



# TECHNOLOGICAL ADVANCEMENTS AID IN THE SEAMLESS INTEGRATION OF RENEWABLE ENERGY AND PREPARE OUR DISTRIBUTION NETWORKS FOR GROWING EV CHARGING INFRASTRUCTURE WHILE ENSURING GRID STABILITY

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## Stephan May

### CEO Electrification & Automation at Siemens Smart Infrastructure

**It's been a busy year for Siemens Smart Infrastructure, but as we look to the year ahead, what's on your customers' minds?**

**Stephan May:** Our customers continue to face the energy trilemma - the challenge of balancing affordable, secure, and sustainable energy. In doing so, their concerns will span reliable and cost-efficient business operations, the need to upgrade the electrical infrastructure, their environmental impact, and cybersecurity. All of which are critical to their business success and the broader energy transition.

Avoiding unplanned shutdowns without frequent manual field checks is one of the most pressing issues, while ageing assets pose a significant risk, requiring substantial resources for maintenance.

Front of mind for many is the urgent need to upgrade electrical grids to meet the demands of new loads and to improve asset utilisation. Given the limitations on expanding network capacities, it is important to optimize what we already have. This necessitates solutions that enhance the efficiency and resilience of the grid, ensuring it can meet the demands of the energy transition. To illustrate this point, the rapid increase in electric vehicles and heat pumps, expected to add 20 million new consumers in the EU alone by 2026, requires the grid to

adapt to a shifting energy mix, while maintaining network balance.

Environmental challenges are also pressing, as reducing our CO<sub>2</sub> footprint to meet sustainability goals is imperative. Last, but by no means least is cybersecurity, with ageing electrical assets in many networks vulnerable to cyber-attacks. And as the number of vulnerable points increases, so do the grid stability and security risks.

As our customers look to navigate the energy trilemma, Siemens Smart Infrastructure is working tirelessly to support them with innovative solutions and services. Our Electrification and Automation portfolio sits right at the center of the energy transition, from transmission through to low voltage applications. We therefore have the right portfolio to assist - a portfolio that is both sustainable and digital and ready to meet their future needs.

**You say that Siemens technology operates at the centre of the energy transition. With that insight, how do you evaluate the progress being made?**

**Stephan May:** We are undoubtedly seeing considerable progress in terms of the energy transition. Evidence of us accelerating toward an all-electric world is clear, as we move from conventional energy generation to renewables. Even energy-intensive industries such as Steel, O&G, Chemicals etc. are harnessing electricity to decarbonize and meet their sustainability targets.

Progress is being propelled by the necessity to optimize existing infrastructure and the growing decentralization of renewable energy sources. The digitalization of electrification infrastructure is proving to be crucial in this journey, enhancing the grid's efficiency, reliability, and sustainability. Indeed, digital technologies are central to enhancing grid transparency

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## EVEN ENERGY-INTENSIVE INDUSTRIES SUCH AS STEEL, O&G, CHEMICALS ETC. ARE HARNESSING ELECTRICITY TO DECARBONIZE AND MEET THEIR SUSTAINABILITY TARGETS

and management. These technological advancements aid in the seamless integration of renewable energy and prepare our distribution networks for growing EV charging infrastructure while ensuring grid stability.

### Technology aside, what else needs to be done to move the needle?

**Stephan May:** Technology is no longer a barrier, but we need focus on policy and regulatory frameworks for accelerating the energy transi-

tion. Governments worldwide, driven by ambitious targets are framing supportive policies, such as the European Union's goals for carbon neutrality, thereby fostering a climate of innovation and investment in clean energy. These forward-thinking objectives on one hand set high standards for emissions reductions but on the other hand make provisions for enabling framework with clear focus on energy affordability.

Collaborative efforts between public entities and private enterprises are

crucial in this endeavour, as they combine resources and expertise to push the boundaries of what is possible. Additionally, significant investments in research and development are paving the way for the adoption of cutting-edge technologies, ensuring that the energy sector evolves to be both sustainable and resilient in the face of future challenges.

### We often talk about the two Ds of the energy transition – decarbonization and digitalization. First let's talk decarbonization. In practical terms, what is Siemens doing to drive decarbonization efforts?

**Stephan May:** Decarbonization is at the heart of all that we do, but to pick one specific topic, I'd highlight our industry-leading F-gas free switchgear portfolio.



## GOVERNMENTS WORLDWIDE, DRIVEN BY AMBITIOUS TARGETS ARE FRAMING SUPPORTIVE POLICIES, SUCH AS THE EUROPEAN UNION'S GOALS FOR CARBON NEUTRALITY, THEREBY FOSTERING A CLIMATE OF INNOVATION AND INVESTMENT IN CLEAN ENERGY

Earlier this year Siemens invested an additional 100 million euros in our Frankfurt switchgear plant. This provides additional capacity to produce our F-gas free 8DAB medium-voltage switchgear. This gas-insulated switchgear is deployed in transformer and switching stations and uses the climate-neutral Clean Air insulating medium, which consists exclusively of natural components of the ambient air. This continued investment demonstrates our ongoing commitment to moving away from sulphur hexafluoride SF<sub>6</sub> and other F-gases

towards more sustainable medium-voltage switchgear portfolio.

Our blue GIS portfolio is making significant strides in terms of technological advancement and the impact upon our customers. We recently signed a six-year framework agreement with Norwegian grid operator Norgesnett to deliver F-gas-free switchgear in the form of the 8DJH 24 – blue GIS switchgear, alongside compact substations. By adopting our switchgear, Norgesnett will save approximately 1,200 tonnes of CO<sub>2</sub> compared to clas-

sical F-gas switchgear over product lifetime.

From a broader perspective and focus on digitalizing our portfolio, we are thrilled to launch Electrification X this year in April during Hannover Fair. Electrification X, the newest addition to Siemens' Xcelerator portfolio, is designed to address the complex challenges of the energy transition by using IoT technology to manage electrification infrastructure across various use cases. The comprehensive IoT SaaS suite helps in



## THE COMPREHENSIVE IOT SAAS SUITE HELPS IN GRID STABILIZATION, ASSET MANAGEMENT, CYBERSECURITY, ENERGY SAVINGS AND AFFORDABILITY THROUGH CONNECTIVITY, ANALYTICS AND AI

grid stabilization, asset management, cybersecurity, energy savings and affordability through connectivity, analytics and AI

**Electrification X brings us nicely on to digitalization, tell me about the opportunities presented by digitalizing the electrical infrastructure.**

**Stephan May:** The role of digitalization is simply immense. By digitalizing the electrification infrastructure, we can enhance the grid's efficiency, reliability, and sustainability.

- Sensors and connectivity undertake real-time monitoring, en-

abling operators to detect anomalies, predict issues, and implement corrective actions on the primary assets in the substations by offering additional value add through continuous data collection and analytics which is not typically done at SCADA level. All of which ultimately reduces downtime and improves reliability.

- Digitalization facilitates better integration of renewable energy sources. By effectively managing the variable output, digital technologies ensure a stable electricity supply and can help to balance supply and demand.
- Digitalization has the power to improve energy efficiency too. En-

abling smart grids to dynamically adjust to changing consumption patterns, digitalization optimizes energy use across the network.

- Robust security measures are crucial in this era of interconnected grids. Digitalization enables real-time vulnerability scanning, automated threat detection, and compliance with regulatory standards all of which provide protection against cyber-attacks and maintain a reliable energy supply.
- We offer single pane of glass approach so our customers can manage all their assets with one power Software as a Service offering leveraging Siemens Xcelerator framework.





## OUR NEW DESIGN AND ENGINEERING HUB WILL FOSTER REGIONAL INNOVATION, ENABLE CO-CREATION WITH PARTNERS AND CUSTOMERS ACROSS THE REGION

**Understanding the nuances of decarbonizing different vertical markets is a challenge, are there any standout vertical markets that you'd like to highlight?**

**Stephan May:** To achieve our climate goals, all business sectors must adopt sustainable practices. A vertical approach to decarbonization requires strategies that address carbon emissions sector by sector, considering the unique challenges and opportunities each sector presents. Data centers are particularly interesting and a key focus for Siemens as they are the backbone of our digital society and considered mission-critical infrastructure. IEA forecasts electricity consumption from data centres, artificial intelligence (AI) and the crypto-

currency sector to double by 2026. To support our APAC region customers, we recently opened a new center of competence at Chennai, India. This is in addition to our existing centres in Hague, Netherlands and North Carolina in US.

Spanning over 6,000m<sup>2</sup> and uniting a team of over 200 designers, planners, engineers, and project managers in one location, our new design and engineering hub will foster regional innovation, enable co-creation with partners and customers across the region.

**Any final words before we wrap up?**

**Stephan May:** Just to reiterate the energy trilemma of energy security,

affordability, and availability is not easy to master and nobody can do it alone, we need policy framework in action, coming together of academia, society and other stakeholders to harness innovative technologies, upgrade ageing infrastructure while securing investments in grid stability, security and expansion to achieve a successful energy transition. ▀