

The Project

Dutch Offshore Wind Energy Services (DOWES) is an initiative by ATO in which 5 complementary partners joint forces. Making use of the knowledge and expertise available within these organisations an integrated IT system is being developed to optimise offshore wind farm monitoring, and operational and maintenance (O&M) activities.

DOWES is a 4 year R&D project, it started in March 2009 and will stretch until the end of 2013.



The Princess Amalia Wind Farm at the North Sea

Dutch Offshore Wind Energy

Key aspects of DOWES

The key aspect of this R&D IT project is integration. The strong focus on integration is clearly visible in the multidisciplinary constellation of the project partners. Within the project state of the art knowledge and specialised expertise is combined to form the basis of the integrated monitoring and control system. Realising adaptive, corrective and preventive maintenance activities at optimal costs is the leading criteria for integration and development activities. Focus points are:

- Development of fibre optic sensors to monitor blade conditions
- Development of corrosion sensors to monitor tower conditions
- Data warehousing
- Data into information processing
- Integration of spare part management
- Integration of logistical planning and services
- Costs optimisation
- Costs estimation
- Operational and strategic decision support

After the initial development phase, field tests will follow. First results and additional insights will be incorporated in the IT system after which a first demonstration version will be realised by the end of 2013.



Development of dedicated components within the DOWES project

Besides the IT system, specialised state of the art technological components are developed within the DOWES project to extend and support the IT system. These components are integrated in the IT system for optimal result.

- Project partner ECN started the development of the *Operation and Maintenance Cost Estimator(OMCE)* in 2005. The OMCE is designed to determine the O&M effort and costs for the coming 1 to 5 years. Further development of the building blocks and the implementation of the OMCE in the IT system will be realised within the DOWES project.
- Furthermore the continuation of development of fibre optic sensors to monitor blade conditions and stresses of the blades by ECN will be realised as well.
- The development of corrosion sensors to detect and monitor corrosion in an early phase is taken upon by TNO. Corrosion and bio fouling occurring at wind turbine towers and foundations are important issues to consider to guarantee the long live time of the offshore wind farms.

For more information please visit our website
www.dowes.nl or www.ato.nl

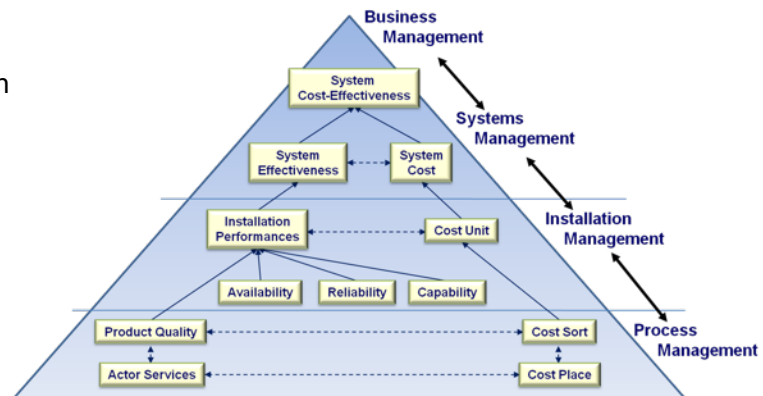
Added value of DOWES

Monitoring of the offshore wind turbines is performed with a large number of sensors resulting in a huge amount of data. To benefit most from this data it is necessary to integrate and correlate this within the IT system with data such as monitoring data, maintenance reports, short and long term weather data, planned maintenance, availability of spare parts or logistical transport. The result of the analyses should provide the owner/operator with information to:

- Increase revenue and profit
- Increase predictability and reliability
- Increase availability
- Reduce costs
- Increase employee productivity
- Offer new customer services
- Modernise outdated technologies
- Optimise System Cost-Effectiveness

The results will be presented accustomed to the different organisational levels in order to realise operational, tactical and strategic information.

The information pyramid indicates the different information levels.



Project Partners

DOWES consists of:



TNO - The Netherlands Organisation for Applied Scientific Research
www.tno.nl



Peterson SBS - Offshore logistical services provider
www.pcugroup.nl



ATO - Association of Technology Transfer
www.ato.nl



AMC T&T - Asset Management Centre
info.amccentre.nl



ECN - Energy research Centre of the Netherlands
www.ecn.nl

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