# OFFSHORE WIND

## thriving in harmony with other marine users and economic sectors

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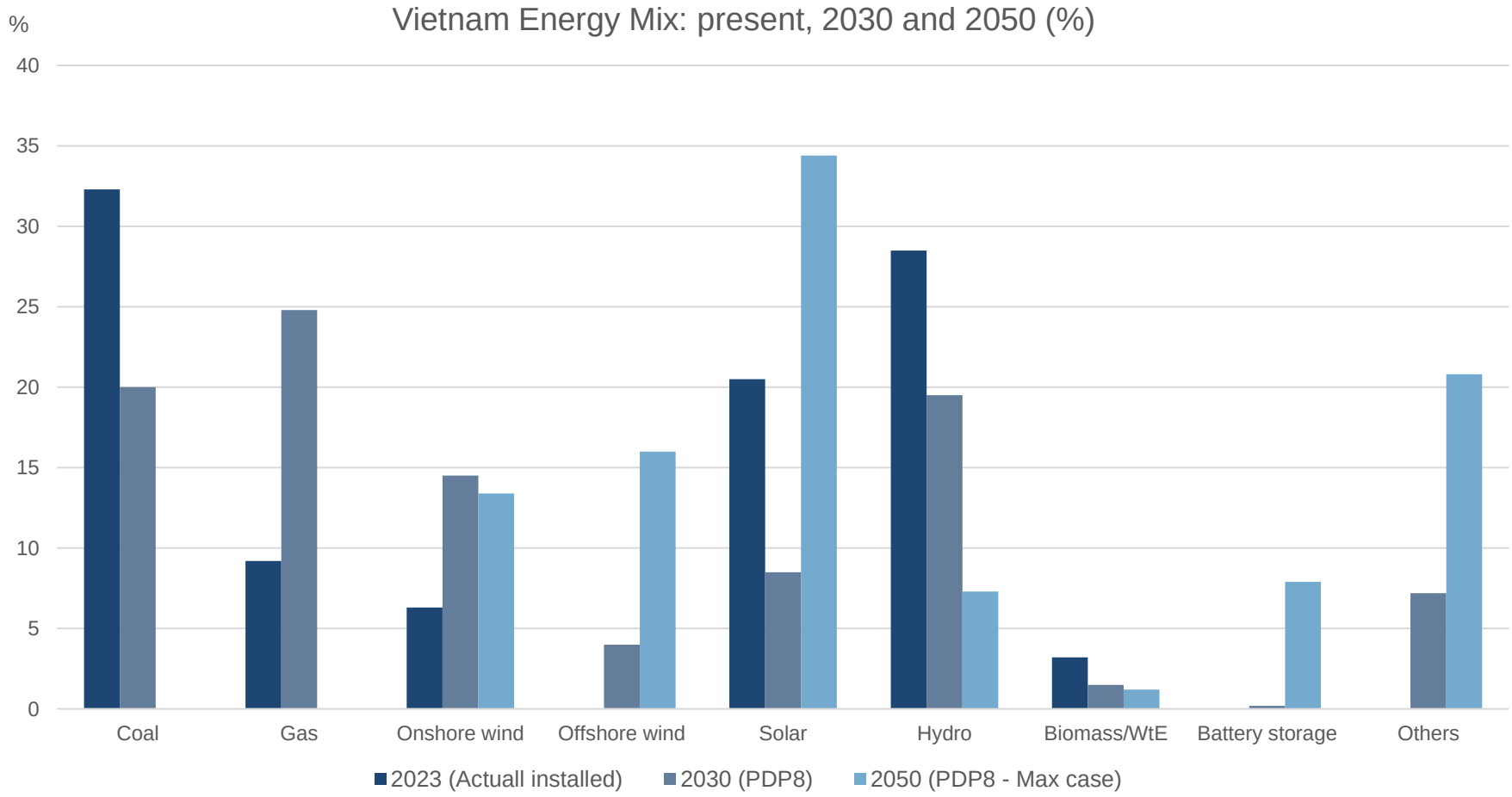
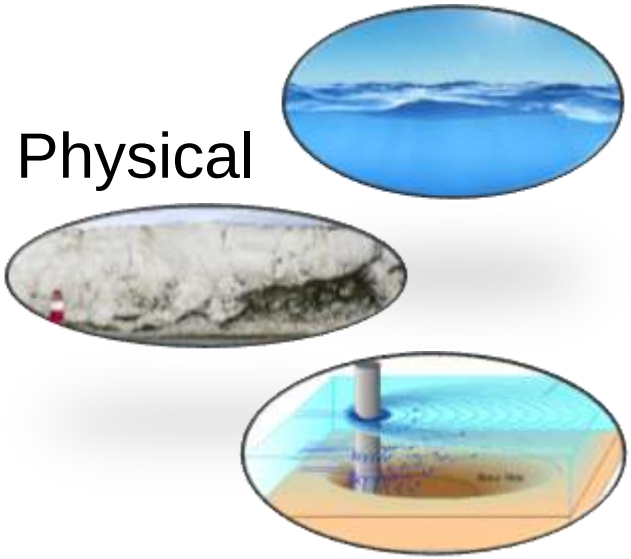
# Introduction

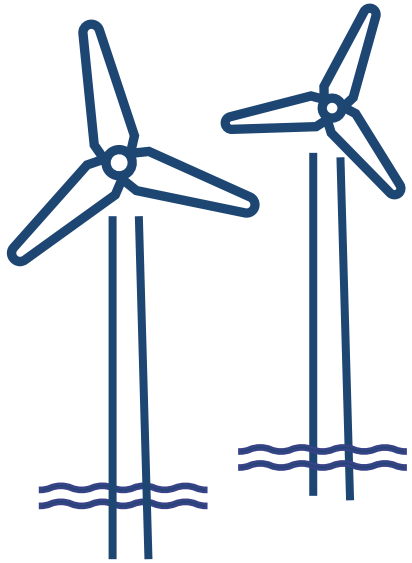



- Vietnam is expected to have 6 GW of offshore wind power in operation by 2030, and up to 91.5 GW by 2050.
- Offshore wind provides a significant opportunity to generate large-scale renewable energy, plays a vital role in the transition to clean energy, contributes to socioeconomic development and helps to achieve the Net-zero goal of Vietnam by 2050.

# OFFSHORE WIND AND OTHER MARINE USERS

Physical





Social

Biological

# Marine Economic Industries to Consider (Social)















# Offshore Wind and Fisheries

Potential conflicts between offshore wind and commercial fishing:

- **displacing** fishermen from traditional fishing areas
- **changing** the distribution, abundance, and species composition of fish due to noise, vibrations and EMF effects
- **reducing** safety at sea from increased vessel traffic and navigation challenges
- bottom trawling **may cause damage** to subsea cables

Strategies to minimize disruption to fishing activities:

- carefully **selecting** offshore wind farm locations and layout to avoid important fishing grounds
- **engaging** in open and transparent communication with fishermen to understand their expectations and concerns
- **implementing** compensation mechanisms for any temporary or permanent loss of fishing grounds
- **utilizing** infrastructure and installation methodologies that reduce impacts on fisheries stocks and any sensitive breeding or nursery grounds

*Tan Thuan Wind Farm, Ca Mau (source: Vietnamnews)*

# Offshore wind and conservation

- Offshore wind farms potentially affect marine conservation efforts mostly through noise, displacement or habitat alteration. These impacts are mostly short-term as they happen in construction phase only.
- In the operation phase, there is potential for marine mammal collision with mooring lines and subsea cables and bird collision with blades.
- There are potential positive ecological effects, such as the formation of artificial reefs and a subsequent increase in biodiversity.

Environmental surveys will be conducted to inform the status of the ecological system and identify protected species and habitats.

The ESIA process will further analyse the impacts and recommend mitigation measures to ensure the impacts are kept at an acceptable level.

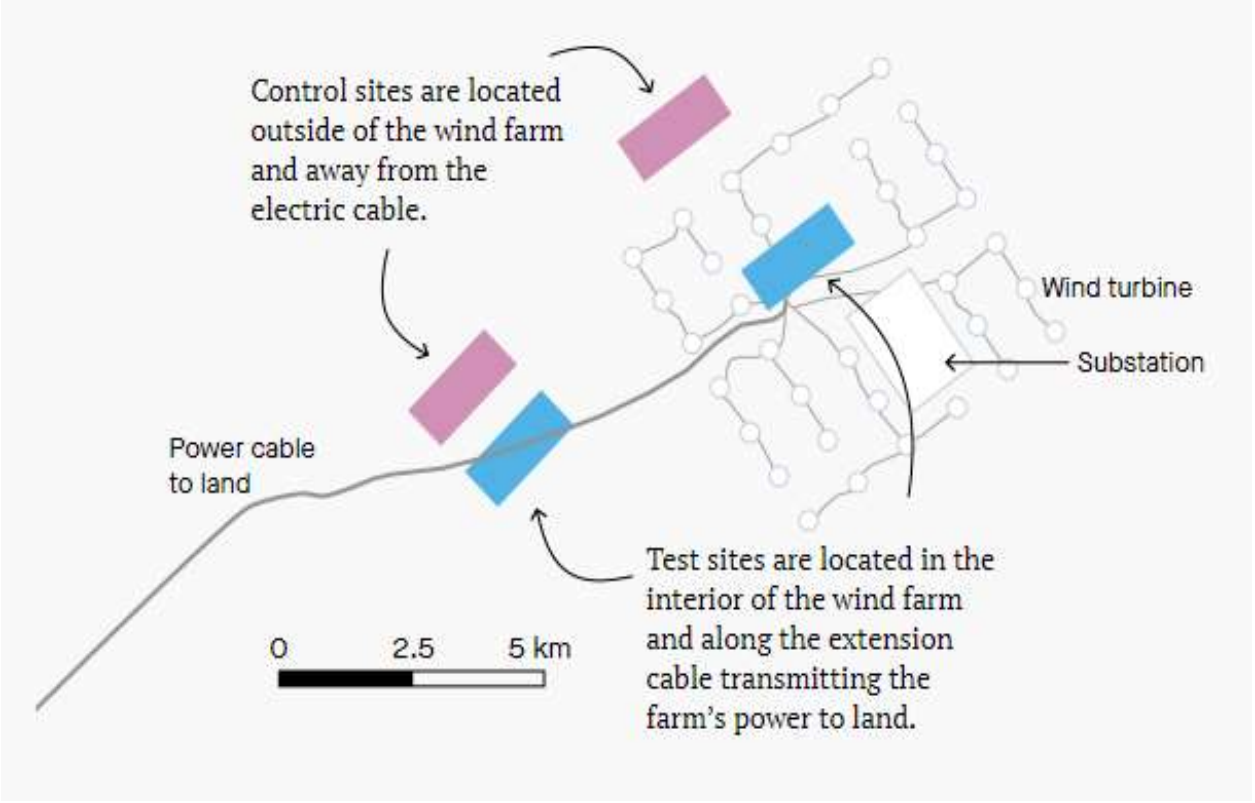
A pilling vessel (*source: DEME*)

Examples of environmental surveys (source: CIP)

# **Case study:** Westermost Rough (UK) lobster fishery

The Westermost Rough wind farm, constructed in 2014/2015 with 35 turbines, 6 MW each, is located within the Holderness fishery, regarded as the Europe's lobster capital

- Concerns were raised that the presence of an offshore wind farm would detrimentally impact the catches of high-value lobsters in and around the project area.
- Control sites were set up inside and outside the wind farm area and along the cable route.
- Researches have showed that the wind farm actually led to the growth and increased population and therefore lobster catches in the immediate and surrounding area



# Offshore wind and Conservation: Case Study

**Case Study 1: DEVELOPMENT – Hornsea three offshore wind farm (North Sea) bird collision risk**

Baseline studies and surveys in the Environmental Impact Assessment, showed that the planned hub height for the WTG, and maximum blade diameter would create an excessive risk to migrating gannets (sea bird)

- The project consider the envelope of WTG sizes and hub height and the ability to change this based against the impact to the business case
- The hub height was increased approximately 6 meters, reducing the modelled number of potential bird collisions so risk was minimized

**Case Study 2: OPERATIONS & MAINTENANCE – Choshi offshore wind farm (JP) sediment smothering**

Concern of sediment disturbance and settling related to foundation and cable installation spreading across adjacent areas and smothering benthic communities of marine plants and animals living on the seabed.

- Hydrodynamic modelling was included in the Environmental Impact Assessment based on structures, installation methodology, suspended sediment concentration and settlement around and within the wind farm in relation to benthic communities present
- Sensitivity of benthic communities to potential smothering affects was assessed to determine if different installation methodologies were required
- Cable installation methodology was adapted to trenching/ploughing rather than water jetting

# Offshore Wind and Tourism

**Concerns:**

- The visibility of offshore wind farms from the coast could reduce the attractiveness of the locality for tourists and residents
- For homeowners, offshore wind farms could decrease the attractiveness of their place and therefore bring down its value
- Offshore wind farms can alter potential sailing routes, or restrict the available space for other recreational activities, such as windsurfing or diving

**Benefits:**

- Offshore wind farms can be designed and promoted as unique tourist attractions. They can attract tourists, create job opportunities, and stimulate local businesses such as hotels, restaurants, and tour operators
- By promoting sustainable tourism practices, the tourism industry can thrive alongside offshore wind development.

Rampion Wind Farm Tour, Brighton (UK)
Rossboats.co.uk

*Hoa Binh 1 Wind Farm, Bac Lieu, Vietnam*
*(sources: ivivu.vn, zing.vn)*

North Sea Offshore Wind Tour, Ostend (Belgium)
captainblue.be

# Offshore Wind and Maritime Transport

| Possible conflicts | Possible solutions |
|---|---|
| • **Spatial competition**: OWFs are built or expanded into areas close to port or where shipping activity is intense.<br>• **Risk of accidents:** Construction and operation of OWF increase traffic density and reduced sea space, as well as certain layouts of offshore wind farms. O&M vessels might also pose a risk while crossing major shipping routes.<br>• **Diversion:** Obstructions narrow the area in which vessels can operate and lead to greater traffic density elsewhere. | ▪ Plan the layout of the wind farm to provide safe and clear routes for vessels, considering navigational safety, minimum distances from turbines, and potential hazards.<br>▪ Co-design shipping routes in a collaborative process carry out a risk assessment on proposed options.<br>▪ Use technical means of increasing safety within wind farms.<br>▪ Early application of a navigational risk assessment during the MSP process. |

*Veja Mate Wind Farm, Germany (Source: CIP)*

# Coexistence between marine industries summarized

| Examples of specific marine industries that <u>can</u> coexist with an offshore wind farm |
|---|
| ➢ The majority of commercial fisheries (benthic trawls are an exception as they can catch on cables or foundation rock protection) |
| ➢ All recreational fishing activities |
| ➢ The majority of commercial shipping industries (no vessels are prohibited from the area, however safety zones are advisory, and larger shipping container vessels/ferries would likely choose to re-route) |
| ➢ All recreational sailing/boating activities |
| ➢ Offshore oil and gas pipelines |
| ➢ Offshore telecoms and electricity/interconnector cables |
| ➢ etc |

| Examples of specific marine industries that <u>need careful consideration</u> regarding coexistence |
|---|
| ➢ Offshore oil and gas platforms and well-heads (these would be avoided with an adequate safety zone including access to and from them) |
| ➢ Key marine protected areas (dependent on what was being protected and what this would be sensitive too) |
| ➢ Active military areas |
| ➢ Low flight paths for incoming military or commercial airports/bases |

## Key Points to Note

It is important to note, that when it comes to offshore wind farms the generation asset (WTGs) and the transmission asset (substations and cables) can have a degree of flexibility to be designed to accommodate other forms of marine industries and marine inhabitants.

A Marine Spatial Plan is important as it provides the basis for guidance on what aspects would likely be an area of concern or area needing more information. However, there are some key points:

1. There are no simple or universal solutions for addressing spatial conflicts in MSP. Sectors, their activities, and settings are diverse, and so are the resulting conflicts and solutions. Some solutions are not universal in that they work well in one particular case, but not necessarily in another
2. There are two basic options for addressing spatial conflicts in MSP:

- Conflict prevention is action that seeks to avert spatial competition, usually by ensuring that incompatible activities do not occur in the same space or negatively affect each other.
- Conflict mitigation is action that seeks to soften the impacts of spatial competition, e.g. by means of compensatory measures negotiated between the sectors affected

1. The Environmental Social Impact Assessment would assess and consult in more detail, including surveys, to validate and assess potential impacts and identify any hard constraints or necessary mitigations.
2. Any aspect requiring modification from an optimal offshore wind farm design, layout, construction and operation would likely lead to some form of negative impact to the business case and therefore impact the tariff needed to support this.

# CONTACT INFORMATION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