CLAIMS

1. A DC grid for an offshore structure, the grid comprising at least four DC switchboards, each DC switchboard comprising at least three connections to other DC switchboards and each connection comprising a switch; the grid further comprising a controller; a plurality of energy sources on an offshore structure, at least one energy source being associated with one of the switchboards; and a plurality of energy consumers, at least one of the energy consumers being associated with one of the switchboards; wherein switches of the connections are adapted to be closed in normal operation; wherein each connection comprises a semiconductor switch; and wherein the controller is adapted to send a signal from the controller to the switch to open the switch in the event of a fault.

2. A DC grid according to claim 1, wherein each connection comprises a switch at both ends of the connection for separating the switchboards from one another.

3. A DC grid according to claim 1 or claim 2, wherein the switchboards are provided in at least three sections, each section being physically separated from one another.

4. A DC grid according to claim 3, wherein at least one section comprises at least one switchboard, at least one energy source and at least one consumer.

5. A DC grid according to any preceding claim, wherein at least one of the switchboard sections is located on a separate offshore structure.

6. A DC grid according to any preceding claim, wherein the grid further comprises secondary switchboards, each secondary switchboard comprising only one or two connections to other switchboards.

7. A DC grid according to any preceding claim, wherein the energy sources comprise at least one of a generator, stored electrical energy source, or AC energy source supplied via a transformer.

8. A DC grid according to any preceding claim, wherein the consumers comprise one of thrusters, battery or capacitor based energy stores.

9. A DC grid according to any preceding claim, wherein at least one of the energy sources or the energy consumers comprise a switchable connection to the switchboard.

10. A method of supplying energy to an energy consumer on an offshore structure, the method comprising providing switchable connections between a first DC switchboard and three or more further DC switchboards, wherein switches of the switchable connections are adapted to be closed in normal operation; the method comprising providing an energy source on an offshore structure and connecting the energy source to at least one of the switchboards to form a DC grid; and connecting an energy consumer to at least one of the DC switchboards, whereby energy is provided from the energy source to the consumer through the connections when the switches are closed; and wherein, in the event of a fault, a signal is sent from a controller to a semiconductor switch on one or more connections, to open the switch and so isolate the fault.

11. A method according to claim 10, wherein the method further comprises detecting a fault in one of the switchboards; and opening all connections to that switchboard to isolate that switchboard from any other switchboard.

12. A method according to claim 10 or claim 11, wherein the method further comprises detecting a fault in one of the energy sources or consumers and opening all connections between that energy source or that consumer and its switchboard.

13. A method according to any of claims 10 to 12, wherein the method further comprises connecting at least one of the switchboards to a further switchboard located on a separate offshore structure.

14. A method according to claim 13, wherein the method further comprises supplying the switchboard with power from the separate offshore structure.

15. A method according to any of claims 10 to 14, wherein the offshore structures comprise one of a vessel, offshore platform, or drilling rig.

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