

Explosion proof certified Solar/Wind Hybrid Power System

Shell (UK) in cooperation with Tss4U (NL) developed the solar/wind hybrid power system for the “Trident” platforms.
After a pilot project, systems for the first two Trident platforms were applied in June 2005.

The development of the Shell ‘Trident’ platform (Fig. 1) concept has reduced the platform facilities and utilities to the bare necessity, which also resulted in a substantial decrease in electrical power demand. The power demand of a Trident platform is now limited to a total continuous load of approximately 1.2 kW. This power was to date supplied by subsea cable.



Fig. 1 A Trident Platform



Fig 2. A Solar/Wind hybrid power system on a Trident Platform

The solar/wind hybrid renewable energy (RE) project was initiated to explore the potential for future Capex reductions. The installed cost for the hybrid renewable power supply is about £200k, compared with about £1–2m for a subsea cable.

In this project, solar panels and wind turbines are chosen to provide the renewable energy due to the maturity and proven technology. The other reason is the complementary output provided by these two forms of energy under seasonal variation in weather conditions. The solar panel plays a major role in recharging the battery in the summer months when the output from the wind turbine is at the lowest and vice versa during the winter months.

The scope of the solar/wind hybrid power system for a continuous 1.2 kW power demand in a hazardous area zone 1 offshore environment consists of:

- Two 2.5 kW Wind Turbines
- 50 m² Solar Panels
- 7000 Ah Battery storage
- Associated charge control and data monitoring systems

Area Classification: ATEX II 2 G Gas group IIB, Temp. Class T3, ATEX 94/9 EX

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The power/control package will be installed on the upper deck of the platform and the output/monitoring package will be installed at a lower deck (Fig. 3)



Fig.3 Platform on the yard



Fig 4. Load out platform

To minimize offshore installation/commissioning work, all equipment on the upper deck is installed on skid frames which can be lifted totally from the platform for eventual exchange with a spare system. All the equipment performance data is stored in a data-logger and can be viewed onshore via Ethernet/telecom. To minimize visits to the platform the data-logger can be checked for past and actual performance of the RE system in order to schedule the required maintenance on the platform.

For more detailed information please contact Tss4U via E-mail: info@tss4u.nl or on the web: www.tss4u.nl.