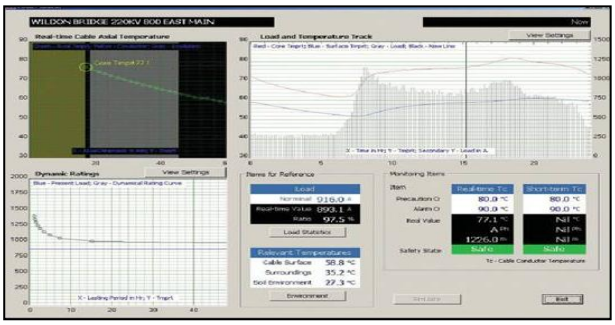
JANUARY 2014

INVENTEC IS AWARDED THE CONTRACT FOR A DTS-SYSTEM FOR ENECO OFFSHORE WIND FARM LUCHTERDUINEN.

The Luchterduinen wind farm will be situated offshore North Sea, 23km off the coast of The Netherlands. It consists of 43 turbines and will produce 129MW power, sufficient to provide almost 150.000 households with electricity. The 25,2km long 150KV cable from the central offshore transformer station lands ashore at Noordwijk. From there a 7,8km long onshore cable runs to Sassenheim where the system is tied-in with the TenneT high voltage grid.

Main contractor Van Oord Offshore Wind Projects B.V. awarded Inventec with the order for the engineering, supply, installation and operational start-up of an advanced Distributed Temperature Measurement system (DTS). The system will be housed in the onshore control building in Voorhout and will measure continuously and in real-time the distributed temperature over the full 33km length of the power cable with a resolution of 1°C. For this purpose a number of optical fibers are integrated into the power cable. The DTS system continuously launches a high frequency light pulse into an optical fiber and analyses the shift of the so-called Raman frequency in the backscattered spectrum. This shift has a linear relationship with the temperature. The location of a temperature measurement is determined by measuring the time (nanoseconds) elapsed between the launching of the pulse and the return of the backscattered light. As this phenomenon occurs at any point along the fiber it is possible to produce the truly distributed temperature over the full length of the power cable. In practice the spatial interval will be set at 1 meter resulting in the equivalent of 33.000 spot measurements over the 33km cable length.



The DTS-system enables the operator to control the power infrastructure in an optimal manner. The highly advanced software does not only present the distributed temperature of both the conductor and the outer cable surface (and produces an alarm when a hotspot occurs) but also automatically calculates how much power at any moment can be transported through the cable.