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Siemens' Technology with Purpose to Transform Taiwan

- **Siemens, with its Industrial 5G, Grid Edge and Connected Mobility forward-looking technologies and global experiences, is a trusted technology partner for Taiwan, assisting to realize the "Digital Nation, Smart Island" vision**
- **Working with the German government and technology partners in the development of industrial 5G, Siemens is striving to implement Industrie 4.0 worldwide**
- **Siemens possesses cross-sector energy management solutions and is creating a Grid Edge ecosystem, thus realizing energy transition and sustainable development**
- **Siemens' Vehicle-to-Everything solutions connect people, vehicles, and road facilities, forging an efficient, convenient, safe and reliable transportation ecosystem**

In 2017, Taiwan's Executive Yuan finalized an agenda encompassing five major administrative goals for national development, of which "Smart Nation" and "Green Silicon Island" are the objectives to accelerating the development of a smart economy and driving industrial innovation and transformation. These will serve as the key in realizing sustainable development in Taiwan. At the beginning of last year, Taiwan formally ushered in the 5G era, with this communications technology featuring high speed, low latency, and multiple connections, opening up infinite possibilities for urban infrastructure and transportation innovation applications. In addition, in order to successfully achieve Taiwan's energy transition, the government has spared no effort in promoting renewables, looking to make Taiwan into an Asia-Pacific green energy center through the integration of energy creation, energy conservation, energy storage, and smart systems. Siemens has long focused on the electrification, automation and digitalization of infrastructure. Its world-leading state-of-the-art technology and success stories in Industrial 5G, Connected Mobility, and Grid Edge will aid Taiwan in ushering in application innovation in a variety of fields and accelerate innovation, helping Taiwan move towards its vision of "Digital Nation, Smart Island."

Siemens utilizes groundbreaking Industrial 5G, Connected Mobility, and Grid Edge technologies to develop innovative and diversified applications all over the world:

- **Industrial 5G:** 5G is the key to comprehensively implementing Industrie 4.0. The creation of enterprise-specific private 5G networks provides reliable and real-time data transmission with no delay, thus making a factory's production and internal logistics more flexible, efficient, smart, and automated. Siemens has involved itself and provided support since the beginning of the development and promotion of industrial 5G by the German government, and 5G is expected to formally be utilized commercially in 2023.
 - 1) With the establishment of a dedicated 5G network, Siemens has transformed its Automotive Test Center in Nuremberg, Germany, into an automobile manufacturing plant that features automated production processes to realize Automatic Guided Vehicles. More efficient, smart and flexible manufacturing is the result of the application of 5G technology in the industrial environment.
 - 2) Siemens Taiwan is cooperating with Marketech International Corp. and ADAT Technology Co. in the development of a smart "AIR maintenance and monitoring system platform." By combining Siemens SIMATEC systems with Marketech's PHM system, while at the same time introducing ADAT's AIR system, the stability of factory operations can be enhanced, creating the foundation for the development of smart factories with 5G.
- **Grid Edge:** Grid Edge is the new interface between intelligent grids, smart buildings, electrical vehicle charging infrastructure, energy prosumers, etc., opening up new business opportunities and multi-dimensional applications. Solutions at the grid edge enable buildings, infrastructures and industries to optimize their energy efficiency intelligently. Grid Edge is of particular importance to Taiwan, considering the accelerated development in renewables.
 - 1) Siemens assisted Sello, Finland's largest shopping center, in the installation of solar panels on the roof, along with building and maintaining a virtual power plant. Sello not only can buy and consume electricity, but also store it, easing demand on the grid during peak electricity usage. The shopping center is able to tap into electricity flexibly, forming a self-sufficient energy system.
 - 2) Siemens Taiwan provided Taiwan Power Co. with its EnergyIP, a smart meter management system, and will install over three million smart meters throughout the

island by 2022. This two-way communication of data on the supply and user sides will optimize power transmission efficiency and power supply quality, ensuring the stability of renewable energy power transmission, and smart electricity transmission and distribution throughout Taiwan.

- **Connected Mobility:** Road infrastructure, transportation and road users that are digitally interconnected using 5G will be able to exchange information in real time, creating a smart connected transportation environment, optimizing urban traffic routes, and regulating traffic flows. Drivers on the road can receive event alerts on a real-time basis and know the best routes to take. This will pave the way for reliable and safe autonomous driving to be realized, yielding an efficient, safe, convenient, and comfortable transportation ecosystem. Siemens is developing Vehicle-to-Everything solutions, providing roadside and vehicle-mounted sensor networking equipment.
 - 1) The Siemens Sitraffic Vehicle2X solution is already in use in Manhattan, New York. Some 8,000 vehicles have been outfitted with Onboard Unit (including 700 public buses, 5,000 public vehicles, and 1,000 taxis), and over 500 Roadside Units have been installed on the streets to monitor pedestrian and traffic status in real time, consequently enhancing road safety.
 - 2) Siemens Taiwan is cooperating with HwaCom Systems Inc. on providing Vehicle2X solutions, as well as smart signal controllers and smart streetlights. The two companies are jointly creating a connected architecture of vehicles, roads, people and networks in a 5G experimental field in the Danhai area. It is also collaborating with Kingwaytek Technology Co. on an unmanned bus, with the goal of creating the up and coming Danhai area into a 5G smart transportation field.

Siemens Ltd., Taiwan President and CEO Erdal Elver remarked, "Taiwan is crucial in the global supply chain of information and communication components with a comprehensive industrial value chain. In comparison with other countries around the world, Taiwan has a clear advantage in introducing 5G innovative applications in manufacturing and urban infrastructure. In addition, the government is promoting green energy policies with the goal of abandoning nuclear power by 2025 and reducing carbon emissions. This will lay a solid foundation for Taiwan's digital transformation and sustainable development. With its commitment to Grow Taiwan Together, Siemens anticipates using its forward-looking technology to assist Taiwan in accelerating the implementation of smart cities, smart manufacturing, and energy sustainability."

Looking ahead to fiscal 2021, Siemens will continue to focus on the areas of smart infrastructure, digital factories, and smart transportation, providing the latest 5G generation technologies to assist Taiwan in its digital transformation, innovation, and upgradation.

Contact for journalists

Kate Wang

Tel.: (02) 7747-8976

e-mail: kate.wang@siemens.com

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. Active around the world, the company focuses on intelligent infrastructure for buildings and distributed energy systems and on automation and digitalization in the process and manufacturing industries. Siemens brings together the digital and physical worlds to benefit customers and society. Through Mobility, a leading supplier of intelligent mobility solutions for rail and road transport, Siemens is helping to shape the world market for passenger and freight services. Via its majority stake in the publicly listed company Siemens Healthineers, Siemens is also a world-leading supplier of medical technology and digital health services. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power that has been listed on the stock exchange since September 28, 2020. In fiscal 2020, which ended on September 30, 2020, the Siemens Group generated revenue of €57.1 billion and net income of €4.2 billion. As of September 30, 2020, the company had around 293,000 employees worldwide. Further information is available on the Internet at www.siemens.com.