

Siemens and Sumitomo Electric win order for HVDC link and agree on cooperation

- **Leading experts in latest HVDC converter and cable technology join forces**
- **India's first HVDC link featuring state-of-the-art VSC technology**
- **Transmission link to support Government's Vision of 24x7 power for all**

A consortium between Siemens and Sumitomo Electric Industries Ltd. has been awarded an HVDC order from Indian transmission operator Power Grid Corporation of India (POWERGRID) to supply a high-voltage direct current (HVDC) transmission system. The about 200 km long HVDC connection will be India's first DC link featuring voltage-sourced converter (VSC) technology. VSC is the latest innovation in HVDC technology offering a very stable and highly flexible reactive power control independent of active power control and additional features to support the AC systems like blackstart capability. Furthermore, this solution is ideal to be combined with XLPE cable technology. Siemens will be supplying two converter stations with two parallel converters, each rated 1000 Megawatts (MW), featuring its VSC HVDC technology while Sumitomo Electric will be responsible for XLPE HVDC cable system in the DC circuit. The combined order volume for Siemens and Sumitomo Electric is approximately \$520 million. The grid connection is scheduled to go into operation in the first half of 2020.

"We are proud to announce that this project will be the first HVDC link in India featuring VSC technology", states Ralf Christian, CEO at Siemens Energy Management. "Latest innovations will help achieving ambitious grid programs, like the "24 x 7 Power for all" initiative of India's Ministry of Power, to meet the growing power demand."

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The Pugalur-Trichur ± 320 kilovolt (kV) HVDC system will connect Pugalur in the southern state of Tamil Nadu to Trichur in Kerala State in South-West India. The Trichur converter station will be connected via underground XLPE HVDC cable to a transition station also being built by Siemens. Sumitomo Electric's DC-XLPE cable has unique characteristics among industries to maximize utilization of HVDC system, enabling normal operation temperature at 90 degree, which is suitable for the hybrid system with bulk power overhead line. Sumitomo Electric will supply 128 km XLPE HVDC cable system comprising four cables for a route of 32 km each. From the converter station at Pugalur power will be transmitted via an overhead line to the transition station. The Siemens scope of supply for the turnkey project encompasses design, engineering, supply, installation as well as commissioning and major equipment supplies of the complete HVDC stations, including converter valves, transformers, cooling systems and control and protection technology.

Siemens and Sumitomo Electric enter into Cooperation Agreement

Sumitomo Electric of Japan and Siemens have entered into a cooperation agreement to collaborate in the field of HVDC transmission for selected projects to combine the innovative technologies of both parties. The partnership of Siemens with its recent achievements in DC converter technology and Sumitomo Electric, a pioneer in developing HVDC cables with cross linked polyethylene insulation, aims to provide optimized customer tailored solutions to enhance performance capabilities in the field of HVDC transmission systems.

“With this project, Siemens will increase its local presence by expanding its engineering and manufacturing capability for HVDC technology in India,” states Mirko Düsel, CEO of Transmission Solutions at Siemens Energy Management. “Furthermore we are glad to partner with Sumitomo Electric to contribute to the continuous support of stable energy supply and economic development in India.”

“We are pleased to announce this innovative partnership which accommodates the needs of the growing HVDC transmission system market, and we believe this cooperation between technology leaders, Siemens and Sumitomo Electric, will strengthen both company’s capability to provide state-of-the-art HVDC solutions to the customers worldwide,” states Masaki Shirayama, Managing Executive Officer at Sumitomo Electric.

The new transmission link will support major initiatives of India’s Ministry of Power to achieve ‘24 x7 Power for all’ in the country. By bringing in new technology Siemens and Sumitomo Electric will help in achieving this ambitious grid program to meet India’s growing power demand.

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 165 years. The company is active in more than 200 countries, focusing on the areas of electrification, automation and digitalization. One of the world’s largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. The company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2016, which ended on September 30, 2016, Siemens generated revenue of €79.6 billion and net income of €5.6 billion. At the end of September 2016, the company had around 351,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

Sumitomo Electric Industries, Ltd. was established in 1897. Since then, based on electric wire and cable manufacturing technologies, we have conducted our original research and development and strenuously strived for the establishment of new businesses. These efforts have allowed us to create new products and new technologies, as well as diversify our business fields. Currently, we operate our businesses on a global basis in the following five segments: Automotive; Infocommunications; Electronics; Environment & Energy; and Industrial Materials. We have been contributing to society through environmental friendly and fair business activities globally. Further information is available here <http://global-sei.com/>.