

ABB wins orders worth \$440 million in China for world's longest power link

Technology leap allows low-loss transmission on 2,000-kilometer power link

Zurich, Switzerland, Dec. 18, 2007 – ABB, the leading power and automation technology group, has won orders worth \$440 million from the State Grid Corporation of China and other partners to provide new ultrahigh-voltage technology for the world's longest power transmission link.

The power superhighway running 2,000 kilometers (1,240 miles) from western China to the highly industrialized coastal area in the east, will have a capacity of 6,400 megawatts (MW). That is enough to meet the needs of about 31 million people in China, based on average consumption per capita¹. The link from the Xiangjiaba hydropower plant to Shanghai is scheduled for completion in 2011.

The ultrahigh-voltage direct current (UHVDC) link comprises two substations and a power transmission system using breakthrough technology to transmit electricity at ultrahigh voltage (800 kilovolts), which will minimize the amount of power lost in transmission.

Increasing the voltage level of electrical transmission creates considerable advantages for the environment, including lower electricity losses and the use of less land compared to traditional overhead lines. UHVDC is particularly suitable for vast countries like China, where the centers that need power are often located far from power sources.

This project represents a number of breakthroughs in electrical power transmission:

- The 6,400 MW power rating is more than double the most powerful rating in operation today
- At 2,000 km, the transmission line will be the longest in the world
- Transmission losses will be less than 7 percent, significantly less than the losses from conventional 500-kilovolt (kV) high-voltage direct current (HVDC) transmission schemes. The savings from using UHVDC compared with HVDC are equivalent to the annual power consumption of more than 900,000 people in China.

“Ultrahigh voltage transmission is a vital new technology for the efficient use of hydropower generated in remote areas,” said Peter Leupp, head of ABB’s Power Systems division. “ABB technology, which plays an essential role in this project, can support the economic development of some of the world’s most populous regions, while lowering environmental impact.”

UHVDC transmission is a further development of HVDC, a technology pioneered by ABB more than 50 years ago. The new technology, using thyristor valves equipped with newly developed six-inch thyristors (power semiconductors) and an advanced control system, allows the biggest capacity and efficiency leap in 20 years. The increase became possible following advances in basic research in

¹ Per-capita electricity consumption in China was 1,802 kilowatt-hours in 2005, the latest figure available from the International Energy Agency.



a number of fields, including the development of new materials for outdoor insulators and advanced control systems with extremely high calculation capacity.

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 more than 110,000 people.

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