AREVA First in Scandinavia

Konti-Skan 1 HVDC Project
KontiSkan 1 Refurbishment and Upgrade

Customers

- Svenska Kraftnät - owns and operates Sweden’s transmission network with responsibility for the national electricity grid

- ELTRA - owns and operates the 400kV transmission network for Jutland and Funen in western Denmark
Upgrade / Refurbishment

- Bipole
  - Pole 1
    - 250 MW (250 kV @ 1000 A)
    - Mercury Arc (Asea)
    - Completed September 1965
  - Pole 2
    - 300 MW (285 kV @ 1050 A)
    - Thyristor (Asea)
    - Completed November 1988
- Multiple Cable / OHL Sections
- Equipment to be re-used wherever possible
- No continuous overload capacity above 360 MW nominal rating
- Scope
  - Sweden - Turnkey addition to existing s/s
  - Denmark - Excluding buildings and AC switchyard
New Arrangement

Route Length = 150 km

Denmark Mainland

New Pole 1
285 kV
@ 1340 A
380 MW

Electrode Line

Common Towers

Pole 2
285 kV
@ 1050 A
300 MW

Denmark
Vester Hassing Substation

Laesoe Island

Cable
23 km
310 mm²

Common Towers

Sweden Mainland

New Pole 1
285 kV
@ 1340 A
380 MW

Electrode Line

Common Towers

Pole 2
285 kV
@ 1050 A
300 MW

Sweden
Stenkullen Substation, Gothenburg

Route Length = 150 km

Cable
64 km
1200 mm²

OHL
34 km
9 km

OHL
9 km

OHL
17 km

OHL
64 km

Cable
23 km

OHL
31 km

Electrode Line

400 kV
50 Hz

130 kV
50 Hz
Upgrade / Refurbishment

Bipole

- Pole 1
  - 380 MW (285 kV @ 1340 A)
  - Thyristor (AREVA)
  - Completed July 2006

- Pole 2
  - 300 MW (285 kV @ 1050 A)
  - Thyristor (Asea)
  - Completed November 1988

Multiple Cable / OHL Sections

- New converter rating to match DC conductor rating

- Equipment to be re-used wherever possible
- No continuous overload capacity above 380 MW nominal rating

Scope

- Sweden - Turnkey addition to existing s/s
- Denmark - Excluding buildings and AC switchyard
H400: Latest Technology HVDC Valves
KontiSkan HVDC Scheme
Control System

- Valve Base Electronics equipment
- Pole Control equipment
- Interface with existing Pole 2 Control
- New Pole and Bipole Control functions
  - Power Control
  - Frequency Control
  - Reactive Power / AC Voltage Control
  - Power Modulation
  - Runback
Transformer
Lindome