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Hannover Messe 2019, Hall 9, Booth D35

Siemens extends connectivity to all main substation assets

- **Sensgear™ technology launch for digital connectivity of switchgear products**
- **New Sensformer® advanced with applications based on digital twin simulation of transformers**
- **Portfolio extension comes with comprehensive data analytics for added transparency, enhanced productivity, and advanced intelligence**

Siemens is introducing Sensgear, its new digital switchgear portfolio, and the Sensformer advanced at this year's Hannover Messe. With the combination of the already well-established digitally connected transformer, the Sensformer, and the new Sensgear technology, all substation transmission assets are now fully connective, allowing operators to check their status via online applications in real time. Gas-insulated switchgear, circuit breakers, surge arresters, disconnectors, instrument transformers, and coil products will henceforth be equipped with Sensgear technology. All devices are connected via a smart and robust Internet of Things (IoT) gateway that securely transmits the required information to a cloud-based storage and visualization platform. All Sensgear products provide additional transparency with GPS and local weather information as well as product-specific measurement data that includes gas density, liquid temperature, gas leakage, and switching position.

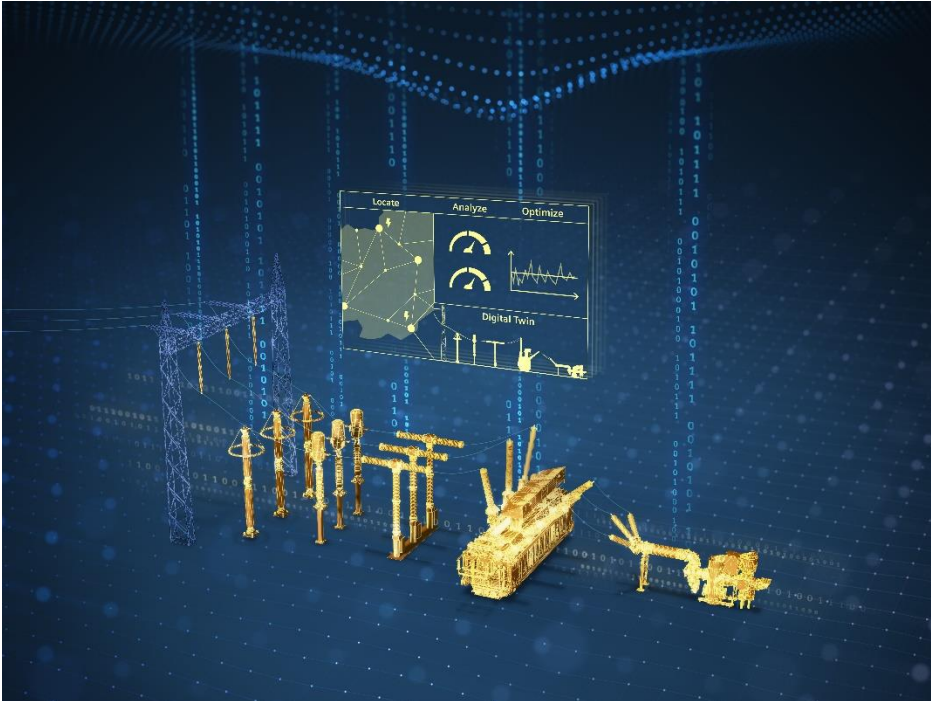
With Sensformer and Sensgear technology, every operator will have access to a cloud-based platform application that visualizes the collected data and enables a comprehensive overview of all assets and the power grid's status in real time. These new levels of connectivity and transparency minimize the risk of unplanned outages, leakage, and potential carbon equivalent emission penalties. Real-time insights will

help power system operators and energy companies face current challenges such as increased performance demands and cost reductions. It will also support them in integrating the growing proportion of renewables and distributed energy generation into the power grid.

“The digital age affects us in all areas of our business, in sales, production, logistics and to an increasing degree our products. In the IoT world, connectivity of our products will become a mandatory element of the functionality customers expect from our products. Today we would not buy a new car without connectivity enabling apps to support driving and for convenience. With Siemens Sensgear and Sensformer advanced we are shaping this trend in the energy transmission business with enhanced functionality for the main substation equipment,” says Beatrix Natter, CEO of Transmission Products at Siemens Gas and Power. “Our innovations provide added transparency with a connective platform and with analytic app enrichment for transmission assets. And we are already taking the next steps: with digital twins, active overload management becomes advanced intelligence and makes enhanced productivity possible. Starting with transformers “born connected” in 2018, we will be rolling out connectivity within 2 years to all transmission products being delivered,” she adds.

Digitalization is taking place at an unprecedented pace in the transmission product industry. The main substation elements are already prepared for scaling up of product features. With the additional two new extensions, the Sensformer advanced and Sensgear advanced, Siemens has launched a new value-add application that also enhances productivity and intelligence. It provides switchgear assets with a health index prediction to reduce unscheduled downtime and a reporting function that prevents emissions of fluorinated greenhouse gases (F-gas), along with other measurements. The version for transformers is based on a digital twin operation that simulates the behavior of the physical asset in real time. It comes with an active overload manager, a full temperature view, and life consumption analytics for transformers.

Cybersecurity is a critical factor in the success of digitalization, which is why end-to-end encryption is used when transmitting sensor data from Siemens substations to the cloud. Sensformer and Sensgear come with state-of-the-art IT security technology that complies with all relevant standards.



Main assets of substation are connective

With the combination of the digitally connected Sensformer transformers and the new Sensgear all substation transmission assets are now fully connective. All devices are connected via a smart and robust Internet of Things (IoT) gateway that securely transmits the required information to a cloud-based storage and visualization platform.

This press release and a press picture are available at

<http://www.siemens.com/press/PR2019040210GPEN>

For further information on Sensgear please see

www.siemens.com/sensgear

For further information on Sensformer please see

www.siemens.com/sensformer

For further information on Hannover Messe, please see

www.siemens.com/press/hm19

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Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. The company is active around the globe, focusing on the areas of power generation and distribution, intelligent infrastructure for buildings and distributed energy systems, and automation and digitalization in the process and manufacturing industries. Through the separately managed company Siemens Mobility, a leading supplier of smart mobility solutions for rail and road transport, Siemens is shaping the world market for passenger and freight services. Due to its majority stakes in the publicly listed companies Siemens Healthineers AG and Siemens Gamesa Renewable Energy, Siemens is also a world-leading supplier of medical technology and digital healthcare services as well as environmentally friendly solutions for onshore and offshore wind power generation. In fiscal 2018, which ended on September 30, 2018, Siemens generated revenue of €83.0 billion and net income of €6.1 billion. At the end of September 2018, the company had around 379,000 employees worldwide. Further information is available on the Internet at www.siemens.com.