Press Release

ABB solves 100-year-old electrical puzzle – new technology to enable future DC grid

Development of a DC breaker for high voltage transmission will help shape the grid of the future

Zurich, Switzerland, Nov. 7, 2012 – ABB, the leading power and automation technology group, today announced a breakthrough in the ability to interrupt direct current, solving a 100-year-old electrical engineering puzzle and paving the way for a more efficient and reliable electricity supply system.

After years of research, ABB has developed the world's first circuit breaker for high voltage direct current (HVDC). It combines very fast mechanics with power electronics, and will be capable of 'interrupting' power flows equivalent to the output of a large power station within 5milliseconds- that is thirty times faster than the blink of a human eye.

The breakthrough removes a 100-year-old barrier to the development of DC transmission grids, which will enable the efficient integration and exchange of renewable energy. DC grids will also improve grid reliability and enhance the capability of existing AC (alternating current) networks. ABB is in discussions with power utilities to identify pilot projects for the new development.

"ABB has written a new chapter in the history of electrical engineering," said Joe Hogan, CEO of ABB. "This historical breakthrough will make it possible to build the grid of the future. Overlay DC grids will be able to interconnect countries and continents, balance loads and reinforce the existing AC transmission networks. "

The Hybrid HVDC breaker development has been a flagship research project for ABB, which invests over $1 billion annually in R&D activities. The breadth of ABB's portfolio and unique combination of in-house manufacturing capability for power semiconductors, converters and high voltage cables (key components of HVDC systems) were distinct advantages in the new development.

HVDC technology is needed to facilitate the long distance transfer of power from hydropower plants, the integration of offshore wind power, the development of visionary solar projects, and the interconnection of different power networks. ABB pioneered HVDC nearly 60 years ago and continues to be a technology driver and market leader with many innovations and developments. With over 70 HVDC projects, ABB accounts for around half the global installed base, representing an installed capacity of more than 60,000 megawatts (MW).

Deployment of HVDC has led to an increasing number of point-to-point connections in different parts of the world. The logical next step is to connect the lines and optimize the network. ABB is already working on the construction of multi-terminal systems and the latest DC breaker innovation is a major step in the evolution of HVDC grids. In parallel to the new hybrid breaker development, ABB has an established HVDC grid simulation center developing solutions for future DC overlay grid operations.

For more information, multimedia material or to speak to ABB experts please click here.

ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 145,000 people.

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