

ABB wins over \$100 million power order to strengthen transmission grid in China

World's first ultra-high-voltage DC 800kV connection to 750kV AC to enable reliable and efficient long distance power transmission

Zurich, Switzerland, April 9, 2015 – ABB, the leading power and automation technology group, has won orders worth over \$100 million to supply converter transformers and components including wall bushings and circuit breakers for the Lingzhou-Shaoxing ultrahigh-voltage direct current (UHVDC) transmission link in China. The link will be the 7th 800 kilovolt (kV) UHVDC transmission system in the country and will help to deliver more electricity from remote power plants in China's interior to growing urban areas, over longer distances with fewer losses. The order was booked in the first quarter of 2015.

The long-distance Lingzhou-Shaoxing (LingShao) +/- 800 kilovolt (kV) UHVDC transmission project will transfer 8,000 megawatts (MW) of power from Lingzhou in the northwestern Ningxia region to Shaoxing in the eastern Zhejiang province, stretching over a distance exceeding 1,700 kilometers.

This will be the world's first 750 kV ultra-high-voltage alternating current (AC) to 800 kV UHVDC connection, an innovation that enhances the efficiency and capacity of long-distance UHV electricity delivery systems necessary for China's growing economy. The products provided by ABB are scheduled to be commissioned in 2016.

China has major load centers in its eastern regions, while its energy resources are in the west and northwest. The expansive geography and increased demand over the last decade have prompted the country to increase its UHV transmission capacity, enabling delivery of power from newer, more-efficient thermal power generation plants near energy reserves while lowering pollution near cities.

"Ultra-high-voltage technology makes it possible to transmit greater amounts of power across greater distances, with minimum losses and without compromising on reliability," said Bernhard Jucker, president of ABB Power Products division. "This innovative solution will enable the world's first AC to UHVDC connection and will help reduce environmental impact on residents of urban areas."

ABB will supply 800 kV UHVDC converter transformers and components. These UHVDC transformers are based on innovative technology, for the first time connecting a 750 kV AC power supply grid that collects electricity from an array of power generation plants to an 800 kV UHVDC link.

Recent converter technology advances have made it possible to increase the power transmission capacity of UHVDC links to an unprecedented level, but that has moved the power bottleneck from the UHVDC side of the converter to the supplying AC side.

ABB has been able to overcome this challenge thanks to its novel UHVDC transformer technology capable of supplying the converters with electricity from a 750 kV AC grid, instead of the traditional 500 kV. Increasing AC voltage before it is converted to DC yields a substantial additional benefit by reducing electricity losses within the AC collecting grid.

Converter transformers play a critical role in HVDC transmission, serving as the vital interface between the DC link and the AC network. In recent years, ABB has developed and successfully tested 1,100 kV converter transformer technology addressing challenges such as size, scale and electrical insulation including bushings, and thermal performance parameters.

Press Release



ABB offers a complete range of power and distribution transformers designed for reliability, durability and efficiency. UHVDC transmission is an advancement of HVDC, a technology pioneered by ABB 60 years ago, and represents the biggest capacity and efficiency leap in over two decades.

ABB (www.abb.com) is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.

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