

Press Release

EnergyVille/KU Leuven tests Mitsubishi Electric HVDC Line Protection Relay for Power Systems of the Future

Genk, 25 March 2019 - Mitsubishi Electric recently visited EnergyVille, a collaboration between the Flemish research partners KU Leuven, VITO, imec and UHasselt, to install a prototype of their HVDC line protection relay hardware – a new technology to protect power systems of the future. The device contains state-of-the-art algorithms, designed by EnergyVille/KU Leuven and implemented by Mitsubishi Electric, to quickly and reliably identify short circuit faults on cables in HVDC grids. The HVDC relay will be tested in the laboratory of EnergyVille, where new test procedures are developed to validate the successful functionality of the product. The testing comes as part of an ongoing collaboration between KU Leuven/EnergyVille, Mitsubishi Electric Co. Japan, and Mitsubishi Electric Europe, Power System Group, UK within the scope of the PROMOTioN project, funded within the European Commission Horizon 2020 framework.

Towards Protection of High Voltage DC Networks

To enable the connection of large amounts of renewable energy, future power systems require flexible bulk power transfer beyond existing capabilities. The most effective way to provide this additional capacity is through the use of High Voltage DC (HVDC) networks. Protection of such networks, however, requires novel equipment and algorithms to identify and clear faults from the system in a fast and selective way so that damage to equipment or extended loss of service are avoided. The HVDC relay is a piece of hardware that executes algorithms to detect and identify faults, and provides critical signals to other protection equipment. State-of-the-art line protection algorithms developed by EnergyVille/KU Leuven are included in the Mitsubishi Electric device to quickly identify short circuit faults and trigger protection devices.

“The opportunity to perform testing of our hardware in the EnergyVille lab brings the reality of multi-terminal HVDC protection – the aim of the PROMOTioN project – one step closer”, says Mr. Kenichi Kuroda, senior manager at Mitsubishi Electric Corporation Japan. “Through collaborative working with EnergyVille/KU Leuven during this testing phase, we hope to improve and optimise protection methods and algorithms for HVDC, as well as provide the first independent testing demonstrations.”

“The arrival of the Mitsubishi Electric HVDC relay in the EnergyVille lab marks the first time an industrial HVDC relay is tested in an independent test lab,” Dirk Van Hertem, professor at EnergyVille/KU Leuven explains. “Such testing is crucial to begin discussions on requirements and standards for HVDC relays, which will be increasingly important as HVDC installations move towards large-scale multi-terminal and multi-vendor solutions. Through fruitful collaboration with Mitsubishi Electric we are proud to be able to work towards industrialisation of our protection algorithms”.

PROMOTioN Project

The testing is being performed as part of the PROMOTioN project, which has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 691714. The PROMOTioN project aims to tackle technical, regulatory, financial and legal challenges to

the implementation of HVDC transmission networks. The PROMOTioN project works towards increasing the confidence in future HVDC networks. Demonstrating that novel HVDC protection methods are suitable for future power systems is a core part of the project, and real-time testing of protection strategies and HVDC relays are an important aspect within this.

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About EnergyVille

EnergyVille is a collaboration between the Flemish research partners KU Leuven, VITO, imec and UHasselt in the field of sustainable energy and intelligent energy systems. Our researchers provide expertise to industry and public authorities on energy-efficient buildings and intelligent networks for a sustainable urban environment. This includes, for example, smart grids and advanced district heating and cooling.

One of the objectives of EnergyVille is to become one of the top five European institutes in innovative energy research. In this context, the center was embedded in major national and international networks right from the start. It covers research, development, training and innovative industrial activities under one name and in close collaboration with local, regional and international partners. EnergyVille aims to be a driver in the Thor science park in Genk in the areas of research, business development and employment creation. The research center is supported by the city of Genk, the Flemish Government, the Province of Limburg, LRM, Nuhma, POM Limburg and the European structural funds.



About Mitsubishi Electric Corporation

With nearly 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,444.4 billion yen (in accordance with IFRS; US\$ 41.9 billion*) in the fiscal year ended March 31, 2018. For more information visit: www.MitsubishiElectric.com *At an exchange rate of 106 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2018.

About Mitsubishi Electric Europe

Power System Group is a branch office of Mitsubishi Electric Europe B.V., a subsidiary of Mitsubishi Electric Corporation of Japan. Power Systems Group is responsible for High Voltage Power Systems and services in Europe. At our European head office in Croydon, UK, the technological strengths of the Mitsubishi Electric Corporation are combined with a proven track record in engineering design, project management and international construction learnt over three decades supplying international customers with state-of-the-art substation technology. We are experienced in the supply of turnkey substations with a particular speciality in delivering Gas Insulated solutions.

