

Press release

Hanover, April 14, 2021

Siemens Energy presents world's first power transmission solutions with holistic cloud connectivity

- SensSolution® connects turnkey transmission solutions securely to the cloud
- Full substation transparency, anytime, from anywhere
- Supports system availability and operational efficiency
- Company's high-voltage direct current systems will be equipped first with SensSolution technology

Siemens Energy launches the world's first power transmission solution with holistic cloud connectivity and designated web application suite at Hannover Messe, Germany. SensSolution enables the secure transmission of substation data to the cloud, allowing for valuable real-time analyses and monitoring, supporting system operation and availability as result. Siemens Energy will deploy SensSolution to its complete transmission solutions portfolio, starting now with high-voltage direct current systems (HVDC).

Today's transmission grid operators face an abundance of challenges including the increasing share of renewables in the grid and their hard-to-predict feed-ins. Digitalization offers many opportunities to meet these challenges through the intelligent use of data available in substations. "SensSolution is the next logical step in our journey to fully unlock the potential of digitalization in energy transmission. By combining our vast experience gained in both fields, turnkey transmission solutions and connective transmission Sensproducts, we are now able to offer our customers SensSolution as a new digital layer for a maximum of transparency and improved operational efficiency of transmission solutions," says Beatrix Natter, Executive Vice President Transmission at Siemens Energy.

SensSolution processes all available data from substations to a cloud-based platform where the operators can access different applications and dashboards to gain insights on a system's actual status. This enables operators to plan ahead and make the right decisions to ensure optimized

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operation, handle imminent failures, schedule maintenance work or plan long-term investments. The operators can directly access the customized results via the internet on the SensSolution portal, location independent, and receive alarms in case of critical events. Knowing the exact status of all power transmission assets in the system will enable the operators to increase the overall availability and reliability of their systems. Based on a modular users' rights role concept the operator can decide to share substation data with different operations, maintenance and planning teams, and Siemens Energy. Specific visualizations and reports can be created by a mouse click, thus enabling a new level of seamless support and co-operation to handle acute problems and maintenance tasks.

Cybersecurity is a critical factor in the success of digitalization. Therefore end-to-end encryption is used when transmitting the operational data via a highly secure gateway from a site to the cloud. One-way connectivity makes sure that data can only flow in one direction and never exposes the HVDC control system to the outside. Due to guaranteed, complete physical isolation, intrusion into the substation from the internet is simply not possible.

As first part of deployment of the new technology, Siemens Energy will equip from now on all new HVDC systems with SensSolution. Providing the most efficient means of transmitting large amount of power over long distances, HVDC power transmission is a key enabler for integrating renewable energy, e.g., from offshore and onshore wind farms. As core technology for interconnecting grids, HVDC technology also enables the exchange of electricity within and between different countries, thus ensuring renewable energy resources can be used in the most efficient ways and energy is transmitted to where it is needed. SensSolution enables operators to use all operational data existing within the control and protection system of the substation, the power electronic converters and the connected subsystems for analysis and reporting.

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This press release and a press picture is available at

<https://press.siemens-energy.com/global/en/feature/siemens-energy-hannover-messe-2021>

For further information on Siemens Energy Transmission, please see

<https://www.siemens-energy.com/global/en/offerings/power-transmission.html>

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Siemens Energy is one of the world's leading energy technology companies. The company works with its customers and partners on energy systems for the future, thus supporting the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from power generation and transmission to storage. The portfolio includes conventional and renewable energy technology, such as gas and steam turbines, hybrid power plants operated with hydrogen, and power generators and transformers. More than 50 percent of the portfolio has already been decarbonized. A majority stake in the listed company Siemens Gamesa Renewable Energy (SGRE) makes Siemens Energy a global market leader for renewable energies. An estimated one-sixth of the electricity generated worldwide is based on technologies from Siemens Energy. Siemens Energy employs more than 90,000 people worldwide in more than 90 countries and generated revenue of around €27.5 billion in fiscal year 2020. www.siemens-energy.com.