



WETS'07 WORKSHOP
World Energy Transmission System

**Achievement and experience in service of long length (> 10 km)
HV, EHV electrical links by AC insulated power cables.**

V. Evolution

Georg Balog

Nexans Norway

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Ambient conditions for Submarine cables Example

Three core submarine cable, 132-220 kV:

- 1000mm² Cu conductor

Single core submarine cable, 400 kV:

- 1200mm² Cu and Cu armour

Ambient temperature in seabed: 10°C

Burial depth: 1m

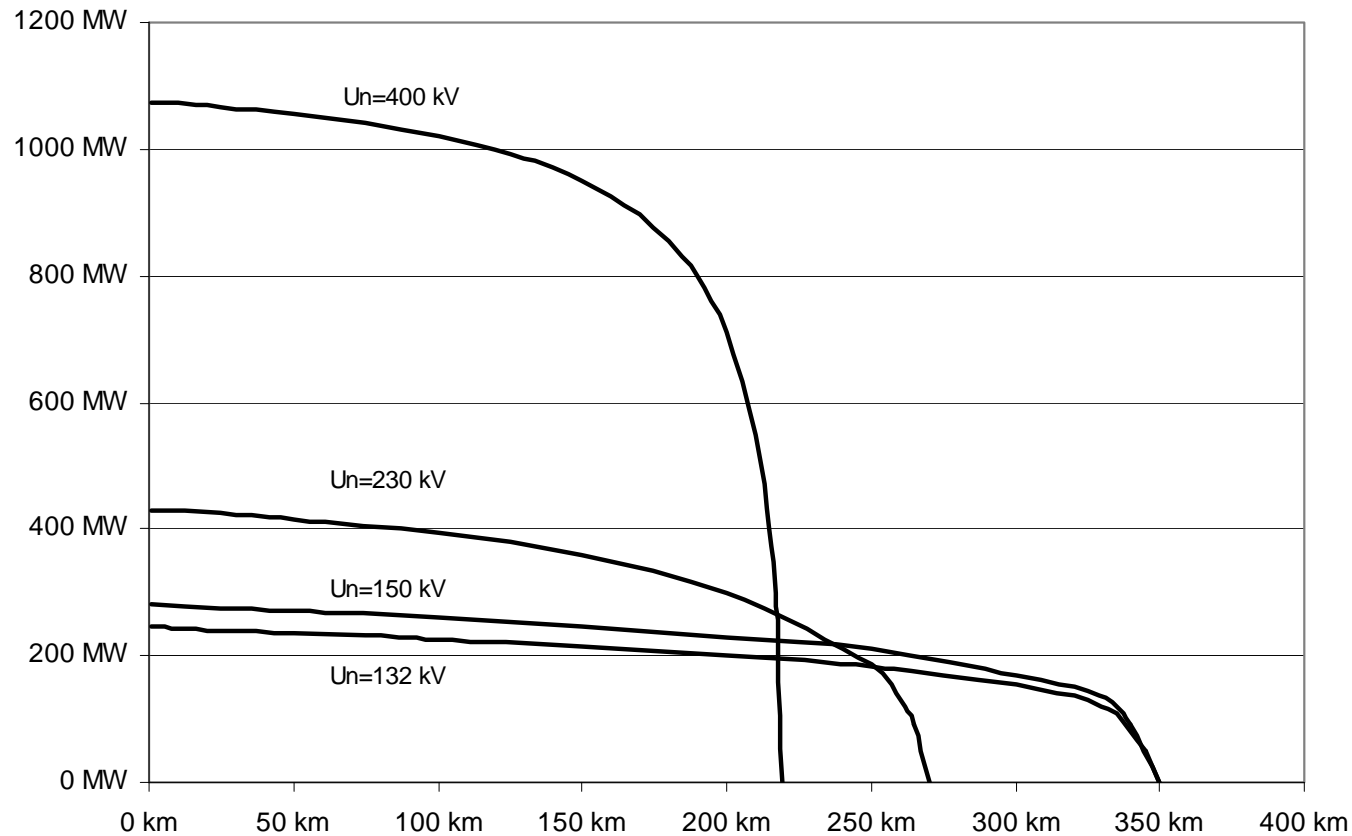
Thermal resistance in seabed : 0.7mK/W

Voltage quality: $\pm 5\%$

Maximum losses: 10%



Limits of transmission capacity, HVAC cables, example



- 400kV:
>1000 MW
up to
100 km.
- 230 kV:
200 MW
to 200km.



Necessary future measures AC XLPE

- Screening of each meter of extruded length
- Testing of each joint
- Increasing the manufacturing capacity



Necessary future measures HVDC extruded

- Long time pre-qualification tests
- Screening of each meter of extruded length
- Testing of each joint
- Long time operating experience on land
- After laying testing