

January 28, 2000
Electric Power Development Co., Ltd.

Completion/commissioning of the Honshu-Shikoku link enhancement

Electric Power Development Co., Ltd. has completed the upgrades being implemented for the 500,000 V parallel main links interconnecting the transmission grids of Honshu and Shikoku (between Sanuki Substation, Shikoku Electric Power Co., Inc. and Higashi-Okayama Substation, Chugoku Electric Power Co., Inc.). The enhancement was approved today in the pre-commissioning inspection conducted by MITI (Japanese Ministry of International Trade and Industry) and will start its operation, increasing the number of available links between the regional grids to two, with the transmission capacity enhanced from 1.2 million to 2.4 million kilowatts.

The first of the links was completed in 1994, contributing to the stable supply and wide area coordination of electricity between Honshu and Shikoku. The enhancement was later constructed to provide for additional transmission capacity corresponding to the construction of the Tachibana Bay Thermal Power station currently being implemented as a joint endeavor between EPDC and Shikoku Electric Power Co., Inc.

The enhancement was implemented alternately between aerial and cable portions with the work on the aerial portion conducted in sequence to the maintenance for the existing link for efficiency. The construction of the cable portion was initiated in October 1996 in time for the scheduled completion date.

This concludes the twenty years of activity relating to the establishment of transmission links since the project was first conceived in 1980. The dual 500,000 V link interconnects the Western Transmission Network spanning the Chugoku region latitudinally and the Shikoku Central Trunk traversing along the island. This will provide additional stability of the power supply and improve the wide area coordination within the western regions of Japan.

[Characteristics]

(1) The cable portion of the route consists of the bridge segment laid using the Seto Bridge and the land-based underground cable segment. The construction of the bridge segment

employed construction methods capable of withstanding variances in cable length due to fluctuations in temperature, deflections in bridge beams and vibrations incurred by the automobile and railroad traffic over the bridge. The bridge-based segment is ranked as one of the most significant of its sort in terms of cable length, voltage applied, and the magnitude of the bridge on which the cable is installed.

(2) The land-based segment was constructed by drawing in the cable from manholes placed on the surface. The operation is performed by regulating the traffic in the area concerned. In order to minimize the influence on the traffic during construction, concurrently ensuring the safety and efficiency of the construction, reels of long-span cables were used in locations without transportation constraints. The drums of long-span cables were approximately 1,000 meters long, equivalent to two spans of conventional reels of cables with a length of 500 meters per span.

(3) Likewise to single cable transmission facilities, semi-synthetic insulation papers consisting of three layers of plastic film sandwiched between sulfate paper was employed for the insulation of the power cables to reduce the thickness and the weight of the insulation. This enabled the reduction of the cost while achieving the increase in transmission capacity.

(4) The overall length of the aerial portion amounted to approximately 105 kilometers, featuring 259 power transmission towers. The segment crossing the Okayama Strait is among the largest over-sea cable work involving 500,000 V power cables in Japan.

[Primary specifications]

Overall length:	127 kilometers (Aerial segment - 105 km, underground segment - 14 km, bridge-based segment - 8 km)
Voltage:	500,000 Volts
Number of cables:	2
Transmission towers:	259 towers
Transmission capacity:	2.4 million kilowatts
Cable type:	OF cable (with semi-synthetic insulation paper)

End of announcement