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Facility maintenance measures of Pole 1 of the Hokkaido-Honshu HVDC Link

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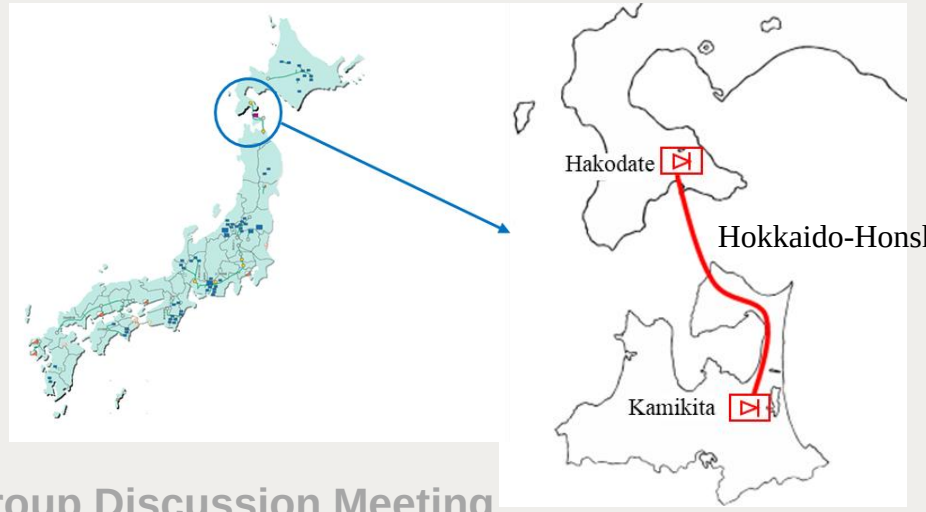
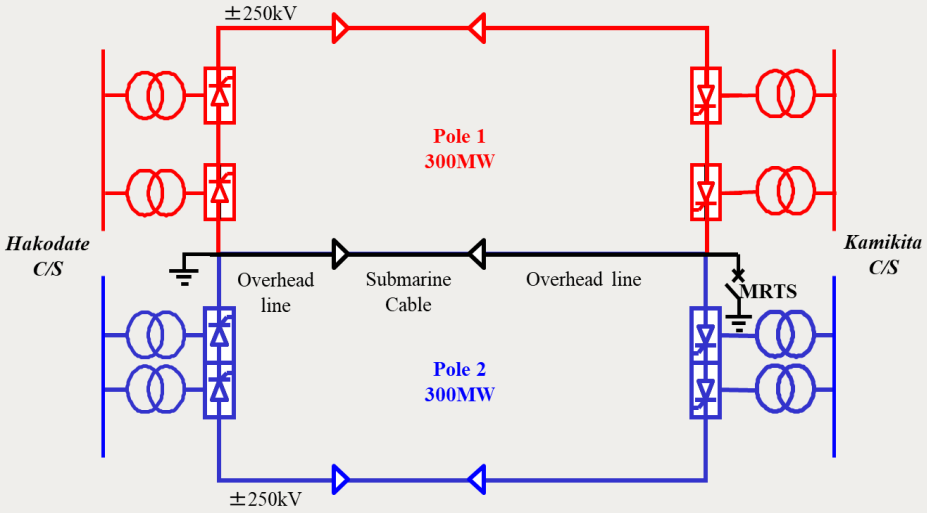
Hiroyuki Furukawa (Japan)

J-POWER Transmission Network Co., Ltd.

Hokkaido-Honshu HVDC Link

- The Hokkaido-Honshu LCC HVDC Link started operation in 1979 from the Hakodate converter station in Hokkaido area to the Kamikita converter station in Honshu area.
- This HVDC system is for interchanging the power in each area and control frequency.
- Main features
  - Capacity: 600MW Bipole HVDC
  - DC Voltage: ±250kV
  - DC transmission line: 167km (Overhead line 124km, Submarine cable line 43km)
  - Converters: 6 pulse (Pole 1), 12 pulse (Pole 2)
  - Commissioning year: Pole 1 1979 and 1980, Pole 2 1993

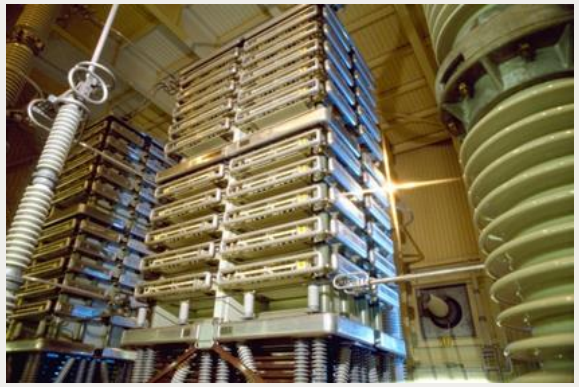




Facility maintenance measures of Pole 1 of the Hokkaido-Honshu HVDC Link

- More than 40 years have passed since this link started operation, the oldest HVDC system in Japan.
- The control and protection system of pole 1 was replaced in 2008. These system are normally replaced after around 25-30 years due to lack of spares, increased failure rates, survice support end and so on.
- The thyristors and some part of thyristor-related equipment have been used continuously without being replaced since operation started in 1979. Therefore, failures of thyristor-related equipment occur due to ageing related issues recent year.
- Spare parts will run out in the future

Life extension or Replacement
(When, Cost, Outage)



Thyristor valve tower
(Pole 1 of Hakodate C/S)