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Practical test for smart electricity grid in Rotterdam

Roll-out with 20,000 connections in Rotterdam Merwe-Vierhavens district

The City of Rotterdam, grid operator Stedin, Siemens Netherlands, Lyv Smart Living and OMNETRIC Group announced today they are to roll out a smart electricity grid in Rotterdam. The 'smart grid' helps to balance supply and demand for electrical power. The Rotterdam Smart Grid project is unique thanks to the partners involved, the opportunity they present together to scale up, and the project's contribution towards a new energy reality.

Balancing electricity consumption and generation will help to manage peaks in power usage, reduce congestion on the electricity grid and provide savings in energy and distribution cost. Moreover, the smart grid will stimulate investment in more sustainable electricity generation, innovation related to electricity storage, and new business models. Most of all, it will lower the investments regarding grid build-out.

Step forward in energy transition

This is a major development, as the demand for electrical power continues to steadily rise. In a traditional scenario, meeting demand requires increasing investments in both generation and grid infrastructure. Due to the energy transition, renewable energy resources, i.e. solar and wind, are of increasing importance. By nature, the output of these energy resources is prone to fluctuation (sunshine and wind velocity). Smart grid technology can help to fine-tune the increased demand of electricity in relation to the fluctuating supply, thus enabling progress in the transition towards a more sustainable energy system.

How does it work?

A smart grid provides regular updates on current electricity rates. Machines and appliances with embedded smart technology use that information to start working in times of abundant supply (and lower rates). This is managed by a distributed energy management system (DEMS). Imagine cooling installations that wait until they can start operation at lower cost. While the principle of adapting power demand to power rates is already applied in larger industrial plants, the smart grid and the *internet of things* provide smarter technology for both industrial and smaller companies (SMEs) and private homes. At the same time, the technology offers more attractive conditions for delivery to the grid by companies and private homes that generate power themselves: consumers become true prosumers. In this way, the smart grid will also stimulate the local economy and make way for new innovation and business opportunities.

Innovation in the Rotterdam Merwe-Vierhavens district

The Rotterdam Clean Tech cluster is pursuing the realization of a smart grid in order to stimulate the economic and “green” value of the energy transition. The combination of large companies, SME’s and private homes create the perfect combination for an interesting and unprecedented test case. While the electricity grid remains in operation, buildings are connected to the smart grid technology. The Merwe-Vierhavens district has been designated as an innovation district with scope for experimentation and is incorporated in the Roadmap Next Economy. The diversity in business and residential uses provides an excellent environment for a test roll-out of this size: 20,000 connections over the next three years.

Regional roll-out

After successful implementation, the City of Rotterdam, grid operator Stedin, Siemens Netherlands, Lyv Smart Living and OMNETRIC Group expect the smart grid to develop towards other districts around Rotterdam and eventually the surrounding region, with a potential of 1,000,000 additional connections. The grid is to incorporate locally-generated solar power and regional wind energy. This scenario should enable Rotterdam to become completely energy neutral by 2050 and possibly provide sustainable energy to other regions. The city will become more attractive for residents and entrepreneurs, thanks to the modern energy infrastructure and stimulation of innovative technology.

////////// NOTE FOR EDITORS, NOT FOR PUBLICATION //////////

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