

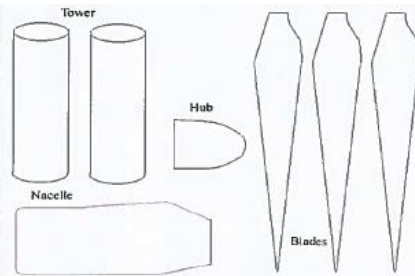
Offshore Wind Farm Installation Model (INST)

The INST model enables detailed assessment of strategies, time estimates, and expenditure to support decision-making and optimal planning of installing an offshore wind farm.

THE TECHNOLOGY

Developed by researchers at the Centre for Marine and Renewable Energy (MaREI), the INST model simulates a scenario taking into account the installation strategy, resources, and technology specified by the user.

Installation method	Lifts
2 tower parts, nacelle and hub pre-assembled	6
Tower parts and nacelle and hub pre-assembled	5
Blades and hub pre-assembled	4
Nacelle, hub and 2 blades (bunny ears) pre-assembled	4
Tower parts and nacelle, hub and 2 blades (bunny ears) pre-assembled	3
Pre-assembled	1
Pre-installed on substructure	0



Example of the different installation strategy options for turbines that the user can select.

Different operations are associated with the installation of each component of an offshore wind farm of which such components include the turbine, foundation, substation, substation foundation, export and inter-array cabling. The INST model considers installation strategy, available resources (e.g. vessels), and technologies as specified by the user along with uncertain factors (e.g. weather) to generate outputs including:

- the CAPEX of assets;
- pre-installation transport costs from the manufacturer to the supply port;
- charter and fuel costs for vessels;
- costs for survey and monitoring, port activities, and other balance of plant costs (e.g. onshore works).

The model also outputs the results of each simulation to allow the user to undertake further probability analysis to assess the impact of key risks on a project scenario.

ABOUT MaREI

MaREI is the marine and renewable energy research, development and innovation centre supported by Science Foundation Ireland. The MAREI Centre conducts fundamental scientific research relating to marine and renewable energy applications and enables the development and testing of technology through to the construction of demonstration systems. MaREI provides innovative research, development, engineering and consulting services and tailor-made solutions for companies of all industries.

OPPORTUNITIES

Consultancy

Research Collaboration

FIELDS OF APPLICATION

Offshore wind farms

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