

BPP-TECH is managing the PowerCab Joint Industry Project (JIP) on behalf of four participating companies: BG Group; BP Exploration; DUCO (Technip) and Shell UK.

The PowerCab JIP Work Programme concerns the development of subsea electrical power cable designs with high dynamic loading capacity. The project has been separated into two phases: Phase One has been successfully completed whilst Phase Two is on-going.

High capacity subsea power cables and transmission systems are becoming increasingly required in the oil and gas industry for subsea electrical power transmission to and from offshore installations, electrically heated pipelines (especially in the ultra deep-water fields), multiphase pumps, as well as subsea processing including all electric subsea technology (electric trees and control systems). Power cables for subsea processing are required in conjunction with offshore oil and gas fields that are typically long distances from existing infrastructure.

The objectives of PowerCab Phase One were to undertake analysis, material selection and testing, to arrive at the design of a range of electrical power cables with the capacity to deliver an exceptionally high dynamic fatigue loading performance.

The PowerCab Phase One work programme was divided into four prime



work packages:

- development of candidate cross sections for static mechanical
- and thermal performance testing of conductor materials for fatigue Life
- evaluation of candidate designs for dynamic performance
- Cross section and performance definition of optimum cable designs.

The headline goals for PowerCab Phase Two include the design optimisation of a lightweight 100MW, 132kV, 525A rated cable with an extended dynamic fatigue life. A prototype cable will be manufactured and fatigue tested and approval in principle will be sought for the cable design.

The availability of reliable high capacity subsea power cables and transmission systems offers the prospects for

transforming the economics of offshore oil and gas fields and power generation projects. The technology will enhance the capability of conventional and high capacity subsea power cables to draw economic benefits from offshore field developments and power generation schemes.

Benefits of the PowerCab project will accrue both on a short term economic level and for long term strategic technology options. Examples include the removal of power generation equipment on offshore platforms, as well as the use of remote gas for power generation and for transmission of gas to the customer.

