SIEMENS

Press

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Siemens virtualized protection for power grids cuts costs, saves space in digital substations

- **Siemens Siprotec V consolidates the functionality of up to 60 hardware-based Siprotec 5 devices in one server-based solution**
- **CAPEX reduction of up to 25% achieved by minimizing installed protection and control panels**
- **Space utilization of substation building reduced by up to 45%**
- **Carbon emissions slashed by up to 50% through elimination of extensive copper cabling**
- **Customers benefit from total lifecycle cost savings of up to 20%**

Siemens Smart Infrastructure has introduced Siprotec V, the virtualized version of the proven Siprotec 5 protection and control device. This innovative solution is designed for digital substations and enables simple, scalable, and secure power grids with up to six months faster project execution.

As global electrification progresses and energy demand rises, existing grid infrastructure faces unprecedented pressure. Energy providers expect to double their grid capacity in the next decade while modernizing aging infrastructure. To meet these challenges, technological innovations, automation, and standardization are essential. Siprotec V addresses these demands: accelerating digital transformation while ensuring resiliency and futureproofing of the power grid.

Scalability, simplification and security are all you need

Siprotec V breaks traditional dependencies between protection and control software and embedded devices. With its software-defined approach, it enables protection and control applications to scale virtually within a substation — supporting

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centralization of up to 60 virtual intelligent electronic devices (IEDs). This flexibility allows utilities to adapt protection architectures efficiently to evolving network demands, while optimizing valuable space savings of approximately 45%.

Due to virtualization, Siprotec V makes it possible to fully test substation setups digitally before they are commissioned. This simplifies the installation process, speeds testing, and minimizes errors. Siprotec V's modular software architecture allows rapid adaptation to evolving system requirements, unconstrained by the limitations of hardware. This facilitates seamless deployment of software updates, patches, and functional enhancements.

Sustainable and intelligent decision-making

Virtualization reduces the need for numerous panels, expensive copper cables, and costly physical installations including cable trenches. This slashes carbon emissionsup to 50% per substation, supporting a more sustainable energy industry. Additionally, virtualization delivers cost savings of up to 25% by reducing installed protection and control devices.

Furthermore, Siprotec V enables hosting advanced AI applications directly in the substation environment, empowering customers to unlock real-time insights, predictive analytics, and better decision-making.

“Siprotec is a name utilities trust. With Siprotec V, we take that trusted expertise into the digital era — turning proven protection algorithms into a powerful virtualized platform. This combination of real-world reliability and digital flexibility is what makes Siemens the partner of choice for customers who need to evolve their grids without compromise,” said Onyeche Tifase, Vice President of Product Lifecycle Management at Siemens Smart Infrastructure.

Safe and resilient

Siprotec V keeps our energy system safe through its consideration of leading cybersecurity standards and features. The major drivers for secure infrastructure are standards and guidelines, such as those outlined in the German Association of Energy and Water Industries White Paper (Bundesverband der Energie- und Wasserwirtschaft, BDEW) and North American Electric Reliability Corporation Critical Infrastructure Protection (NERC CIP).

This press release as well as a press picture are available here: https://sie.ag/6FFSGc.

For more information on Siemens Smart Infrastructure, please see Siemens Smart Infrastructure.

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Siemens Smart Infrastructure (SI) is shaping the market for intelligent, adaptive infrastructure for today and the future. It addresses the pressing challenges of urbanization and climate change by connecting energy systems, buildings, and industries. SI provides customers with a comprehensive end-to-end portfolio from a single source – with products, systems, solutions, and services from the point of power generation all the way to consumption. With an increasingly digitalized ecosystem, it helps customers thrive and communities progress while contributing toward protecting the planet. To protect this journey, we foster holistic cybersecurity to ensure secure and reliable operations. Siemens Smart Infrastructure has its global headquarters in Zug, Switzerland. As of September 30, 2025, the business had around 79,400 employees worldwide.

Siemens AG (Berlin and Munich) is a leading technology company focused on industry, infrastructure, mobility, and healthcare. The company's purpose is to create technology to transform the everyday, for everyone. By combining the real and the digital worlds, Siemens empowers customers to accelerate their digital and sustainability transformations, making factories more efficient, cities more livable, and transportation more sustainable. A leader in industrial AI, Siemens leverages its deep domain know-how to apply AI – including generative AI – to real-world applications, making AI accessible and impactful for customers across diverse industries. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a leading global medical technology provider pioneering breakthroughs in healthcare. For everyone. Everywhere. Sustainably.
In fiscal 2025, which ended on September 30, 2025, the Siemens Group generated revenue of €78.9 billion and net income of €10.4 billion. As of September 30, 2025, the company employed around 318,000 people worldwide on the basis of continuing operations. Further information is available on the Internet at www.siemens.com.