SIEMENS

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Siemens and VDL shaping future tech for electrical charging

- **Latest advances in depot charging for eBuses and eTrucks to be tested in real-life conditions at the "VDL Charging Test Center" in The Netherlands**
- **Collaboration to demonstrate how vehicle technologies, energy storage and charging systems work together**
- **Vehicle-to-grid function enables bidirectional charging**
- **Capacity can be flexibly combined through special switching matrix**

As the number of electric vehicles in the market continues to grow, so do the requirements for a robust charging infrastructure. Recognizing the need for electric buses and trucks to be charged flexibly and efficiently, Siemens and VDL Bus & Coach (VDL), a Dutch bus manufacturer, have joined efforts to come up with innovative solutions for depots. At the VDL Charging Test Center Siemens has installed the latest generation of fast charging stations, combined with a battery storage system. The location is VDL's interoperability test and validation center in Valkenswaard in The Netherlands. A special switching matrix allows to flexibly combine the capacity of the charging stations. The setup is managed via an energy management application running on MindSphere, the cloud-based, open IoT operating system from Siemens. VDL will use this technology to conduct interoperability and function tests on electric vehicles such as buses and trucks. Interoperability is when technologies of different manufacturers – on the vehicle as well as the charging infrastructure side – can interact and exchange information.

In the VDL Charging Test Center, the combination of these future-oriented technologies will now undergo testing under real-life conditions to ensure its functionality during operations. Customers of both companies are welcome to visit the validation and test center to examine the technology firsthand.

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“The charging technology from Siemens allows us to test different eBus and eTruck technologies in combination with charging stations and an energy storage system,” says Menno Kleingeld, Managing Director at VDL Enabling Transport Solutions. “With the energy management application we can control the flow of energy as needed. We also use second-life batteries in the storage system, which means we can re-use our earlier eBus batteries and give them a new lease of life.”

The vehicle-to-grid function integrated in one of the charging stations allows the vehicles to be charged bidirectionally. This means they can not only draw power from the grid and the storage system, but also feed energy back into these systems. This function paves the way for future use cases such as covering peaks in power demand. This means, electric vehicles are able to communicate with the grid and provide power back in case of capacity constraints.

“We are excited to collaborate with VDL on this innovative project, which brings us a step closer to making eMobility more flexible and efficient,” said Monique Mertins, Head of Charging Infrastructure for eBus and eUtility Vehicles at Siemens Smart Infrastructure. “Three of our latest 150 kilowatt (kW) fast charging stations are being used in Valkenswaard. The charging electronics can be temporarily interconnected, making it possible to charge three vehicles in parallel with a capacity of 150 kW each, or one vehicle particularly rapidly up to 450 kW using High-Power Charging (HPC). This means power can be adjusted flexibly and the charging infrastructure optimized for depots with different requirements.”

The modular infrastructure in Valkenswaard demonstrates that charging systems can have the ability to expand over a long period of time without the need to adjust the grid capacity or connection. By coupling an energy storage system with charging stations and an energy management application the capacity could be adjusted according to current and future needs. The project provides important insights for the electrification of the transport sector and for a successful energy transition.

This press release and press pictures are available at
https://sie.ag/2p8ovRN

For further information on Siemens Smart Infrastructure, please see
www.siemens.com/smartinfrastructure

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www.siemens.com/ebus

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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.