

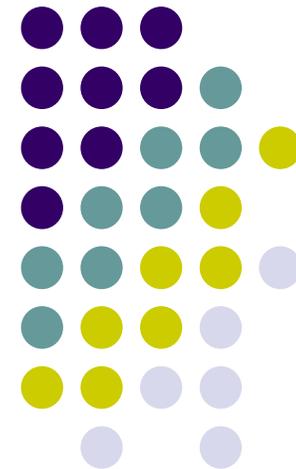
Jicable '11 Session A.11 Closing Session Round Table  
State of the art and future prospect of HVDC links by power insulated cables

# Topics of HVDC insulated cable systems from Japan

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JAPAN



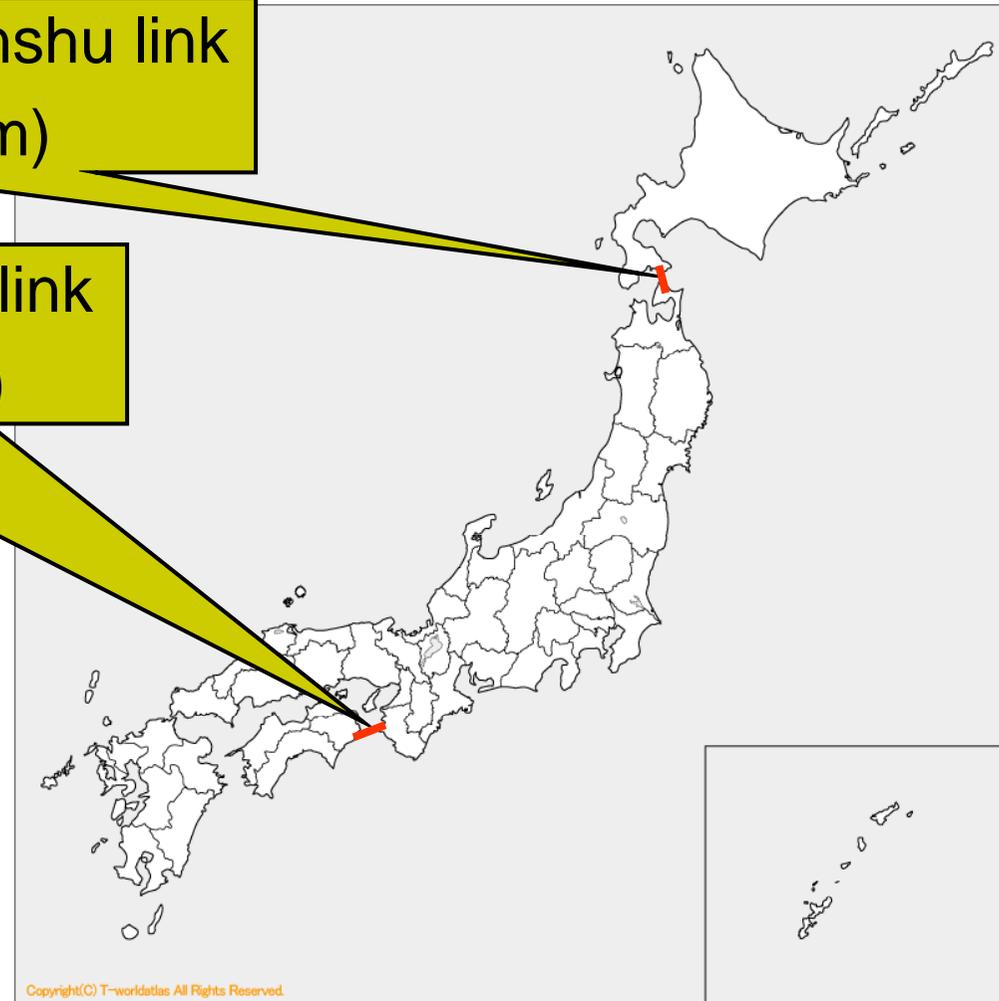


# HVDC power cable links under operation in Japan

DC250kV Hokkaido-Honshu link  
(600MW / ca.50km)

DC500kV Anan-Kihoku link  
(2800MW / ca.50km)

- ✓ Both links by Oil Filled (SCFF) cable system
- ✓ LCC system



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# Challenge history on HVDC extruded cable system development

- Development of HVDC extruded cable system
  - Initial challenge to apply normal XLPE to HVDC in early 1970's
    - Unsuccessful results due to many BDs. → Abandoned!
  - Challenge to develop filled XLPE insulation for HVDC in middle 1980's (Improvement of charge property, etc.)
    - Success of DC 250kV system development in middle 1990's
    - Success of DC 500kV system development in early 2000's
    - Both with molded type joints and wet type terminations.
  - Special aspects in above HVDC extruded systems
    - XLPE insulation for excellent electric and mechanical property
    - LCC operation, Max conductor temp. 90 degC



# Recent challenge on HVDC XLPE system development



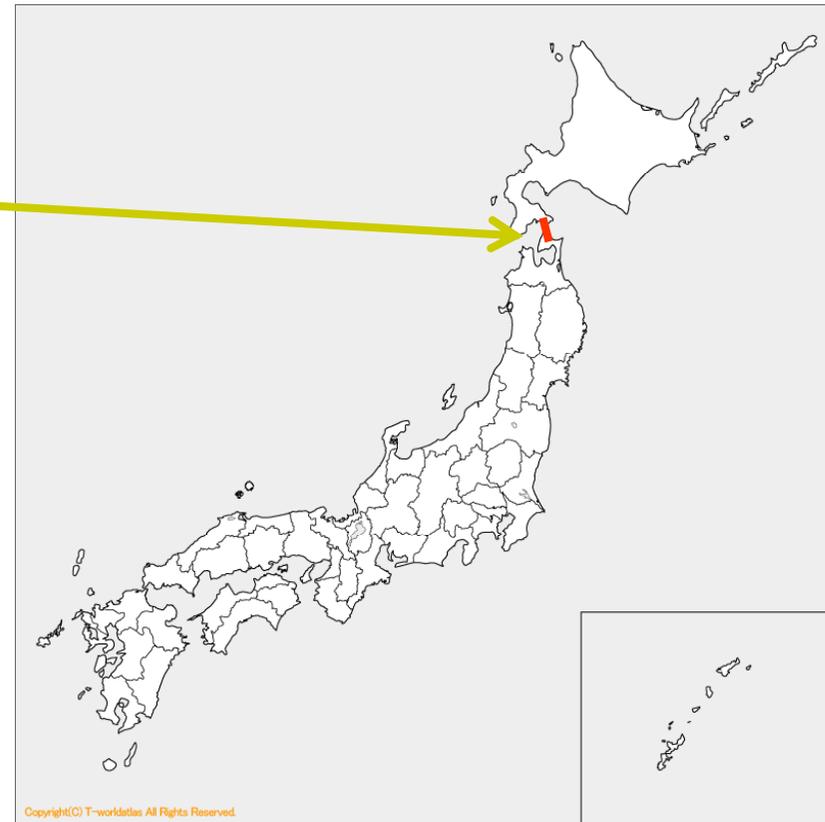
- Development of new design accessories
  - Environment friendly, easy fitting, land application, ...
  - Non oil-impregnated paper type termination.
    - EPR cone type, pre-fabricated type
    - Trial on dry type termination
  - Non site-molded type joints
    - PMJ and PFJ
  - Qualification tests on 320kV and above



# Current and future prospects on HVDC project in Japan



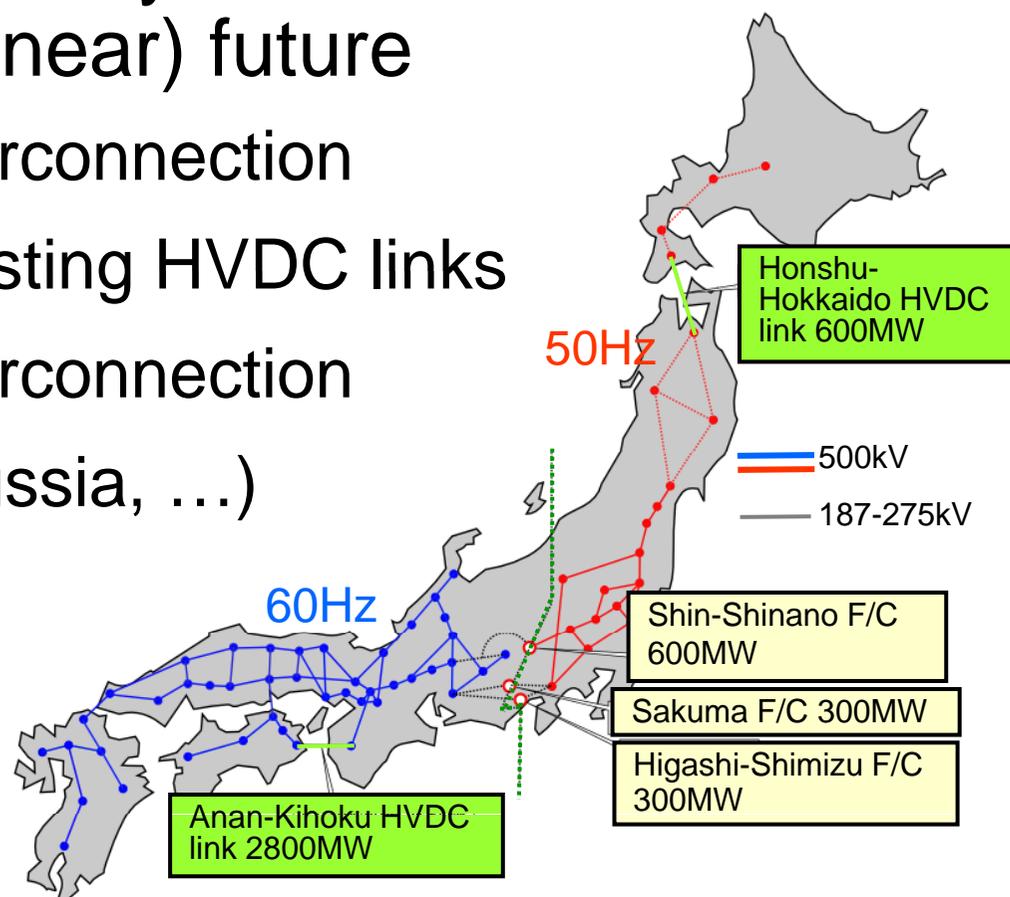
- New DC 250kV XLPE cable additional installation in Honshu-Hokkaido link (Laying planned)





# Current and future expectations on HVDC project in Japan

- Grid reinforcement by HVDC cable links to be expected in the (near) future
  - 50Hz / 60Hz interconnection
  - Upgrading of existing HVDC links
  - International interconnection (South Korea, Russia, ...)





Thank you very much for your attention!

