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Commercial readiness of GridON Fault Current Limiters proven through 33 months in service

Increasing network resilience and connection capacity

GridON's Fault Current Limiter (FCL) has been operating flawlessly in UK Power Networks for more than 2.5 years, proving the reliability and maturity of the product. A second FCL has been connected into service in 2015, reinforcing the readiness of GridON's FCL for commercial deployment.

GridON provides grid operators and power producers with a Fault Current Limiter which enables network meshing and connection of additional power generation sources. The FCL also mitigates increasing prospective faults in industrial networks; including power-intensive plants, data centres, oil and gas, and mining. GridON's FCLs will significantly cut capital expenditure and extend the useful life of existing network assets, minimising the costs of upgrading transmission and distribution network over the next few decades.

A GridON FCL has been in operational service at UK Power Networks' substation since May 2013, where it has enabled operation with three parallel transformers, while improving power quality and availability of the network at Newhaven, UK.

The device exhibited extremely effective performance in limiting the fault current during single-phase, phase-to-phase and three-phase short-circuit events; performing exactly as specified and designed for. The FCL instantly suppressed excessive current by up to 46% during the entire duration of the faults, some of which spanned over 750 milliseconds. And very importantly, it recovered to normal load immediately upon fault isolation and clearance, being always ready for consecutive fault events. Not only has the FCL performed successfully, enabling improved network resilience, the network's protection system kept its regular operational arrangement - further reinforcing confidence in the product and its readiness for widespread adoption in distribution, transmission and industrial grids.

Martin Wilcox, Head of Future Networks – UK Power Networks, said: "The FCL has made a real difference to the resilience of electricity supplies at Newhaven. We have been impressed by the reliability of this first-of-a-kind device. The trial has shown that it is ready for permanent installation on the grid and a viable commercial solution to add to our toolbox for fault level problems, ready for implementation where it provides the best value solution."

While using conventional transformer technology (with no superconducting elements), the FCL has been extremely reliable and robust, operating with absolutely no failure since it went live. The installation and commissioning of the FCL is very similar to power transformers. It did not require any maintenance or repair following multiple fault events, enabling the network operator to maintain well-known operating and maintenance practices.

GridON's FCL was developed and manufactured, together with Wilson Transformer Company, under a project commissioned by the Energy Technologies Institute (ETI). Uniper Technologies (formerly E.ON Technology) was closely engaged as a technical consultant in this project. Uniper Technologies also performed full modelling and simulation of load flow and fault scenarios in the UK Power Networks' system, and has been monitoring the actual performance since the FCL energisation.

Nick Eraut, ETI Project Manager - Energy Storage & Distribution, said: "GridON now has two FCLs in active service, the first of which has passed the milestone of 2½ years in operation. Its exemplary performance and reliability provides real evidence of the advantages of GridON's FCLs and justifies genuine confidence for them to be deployed now as part of business-as-usual activities. The successful development of such innovations will help to minimise the costs of network upgrading and help to ensure that the UK has an affordable and adaptable energy infrastructure."

Richard Hair, Networks Team Leader at Uniper Technologies, said: "E.ON has been impressed with GridON's innovative technology and with the quality of their FCL product. Their merging of academic excellence and commercial development and drive resulted in a timely and professional project and end-product. It has been pleasing to see this new product designed, manufactured and operate smoothly without any failures; something unusual even from well-established large vendors."

GridON's product range has already been proven to work in higher rated power and fault limiting requirements. A second FCL, with specifications of over 50% initial fault peak reduction and 2000A overload current, has been installed in a live network since early 2015.

The FCL is a perfect solution for connecting distributed generation sources, and for preventing fault current damage in industrial networks, including mission-critical applications - such as data-centres and oil and gas rigs - where the tolerance to any downtime is absolutely zero.

"Our exceptionally reliable products have been very effective in mitigating fault currents in live networks," said Yoram Valent, Chief Executive and co-founder of GridON. "GridON is currently engaged with network operators and industrial customers in North America, Asia and Europe; planning FCL solutions up to transmission voltage levels. Implementation of FCLs will clearly save between tens and hundreds of millions of dollars, compared to alternative solutions, when upgrading distribution and transmissions substations."

About GridON Ltd

GridON offers fault current limiters for transmission and distribution networks and for energy-intensive industrial grids. GridON's FCLs enable increased supply by cost-effective network meshing and connection of power generation and renewable energy sources. The FCL improves grid resilience and reliability and significantly lowers capital expenditures and operating costs, while extending the useful life of existing network assets.

GridON's FCL is based on combining industry-standard, proven transformer technology with unique and proprietary concept of electro-magnetic flux alteration on a saturated iron core. The self-triggered system responds instantaneously to faults, suppresses fault current for its entire duration, and recovers immediately following fault clearance – being always ready for consecutive faults events.

GridON's first installed FCL was funded by the Energy Technologies Institute, a public-private partnership between global industries - BP, Caterpillar, EDF, Rolls-Royce and Shell - and the UK Government. GridON is offering scalable FCL solutions from distribution to very high transmission voltage ratings, in partnership with Wilson Transformer Company - Australia's leading manufacturer of high-quality transformers.

GridON was awarded the Global Cleantech 100 and the UK Energy Innovation in 2013, and received the prestigious ACES Smart Grid and GE ecomagination Powering the Grid awards in 2012.

For further information, please visit www.GridON.com or email sales@GridON.com or call +972.3.711.1183.

About The Energy Technologies Institute

- The Energy Technologies Institute (ETI) is a public-private partnership between global energy and engineering companies – BP, Caterpillar, EDF, Rolls-Royce and Shell – and the UK Government.
- The ETI brings together engineering projects that accelerate the development of affordable, secure and sustainable technologies that help the UK address its long term emissions reductions targets as well as delivering nearer term benefits.

For further information, please call Nigel Richardson, Media and Public Affairs Manager, at the ETI on 01509 202084.

About UK Power Networks

UK Power Networks distributes more than a quarter of the UK's electricity through its networks of substations, underground cables and overhead lines making sure the lights stay on across London, the South East and the East of England, regardless of who customers pay their energy bills to. A range of other companies deliver power to the rest of the country.UK Power Networks' 5,600 employees are dedicated to delivering a safe, secure electricity supply to 8.1 million homes and businesses.

The industry regulator Ofgem sets an allowed revenue to distribution companies so that they can maintain safe and reliable electricity supplies. UK Power Networks invests more than £500 million in its electricity networks every year, offers extra help to vulnerable customers at times of need, and is undertaking trials to ensure that electricity networks support the transition to a low carbon future. It also moves cables and connects new electricity supplies.

If customers are unfortunate enough to be affected by a power cut or have another issue with the electricity supply to their property, they should contact UK Power Networks by phone, text message, Twitter, Facebook or letter. www.ukpowernetworks.co.uk

About E.ON

E.ON is one of the UK's leading power and gas companies - generating electricity, retailing power and gas, developing gas storage and undertaking gas and oil exploration and production. It is part of the E.ON group, one of the world's largest investor-owned power and gas companies. E.ON employs around 12,000 people in the UK and more than 79,000 worldwide.

In the UK, E.ON supplies power and gas to around five million domestic, small and medium-sized enterprise and industrial customers - meaning the company has to buy approximately 122.7 billion kWh of power and gas each year to meet their needs. E.ON also offers innovative energy services and technologies, tailored to meet its customers' needs, and is helping customers become energy fit by encouraging them to insulate their homes, moderate their energy usage and even generate their own power.

About Wilson Transformer Company

Australia's leading manufacturer of power and distribution transformers, Wilson Transformer Company provides transformer engineering and service solutions to power utility and industrial customers. Products also include quad-boosters and fault current limiters. From design, manufacture and test, to installation, maintenance and refurbishment, Wilson Transformer Company has been providing high-quality transformers and service since 1933. www.wtc.com.au