



# EERA-DTOC

## Design Tool for Offshore Clusters

**DTU** Peter Hauge Madsen  
*Director*  
DTU Wind Energy



Support by



# Project partners



- DTU Wind Energy (former Risø)
- Fraunhofer IWES
- CENER
- ECN
- EWEA
- SINTEF
- ForWind
- CRES
- CIEMAT
- University of Porto
- University of Strathclyde
- Indiana University
- Collected Localisation Satellites
- Statkraft
- Iberdrola Renovables
- Statoil
- Overspeed
- BARD
- Hexicon
- Carbon Trust
- E.On
- RES

- **EERA: European Energy Research Alliance**
- **DTOC: Design Tool for Offshore (wind farm) Clusters**
- EU-FP7 funded project from January 2012 to June 2015
- Budget 4,000,000 euro hereof 2,900,000 euro from EC
- Focus on designing wind farm **clusters** considering:
  - Wind farms **wake losses**
  - Wind farms **electrical cabling**
- Objective is to deliver an integrated tool for the design of individual wind farms and clusters of wind farms
- The tool is composed of existing models as available throughout Europe
- The tool will be available in December 2014

**EU FP7 funding based on proposal for the  
Topic ENERGY.2011.2.3-2:  
Development of design tools for Offshore Wind farm clusters**

*Open in call: FP7-ENERGY-2011-1*

*Funding scheme: Collaborative project*

The objective of this topic is to develop new **design tools** to optimise the exploitation of individual wind farms as well as wind farm clusters, in view of transforming them into virtual power plants.

Such design tools should integrate:

- **Spatial modelling:** medium (within wind farms) to long distance (between wind farms) **wake effects**
- **Interconnection optimisation:** to satisfy grid connection requirements and provide power plant system service.
- **Precise energy yield** prediction: to ease investment decisions based on accurate simulations

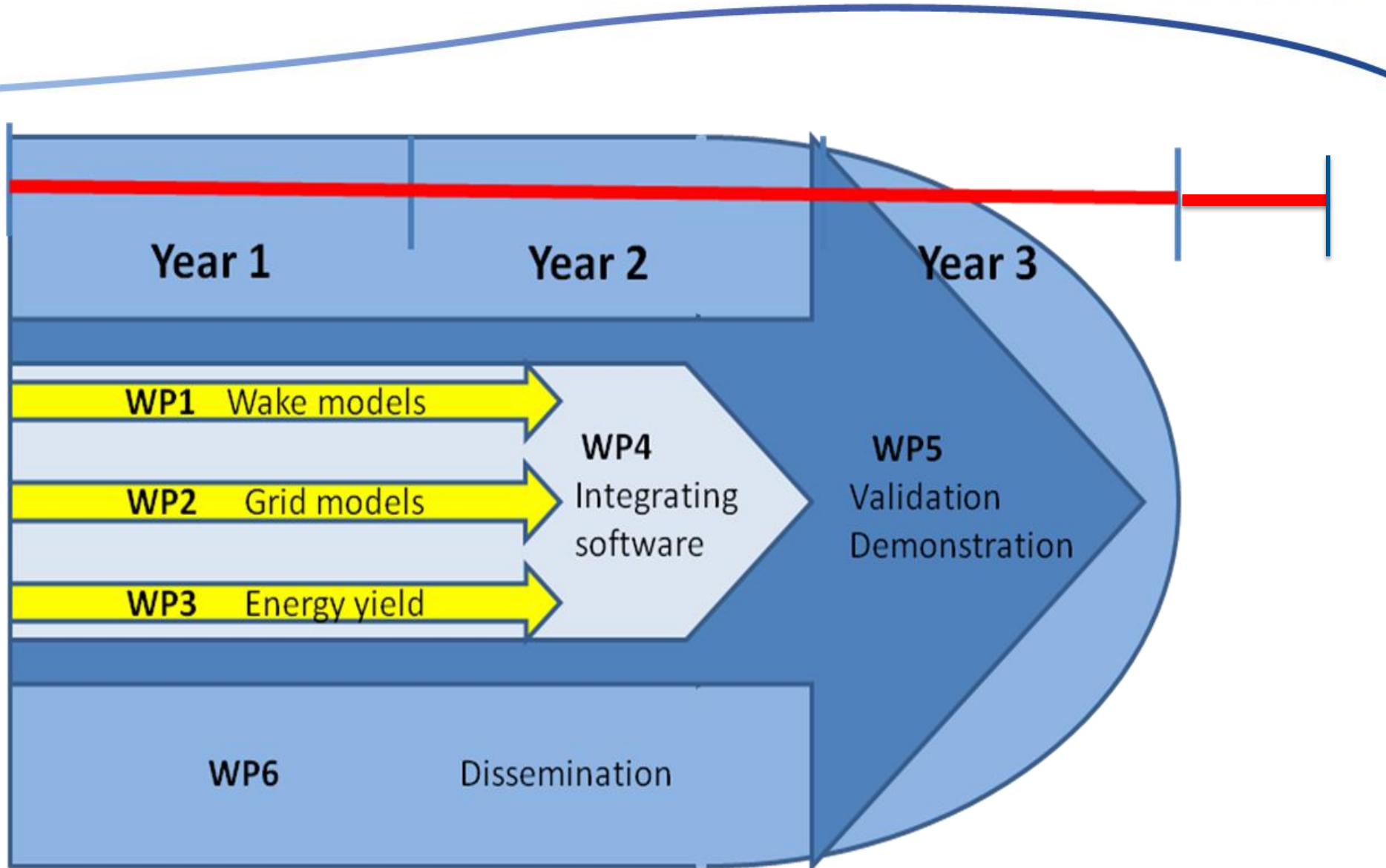
The project should focus on offshore wind power systems and **make optimal use of previously developed models.**

- Funded projects are expected to demonstrate the capability of designing virtual wind power plants composed of wind farms and wind farm clusters while minimizing the negative spatial interactions, improving the overall power quality output and providing confidence in energy yield predictions.
- Such projects will contribute to the development of offshore wind power as required by the SET-Plan.

- 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.

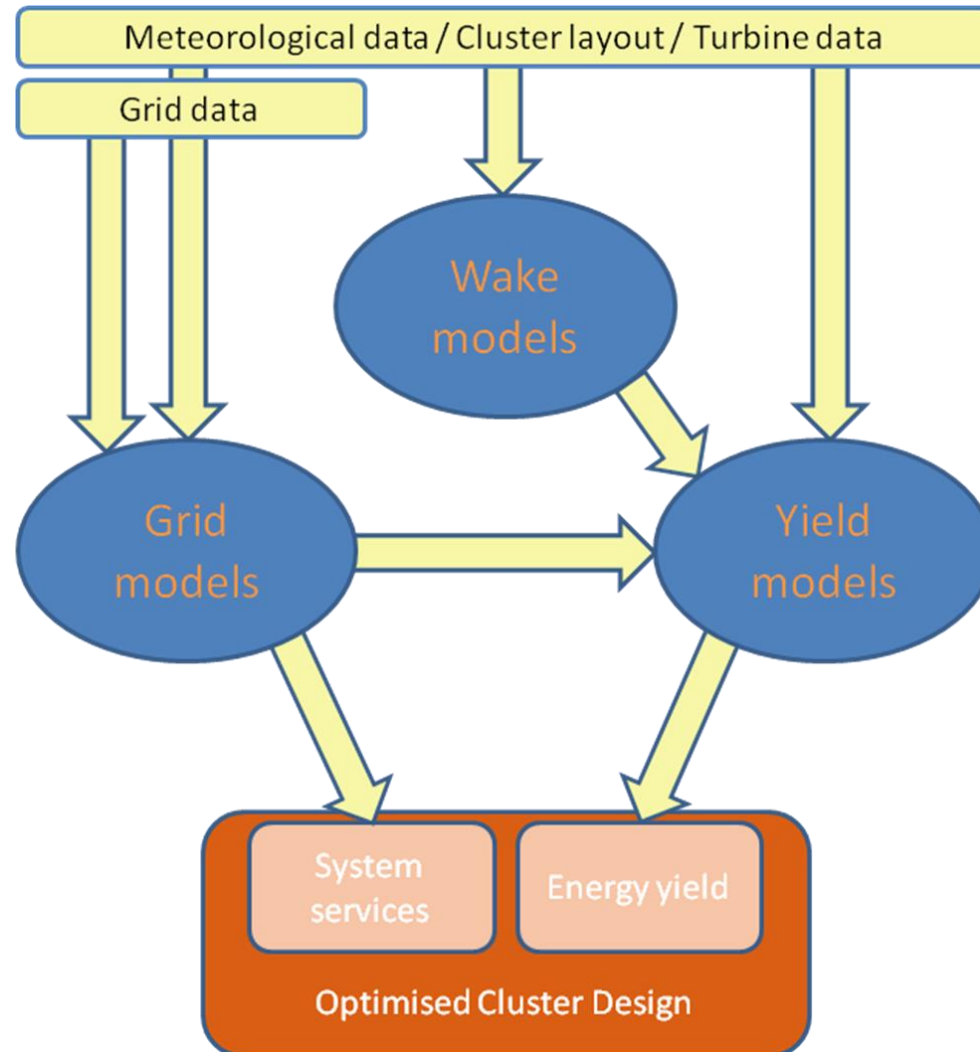


# WP structure






# EERA-DTOC concept



- Use and bring together existing models from the partners
- Develop open interfaces between them
- Implement a shell to integrate
- Fine-tune the wake models using dedicated measurements
- Validate final tool



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

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## What is EERA-DTOC?

EERA-DTOC stands for the European Energy Research Alliance - Design Tool for Offshore Wind Farm Cluster. The project is funded by the EU – [Seventh Framework Programme](#) – and runs from January 2012 to June 2015. It is coordinated by the [Technical University of Denmark](#) - DTU Wind Energy. The concept of the **EERA-DTOC** project is to combine this expertise in a common integrated software tool for the optimized design of offshore wind farms and wind farm clusters acting as wind power plants.

## Deliverables

- 7th Framework





Thank you very much for your attention



Support by

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