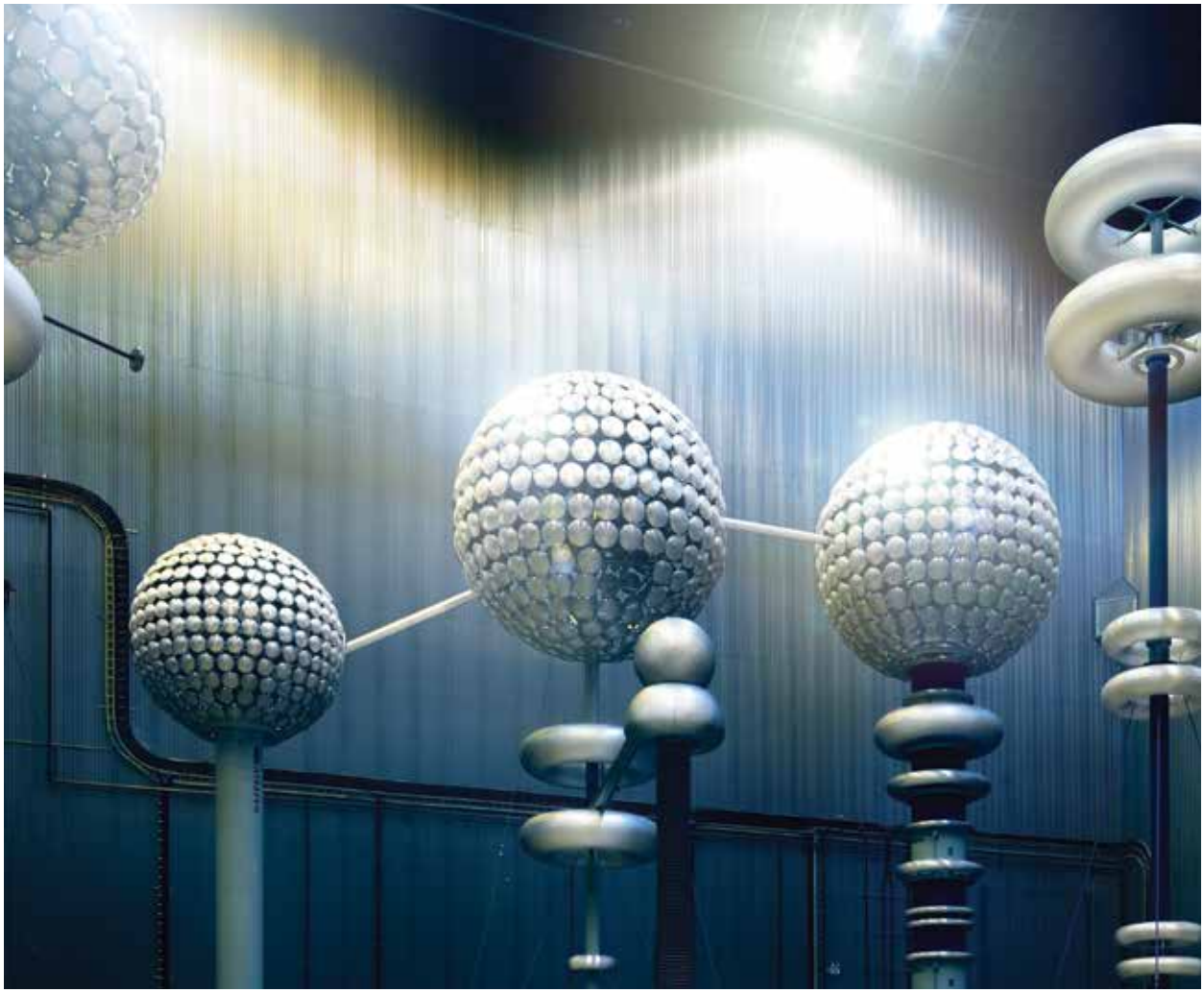
Skelly continued, "We are pleased to locate the converter station in Shelby County to deliver to the TVA transmission system, and deliver enough clean energy to reliably supply over one million homes per year. We are encouraged by the support that Shelby County, the City of Memphis, and the City of Millington, as well as their affiliated development organizations, have shown for our investment in western Tennessee. The Plains & Eastern Clean Line will be an important economic contributor to the western Tennessee region and will help Memphis maintain its leadership as 'North America's Distribution Center' for years to come."

For more information about the Plains & Eastern Clean Line, please visit www.plainsandeasterncleanline.com.

— Source: Clean Line Energy Partners

ABB sets world record in HVDC Light voltage level

500-kV link between Norway and Denmark boosts integration of renewables



ABB, a leading power and automation technology group, successfully commissioned a high-voltage direct current (HVDC) link between Norway and Denmark to increase availability of renewable hydroelectric and wind power in the region's electricity grid.

At 500 kV, the Skagerrak 4 link sets a new record in transmission voltage using Voltage Source Converters (VSC). The converters rely on semiconductors to convert electricity from high–voltage alternating current to direct current and back, while offering controllability and compact design.

VSC links are increasingly being deployed in underground and subsea applications such as integration of renewable energies from land-based and offshore wind farms, mainland power supply to islands and offshore oil and gas platforms, city center in-feeds and cross-border interconnections.

This HVDC Light link reinforces the grid owned by Norwegian transmission system operator Statnett and Denmark's Energinet.dk and helps balance loads between Norway's hydroelectric-based system and Denmark's wind- and thermal-based generation.

"ABB pioneered the HVDC technology and continues innovating as it is uniquely positioned in the industry with in-house manufacturing for all key HVDC components, including power semiconductors, converters, converter transformers and high-voltage cables," said Claudio Facchin, head of ABB's Power Systems division.

ABB has delivered all four of the Skagerrak system's links, with Skagerrak 1 and 2 in the 1970s, Skagerrak 3 in 1993 and now this latest project. The system spans 240 kilometers and crosses the North Sea's Skagerrak Strait, providing 1,700 megawatts of transmission capacity.

For Skagerrak 4, ABB delivered two 700-MW Voltage Source Converter stations based on the company's HVDC Light technology. The new link operates in bipolar mode with the Skagerrak 3 link that uses classic Line Commutated Converter HVDC technology.

This is the first time the two technologies have been connected in such a bipole arrangement. ABB's advanced MACH control system was used to master the different ways power reversal is handled between the two technologies.

In the future, use of 500 kilovolt VSC converters opens up new possibilities, especially when combined with ABB's recently launched extruded 525 kV HVDC cable. The world record cable, which doubles power flow and extends range to enable greater integration of distant renewables, reflects ABB's commitment to leading the development and use of HVDC technology.

— Source: ABB Group

EDPR, Maine utilities reach terms on wind transmission line

Central Maine Power, a subsidiary of Iberdrola USA, EDP Renewables, and Emera Maine, a subsidiary of Emera Inc., recently announced they have reached agreements that will enable clean energy from a new wind project in northern Maine to reach southern Maine and New England. The agreements advance the first of several transmission projects CMP and Emera Maine are jointly pursuing to address transmission congestion issues affecting the overall development of renewable generation in the region.

The focus of the agreements is EDPR's use of a portion of a key transmission corridor known as the Bridal Path, between Houlton and Haynesville in Aroostook County, Maine. Under the agreements, Emera Maine and CMP are providing EDPR with an option to purchase a portion of the Bridal Path corridor to develop a new transmission line, with Emera Maine and CMP having buy-back rights to purchase EDPR's development in the corridor. The project is being advanced as part of the transmission infrastructure needed to deliver energy from EDPR's Number Nine Wind Farm to the ISO-New England electric grid.

"Our companies have the corridors, the expertise, and the resources to create and deliver solutions for New England's renewable energy goals," said Sara Burns, CMP's President and Chief Executive Officer. "These agreements among our companies allow EDPR to move ahead with a significant wind project, and are a key step toward an optimal transmission solution for the further development of northern Maine's abundant energy resources."

The Number Nine wind project, which is currently under development at a site west of Bridgewater, Maine, will have an installed capacity of 250 MW. EDPR already has contracts with electric utilities in Connecticut for the clean energy from the Number Nine Wind Farm, and is in the process of securing necessary permits and approvals for the project. The agreements with CMP and Emera Maine will allow EDPR to move forward in the coming weeks with a formal application to the Maine Department of Environmental Protection.

"Making use of an existing transmission corridor makes sense," said Bill Whitlock, Executive Vice President at EDPR. "The Bridal Path corridor is ideal. It enables development of the wind farm and the economic benefits that it will bring to the local community, and makes environmental sense as well. We're pleased CMP and Emera Maine are working with our company to make this happen."

Last year, Emera Maine and CMP announced an agreement to work together on development of transmission solutions to enable cost effective collection of wind energy in northern Maine. The Memorandum of Understanding signed by the two companies is consistent with regional initiatives to diversify New England's electricity generation portfolio, and is intended to facilitate improved access to new renewable energy in the North, where ISO New England has indicated further renewables development is challenged by transmission related limitations.

— Source: Central Maine Power

Study: Nebraska grid can support 2 GW more wind

Additional transmission infrastructure needed to meet renewables target

A study authored by economists at The Brattle Group identifies the factors that impact the desirability of developing 5,000 to 10,000 MW of renewable generation in Nebraska for export purposes. Prepared for the Nebraska Power Review Board (PRB) and submitted to the Nebraska Legislature for consideration, the study also presents options available to policy makers to meet the state's economic development objectives. The PRB is the state agency with primary jurisdiction over the electric industry in Nebraska.

Based upon a review of state, regional, and national renewable energy and transmission policies, the report identifies the following challenges to wind generation developments in Nebraska:

1. ***Transmission Constraints:*** Transmission projects currently in development will provide transmission infrastructure sufficient to integrate at least another 2,000 MW of wind projects. However, achieving the considerably higher target of renewable generation in Nebraska would require a substantial expansion of the state, regional, and interregional transmission systems.
2. ***Limited and Uncertain Demand for Renewable Energy:*** The regional market for renewable generation is currently saturated. However, demand for additional renewable generation will likely emerge as costs decline relative to conventional resources, wholesale electricity prices increase, coal plants retire, and new environmental policies are implemented. Nebraska will need to better position itself to be prepared to take advantage of emerging new demand for renewable generation.
3. ***Less Attractive Economics Compared to Neighboring States:*** Renewable generation developers in Nebraska face competitive disadvantages relative to some other states in the wind-rich Great Plains region, including lower financial incentives and lower wholesale power prices.
4. ***Greater Perceived Risks:*** Due to the requirements of the Certified Renewable Export Facility (CREF) process and limited experience in developing renewable generation under that standard, there is a perception among developers that wind projects in the state are more risky and more difficult to pursue than in neighboring states.

The study discusses both the costs and benefits of supporting renewable generation development in Nebraska. If, after considering these tradeoffs, the Nebraska Legislature chooses to promote the development of renewable resources in the state, the authors identify a number of options available to do so:

1. ***Develop a State-Wide Transmission Strategy:*** Addressing future transmission constraints within and outside of Nebraska will be an essential component of the state's long-term renewable generation strategy. The most effective strategy will likely be a mix of options that can minimize costs to ratepayers while supporting renewable generation development.
2. ***Additional Tax Incentives:*** The economic disadvantage faced by renewable developments in Nebraska compared to neighboring states could be addressed through additional economic development incentives..
3. ***Simplify the CREF Process:*** To reduce the perceived and actual challenges faced by wind generation developers in Nebraska, the Legislature may consider limiting the CREF process only to the review of environmental impacts, other permits, and the decommissioning plan.
4. ***Create a State Function to Promote Nebraska Renewables:*** Similar to other states, Nebraska could consider setting up a function within the Nebraska Department of Economic Development that, with the active and credible support of state policy makers, would promote the state as an attractive location for renewable generation development and help the state achieve its policy goals.

"Nebraska has some of the best wind in the country but a surprisingly low amount of wind generation installed and under development," said Brattle principal Judy Chang, a co-author of the study. "Nebraska policy makers and legislators have been working to increase the attractiveness of the state to renewable energy developers. They have already reduced some barriers, including those related to limiting public power condemnation rights. We anticipate that Nebraska policy makers will consider the options laid out in our report to make decisions about further improving the economics and regulatory setting for renewable development."

The study, "Nebraska Renewable Energy Exports: Challenges and Opportunities," prepared in response to Nebraska Legislative Bill 1115, was authored by Brattle principals Judy Chang and Johannes Pfeifenberger, associate Michael Hagerty, and research analyst Ann Murray. The study, as well as a summary presentation, is available for download below.

— Source: The Brattle Group