

Xiangjiaba - Shanghai

Connecting remote generation



ABB Id No: POW0056

The first Ultrahigh Voltage Direct Current project in the world to go into commercial operation, in July 2010.

State Grid Corporation of China (SGCC) is the owner of the link and ABB the main technology supplier. The project was completed in 30 months, one year ahead of schedule.

The ± 800 kV Xiangjiaba-Shanghai Ultrahigh Voltage Direct Current (UHVDC) link, with a rated power of 6,400 MW, has the capacity to transmit up to 7,200 MW of power from the Xiangjiaba hydropower plant, located in the southwest of the country, to Shanghai, China's leading industrial and commercial center, about 2,000-kilometers away.

For this turnkey project, ABB was responsible for overall system design and supply of the main equipment, including 28 high- and ultrahigh-voltage converter transformers, ten from Sweden and the rest manufactured with ABB components and technology in China, in local partnership. Other key products delivered include thyristor valves, DC and AC switchyard equipment and the DCC800 HVDC control system.

The Xiangjiaba-Shanghai UHVDC transmission link represents a major breakthrough in the technology of electric power transmission. System voltage at ± 800 kV is 33 percent higher than the voltage used for the ± 600 kV Itaipu transmission in Brazil, which until now was the world's highest HVDC transmission voltage rating. The power rating at 6,400 MW is also record breaking, while losses were reduced to 7 percent, compared to 10 percent losses on conventional 500 kV DC transmission lines.



Main data:

Commissioning year:	2010
Power rating:	6,400 MW (7 200 MW)
No. of poles:	2
AC voltage:	525 kV (both ends)
DC voltage:	± 800 kV
Length of overhead DC line:	1,980 km
Main reason for choosing HVDC:	Long distance
Application:	Connecting remote generation