

WETS 2007

GCC ELECTRIC GRID INTERCONNECTION

Implement of the interconnection between the Gulf states

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Paris, 28 June 2007

THE GCC PROJECT

Development of the interconnection between the Gulf States (Kuwait, Saudi Arabia, Bahrain, Qatar, UAE and Oman)

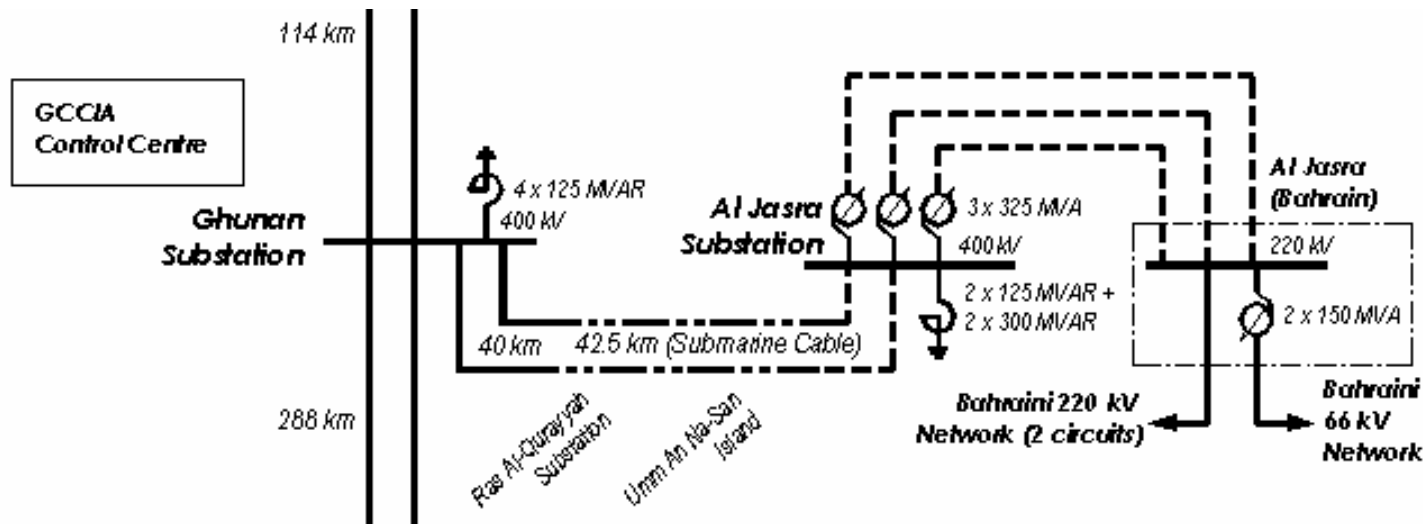
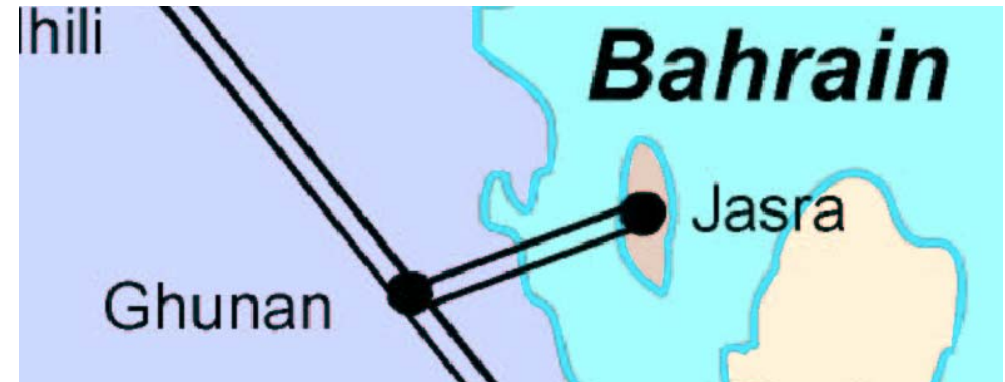


The new interconnection system is operated at 50 Hz apart from the HVDC interconnection to the Saudi Arabia 60 Hz system (derivation at Al-Fadhili)

The total length of the double 400 kV OHL connecting Al Zour (Kuwait) to Salwa (SA) is 694 km

GCC CONNECTION TO BAHRAIN

At the Ghunan substation the double 400 kV line was connected to Bahrain by a 40 km OHL plus 42.5 km of submarine cable and 9 km of land cable



Shunt reactors have been placed at the Ghunan and Jasra ends

CABLE DETAILS

Two different cables were adopted for the submarine crossing and for the land portion.

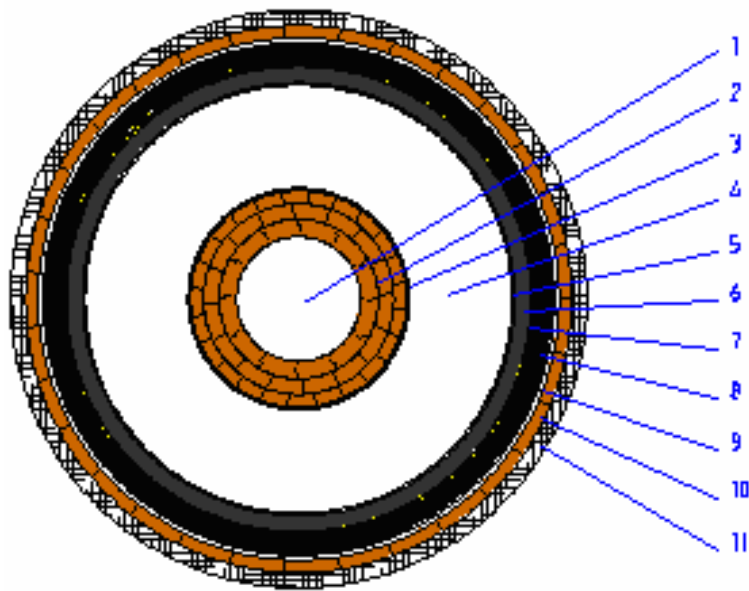
The total power to be transmitted is 650 MVA per circuit

The submarine cable route is 42.5 km with a total capacity of 12.5 μF

The land portion length is 9 km with a total capacity of 3.0 μF

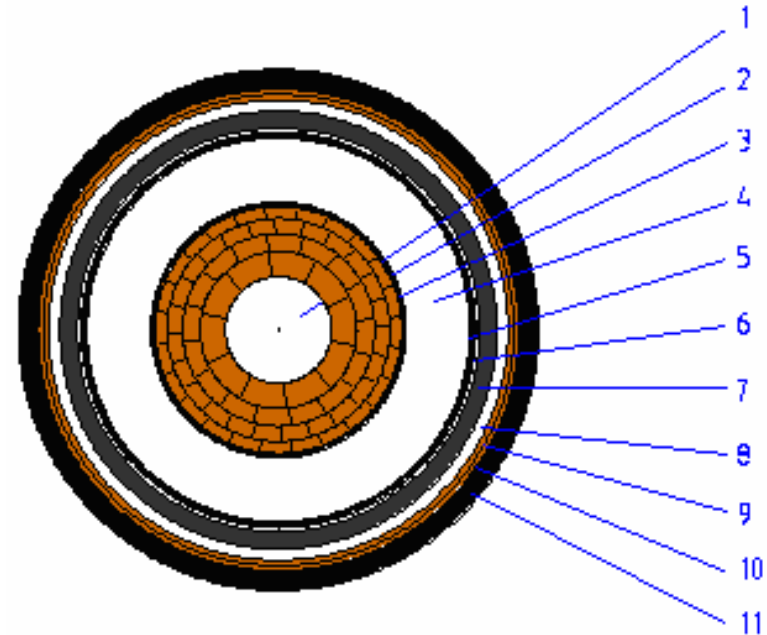
CABLE DESIGN

Submarine cable



1400 mm²

Land cable



2000 mm²

REACTIVE COMPENSATION

The total capacitive power is of 780 MVAR for each cable circuit for a total of 1560 MVAR

600 MVAR (4x125) shunt reactors are installed in Ghunan

900 MVAR (2x125+2x300) shunt reactors are installed in Al Jasra

The total inductive compensation is of 1500 MVAR, in practice the compensation is 96%