The EERA-DTOC is formed in seven work packages (WP):

**WP1 - Wake modelling:** The objective of is to improve model performance of wind turbines according to an enhanced understanding of wind turbine wakes.

**WP2 - Interconnection optimization and power plant systems:** The main focus of this WP is to develop a design tool and procedures for the optimisation of the electrical design of offshore wind farm clusters including the provision of power plant system services by the cluster.

**WP3 - Energy yield prediction of wind farm clusters:** The objective is to deliver accurate values of the expected net energy yield from clusters of wind farms and also the uncertainty of the expected value by integrating the results from WP1 and WP2.

**WP4 - Integration and development of software:** The WP includes integrating existing design tools for offshore wind farms so as to develop the integral offshore cluster design tool.

**WP5 - Experiments, Validate, demonstrate design tool:** The focus here will be on validating the integrated offshore wind farm design tool and on demonstrating that the integrated offshore wind farm design tool is important and gives convincing (e.g. would stand up to the scrutiny of an independent engineer during technical due diligence for project finance).

**WP6 - Dissemination and exploitation activities:** This WP aims at promoting the project visibility by creating an awareness, which means that the project is targeted at the users and stakeholders, including project developers, system operators, consultants and research institutes.

**WP7 - Management:** DTU Wind Energy is responsible for project management and administration of the project in accordance with the contract.

A robust, efficient, easy to use and flexible tool created to facilitate the optimised design of individual and clusters of offshore wind farms.

**A keystone of this optimisation is the precise prediction of the future long term wind farm energy yield and its associated uncertainty.**

**Robust:** in the context of EERA-DTOC is understood to mean validated, stable, reliable, reproducible and technically convincing (e.g. would stand up to the scrutiny of an independent engineer during technical due diligence for project finance).

EERA-DTOC is to be built by integrating existing models (wake, grid, production etc.).

The design in question is that of the wind turbine layout (and/or wind farm clusters) and their associated electrical infrastructure. Design optimisation is with regard to the total cost of energy (including cost of finance). The EERA-DTOC tool will facilitate the optimisation process by supporting decision making through the efficient processing of many design scenarios for consideration in conjunction with separate cost/financial modelling tools.

At the individual wind farm level the anticipated users are primarily developers looking to optimise their specific wind farms subject to the influence of neighbouring wind farms.

At the cluster level the anticipated users are strategic planners looking to optimise the location of many offshore wind farms (and their associated electrical infrastructure) within a particular region.

In particular EERA-DTOC will focus on precisely predicting the wake losses, and associated uncertainty, due to both a specific offshore wind farm on itself (internal wake losses) and wake losses due to clusters of neighbouring offshore wind farms (external wake losses).