



5/8 JUNE 2023 LA SPEZIA NAVAL BASE

The logo for GREEN & BLUE INNOVATION HUB. It features a blue wavy graphic at the top. Below the graphic, the text 'GREEN & BLUE' is written in large white letters, and 'INNOVATION HUB' is written in smaller white letters below it.

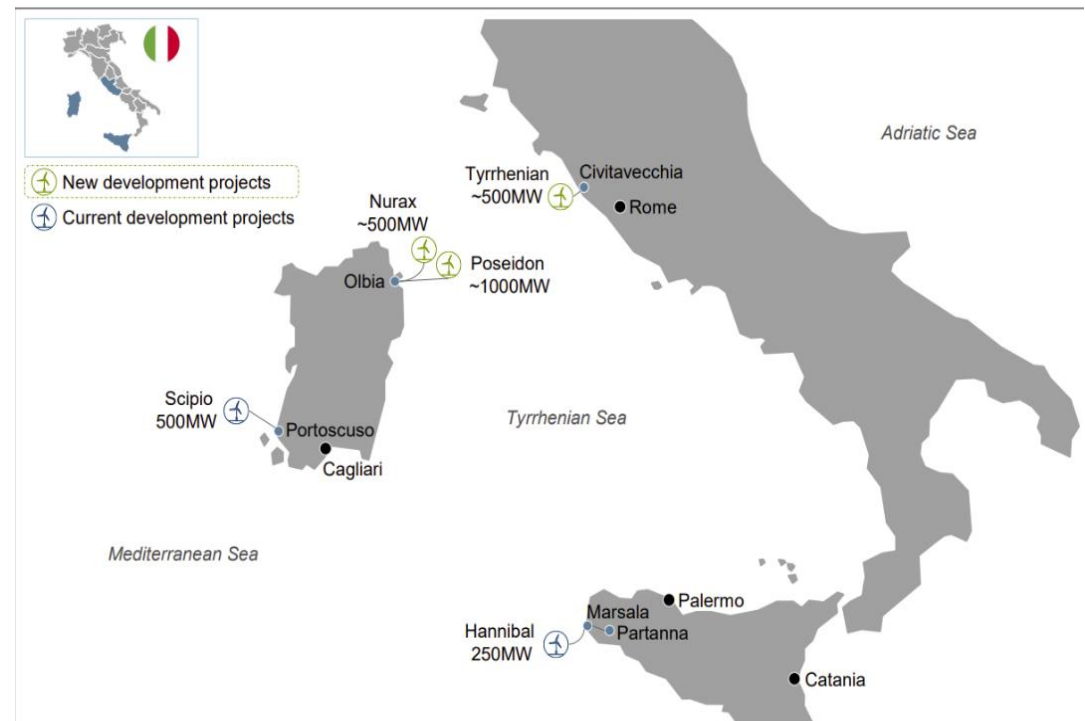
“Infrastructures for construction and operations of Floating Offshore Wind”

Vincenzo Di Pisa

Engineering Director, Copenhagen Offshore Partners



- Copenhagen Offshore Partners (**COP**) is a world leader in development and construction of offshore wind projects for the leading green infrastructure fund managers **CIP**
- COP is developing projects in Europe, Asia, North America, and Australia.
- The Italian projects, five FOWS projects in Sicily, Sardinia and Latium for around 3 GW are developed in cooperation with ILS Studio Severini and owned by CIP and GreenIT, Joint Venture between Cassa Depositi e Prestiti and ENI.

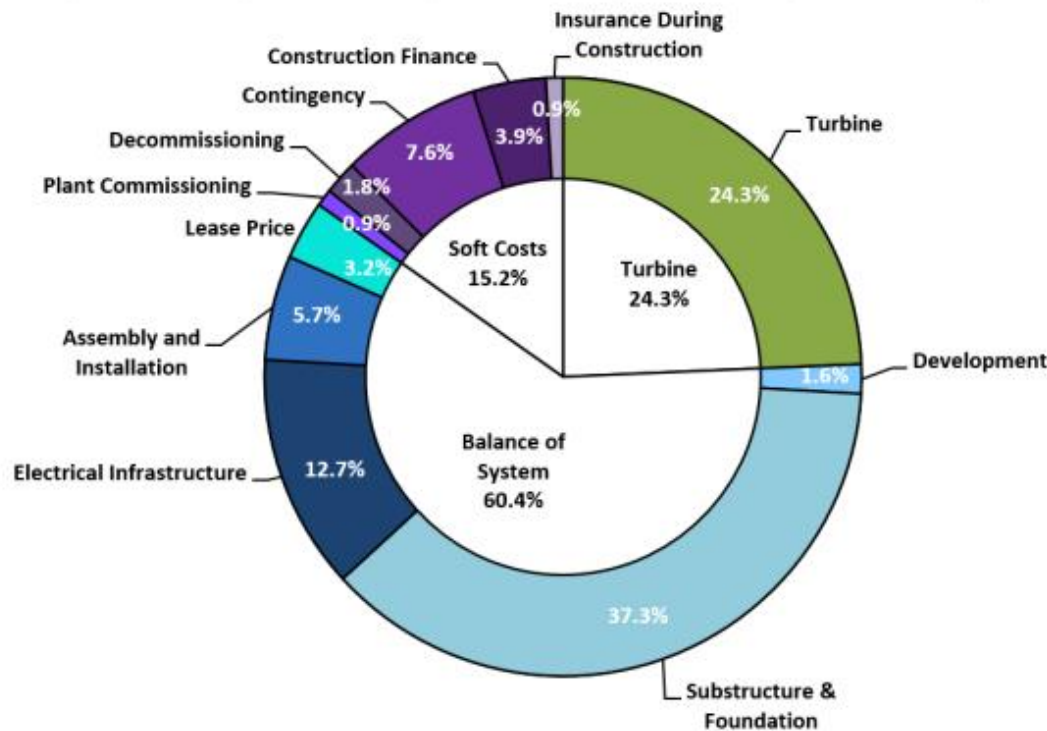




Once financing set up is finalized (FID) the expenditures to construct, install and then operate are then classified as Capital Expenditures (CAPEX) and Operational Expenditures (OPEX).

Summary	Approx. LCOE weighting
DEVEX	2%
CAPEX	69%
OPEX	28%
DECEX	1%
Weighted	100%

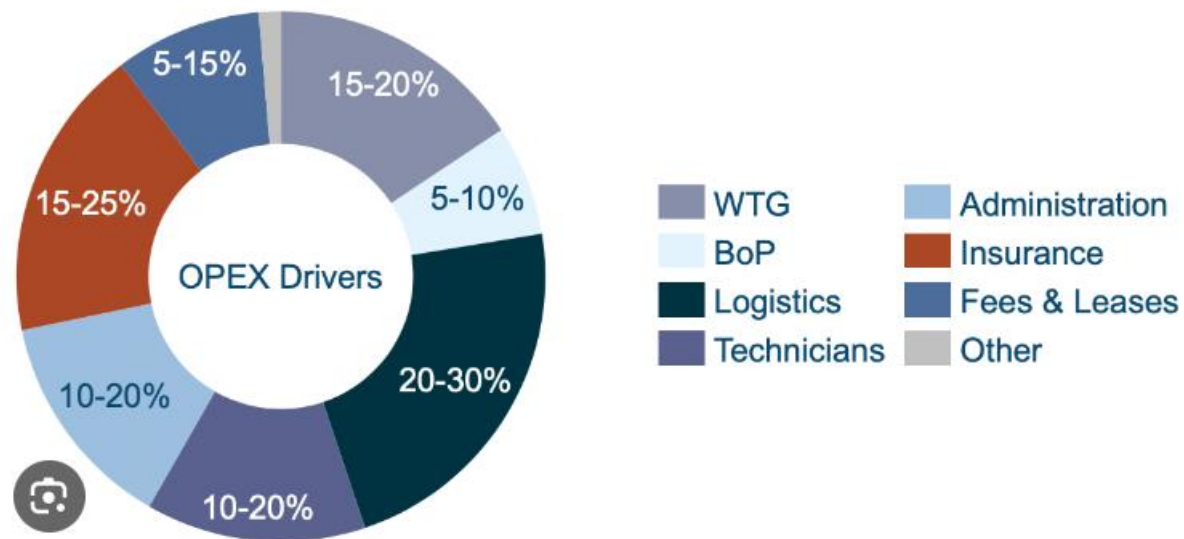
A common distribution of the CAPEX costs for Floating Offshore Wind is shown below –



Source NREL – Cost of Wind Energy 2020



A common distribution of the OPEX costs is shown below-



Source Peak Wind –Cost of Wind Energy 2022



FOW CAPEX is heavily local oriented as:

- Foundations could be fabricated and assembled locally. That would be the highest challenge for local shipbuilders, fabrication yards and port infrastructures.

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Source Ocean Wind – WFA 2019



Source BW- IDEOL -2020



FOW CAPEX is heavily local oriented as:

- More quay area , with close to standard draft and bearing capacity requirements





FOW CAPEX is heavily local oriented as:

- Marine spread for installation is made by standard vessels that could be manufactured/sourced locally, less recur to specific sought after vessels as jack ups.

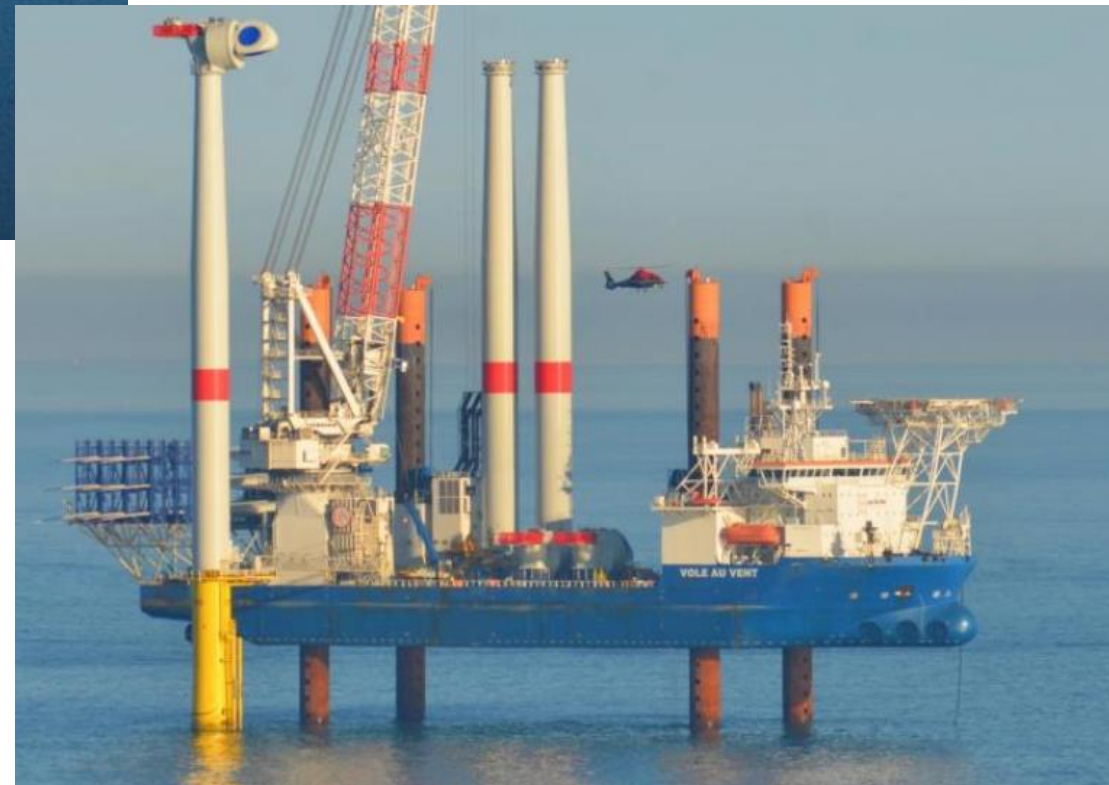
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Source Ocean Wind – WFA 2019



Source Jan de Nul



FOW CAPEX is heavily local oriented as:

- For the above points an «HUB» concept should be developed at national or even south european level

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FOW OPEX is also heavily local oriented as:

- The 25 years operating life is a strong commitment to local infrastructure and skills and still represent 30% of the overall expenditures
- An average of 50 technicians per GW, with skills in electromechanical and civil, to support the maintenance of the Wind Turbine Generators, Foundations, Moorings, FOSS.
- These technicians will need offices, warehouses, marine coordination, vessels for dispatchment, Administration, HSE...
- Multinational Wind Turbine Manufacturers after the first years of run in tend to delocalize their workforce to local «90% within 10 miles»



- As above this will be obtained and optimised with an «HUB» approach, this time more localised and related to a cluster of few FOW
- This clustering is also applicable to the skill requirements, agreement to be struck with technical secondary schools institutions, local companies, and Universities

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Source Orsted – Grimsby 2021

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