

ABB develops world's most powerful high-voltage direct current transformer

UHVDC converter transformer can operate at over a million volts and enable efficient and reliable transmission of larger amounts of electricity across longer distances

Zurich, Switzerland, July 3, 2012 – ABB, the leading power and automation technology group has successfully developed and tested an 1,100 kilovolt (kV) ultrahigh-voltage direct current (UHVDC) converter transformer breaking the record for the highest DC voltage levels ever, and facilitating more power to be transmitted efficiently over longer distances.

The Xiangjiaba-Shanghai link, commissioned by ABB was the world's first commercial 800 kV UHVDC connection. It has a capacity of 6,400 MW and covers a distance of just over 2000 kilometers (km), making it the longest of its kind in operation. The new 1,100 kilovolt (kV) converter transformer technology will make it possible to transmit more than 10,000 megawatts (MW) of power across distances as long as 3,000 km.

Higher voltage levels allow larger amounts of electricity to be transported across very long distances with minimal losses using HVDC technology. Converter transformers play a critical role in HVDC transmission serving as the vital interface between the DC link and the AC network. Development of the 1,100 kV transformer addressed several technology challenges such as the sheer size and scale, electrical insulation including bushings and thermal performance parameters.

“This new 1,100 kV transformer technology will make it possible to transmit even more electricity efficiently and reliably, at higher voltage levels, across greater distances with minimum losses,” said Bernhard Jucker, head of ABB's Power Products division. “Technology and innovation are at the core of ABB's culture and this is yet another example of our pioneering spirit.”

UHVDC transmission is a development of HVDC, a technology pioneered by ABB more than 50 years ago, and represents the biggest capacity and efficiency leap in over two decades. ABB is a world leader in HVDC transmission technology, with many pioneering achievements and over 70 such projects around the world with a combined transmission capacity of around 60,000 MW.

Transformers are integral components of an electrical grid, and essential for the efficient and safe conversion of electricity between diverse voltage systems. ABB's transformer portfolio includes power transformers, dry and liquid distribution transformers, special application transformers and related services and components.

ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve 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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