Joint press release

Press

Siemens, Stadtwerke Augsburg

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Siemens to use superconductors in building the power grid of the future in Augsburg

When fed into medium-voltage power grids, large loads of renewable or other decentralized energies – which are generated when winds are strong or the sun is very bright – can produce short circuits that endanger the power supply. Superconducting network technologies can ensure reliable grid operation even under these conditions. Siemens is installing a superconducting fault current limiter (SFCL) of the so-called resistive type at Stadtwerke Augsburg, the municipal utility in Augsburg, Germany, that is designed to solve precisely this problem. Development work and installation in the utility's medium-voltage power grid are to be completed by the end of 2015. The superconducting fault current limiter will then be field-tested. The project, abbreviated as "ASSIST" – which is sponsored by the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology – is part of Bavaria's Innovative Energy Technologies and Energy Efficiency (BayINVENT) Program. The European Patent Office (EPO) has already granted Siemens several key patents for the technologies used in resistive superconducting fault current limiters.

Superconducting fault current limiters can limit short-circuit currents in power transmission and distribution grids very quickly, effectively, automatically and, thus, with a high degree of intrinsic safety, making reliable grid operation possible even under difficult conditions. After a short cooling period, the grids can also return to normal operation without additional measures.

SIEMENS

swa
Energie Wasser Verkehr

Siemens AG
Wittelsbacherplatz 2
80333 Munich
Germany

Stadtwerke Augsburg
Hoher Weg 1
86152 Augsburg
Germany

“With our innovative partner, Stadtwerke Augsburg, we have a power utility where we can demonstrate how this advanced technology can help master the challenges of the energy transition and grid upgrades successfully,” said Dr. Tabea Arndt, head of Superconducting Components and Applications at Siemens Corporate Technology. “Powerful plants for renewable energies (EEG plants) must be connected to the grid via efficient fault current limiters to protect the electric components,” said Jürgen Völkel, technical director of Stadtwerke Augsburg. Project head Thomas Janetschek added, “We already know where these could potentially be installed immediately.”

Superconducting fault current limiters also have another advantage: they are “invisible” for the grid in normal operation since they have no electrical resistance at their low operating temperature of -196^{o} Celsius. As a result, the limiters do not negatively impact the power grid’s stability – unlike today’s conventional short-circuit limiting reactors that have a continuously high resistance. On average, about 25 kilowatts of electricity is lost per conventional limiting reactor.

Superconducting fault current limiters also make it possible to link several different power sub-grids, thereby increasing operational security and grid stability. In addition, using the limiters to link several sub-grids or to connect decentralized energy feeders eliminates the added costs of replacing or upgrading electrical components that are frequently incurred when power grids are strengthened.

This press release is available at www.siemens.com/press/PR2014120086COEN

A press picture is available at www.siemens.com/press/IM2014120292COEN

Siemens AG
Wittelsbacherplatz 2
80333 Munich
Germany

Stadtwerke Augsburg
Hoher Weg 1
86152 Augsburg
Germany

Contact for journalists

Siemens AG

Harald Hassenmüller

Tel.:+49 89 636-32187, E-mail: harald.hassenmueller@siemens.com

Stadtwerke Augsburg

Jürgen Fergg

Tel.: +49 821 6500-8046, E-mail: juergen.fergg@sw-augsburg.de

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Stadtwerke Augsburg is the third largest multi utility company in Bavaria, Germany. In the Augsburg region it supplies over 350,000 people with energy and drinking water and guarantees easy mobility with modern means of transport. As a hundred-percent municipal company it contributes substantially to the efficiency of the city of Augsburg. Further information can be found on the Internet at www.sw-augsburg.de.

Siemens AG
Wittelsbacherplatz 2
80333 Munich
Germany

Stadtwerke Augsburg
Hoher Weg 1
86152 Augsburg
Germany