

VALARRAY

Optimisation software for tidal and floating offshore turbine arrays: state of the art, comparison and new tools specification

The Levelized Cost of Energy (LCoE) is significantly influenced by the optimisation of the farm layout of Marine Renewable Energies.

Today, no commercial software is available allowing:

- Dedicated tidal or Floating Offshore Wind applications;
- Managing the simultaneous optimisation of several criteria, such as: The layout of energy converters (EC), control strategy of Ecs, bottom-surface connections and foundations, the inter-array electrical layout...

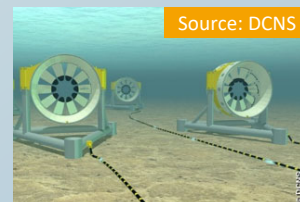


The actions to be taken are therefore:

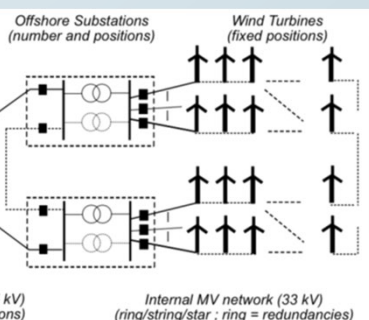
- Identify and classify existing software solutions
- Gather and prioritize the needs of stakeholders
- Test the available solutions and compare them rigorously through a benchmarking of the selected relevant software
- Run a gap analysis and define the action plan for the selection and development of a tool set fulfilling the sector's needs

Resources implemented are:

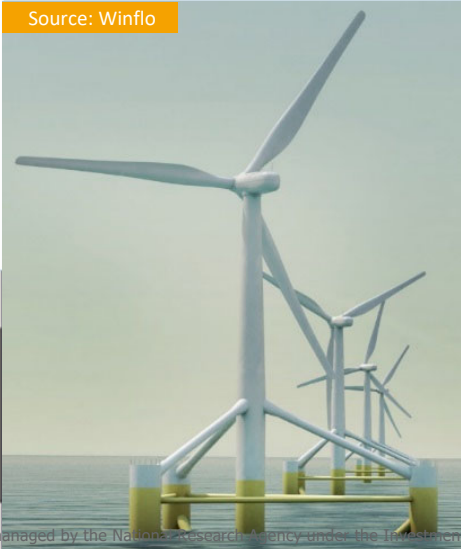
- 24 programs already identified (commercial, open-source, academic, proprietary...)
- Involvement of industrial partner end-users
- Realistic test conditions
- Advisory-Board consulted for strategic orientation



Source: Dahmani et al. (2012)



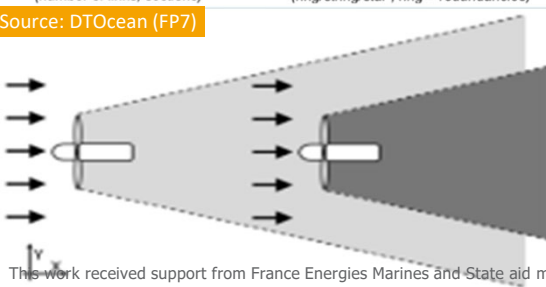
Source: Winflo



Objectives :

- Identify the state of the art of optimisation software for MRE farms;
- Specification of stakeholder needs not addressed by available software;
- Gap analysis and action plan;
- Feasibility study for the rapid development of an appropriate suite of tools.

Source: DTOcean (FP7)



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