Pre-feasibility study

Why Pre-feasibility study?

Pre-feasibility study is based on scenarios
PFS Methodology

Consultations with stakeholders

- Identification of state of the art of OWFs projects and infrastructure (based on database developed – planned OWFs, grid connection, grid capacity (?) )
- Identification of scenarios (6 scenarios chosen)
- Identification of hard spatial constraints (military areas, fossils, environmentally protected areas etc.)
- Identification of potential technological options
- Identification of potential spatial options based on optimisation criteria (for each scenario and technology option) i.e length of corridors, bathymetry, avoidance of conflicts etc.
- Environmental analysis
- Cost-Benefit Analysis of the chosen alternatives
Outline

- Scenario structure
- High & Low OWP development
- Scenario layouts 1a and 3a
  - Draft layouts vs GIS layouts
- Comparison 1a & 3a
- Scenario layout 2a
  - Draft layouts vs GIS layout
What variables are changed between the scenarios?
### Scenarios

#### Integration level
- **Zero Integration**
- **Partial Integration**
- **Max. Integration**

#### OWP level
- **High OWP**
- **Low OWP**

#### Scenario
- **Scenario 1a**
- **Scenario 1b**
- **Scenario 2a**
- **Scenario 2b**
- **Scenario 3a**
- **Scenario 3b**

- **Vision + Roadmap**
Scenarios

Integration level

Zero Integration

Max. Integration

Scenario concept – Integration level
### Scenarios

**Integration level**
- **Zero Integration**
  - High OWP → Scenario 1a → Vision + Roadmap
  - Low OWP → Scenario 1b → Vision + Roadmap

- **Partial Integration**
  - High OWP → Scenario 2a → Vision + Roadmap
  - Low OWP → Scenario 2b → Vision + Roadmap

- **Max. Integration**
  - High OWP → Scenario 3a → Vision + Roadmap
  - Low OWP → Scenario 3b → Vision + Roadmap

**OWP level**
High/Low OWP visions

High OWP – 2045

Low OWP – 2045

CS1

CS2
### Spatial analysis

#### Sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>Uses</th>
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<tbody>
<tr>
<td>Energy</td>
<td>Offshore wind farm areas</td>
</tr>
<tr>
<td></td>
<td>Existing constructions (platforms, turbines, platform not only for energy)</td>
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<tr>
<td>Linear infrastructure</td>
<td>Linear infrastructure (cables, pipelines)</td>
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<tr>
<td></td>
<td>Inactive Cable</td>
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<tr>
<td>Navigation</td>
<td>Navigational routes/ navigation lines</td>
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<td>TSS</td>
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<td>Dumping sites</td>
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<td>Anchorage areas</td>
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<td>Munition Dumps/chemical weapon areas</td>
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<tr>
<td>Navy</td>
<td>Navy exercise areas - closed zones</td>
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<td>Navy exercise areas</td>
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<tr>
<td>Geology/mining</td>
<td>Licence for aggregate extraction</td>
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<td></td>
<td>Licence for hydrocarbons exploration</td>
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<td></td>
<td>Licence for hydrocarbons extraction</td>
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<tr>
<td>Fishery</td>
<td>Fish Value for Trawls - VMS</td>
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<td>Spawning and nursery areas</td>
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<tr>
<td>Nature protection</td>
<td>Special Areas of Conservation (SAC) Natura 2000 (Habitats)</td>
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<tr>
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<td>Special Protection Areas (SPA)</td>
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<tr>
<td></td>
<td>MPA’s</td>
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<td>National parks</td>
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<tr>
<td>Underwater Culture</td>
<td>Wrecks without historical value</td>
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<tr>
<td>Heritage</td>
<td>Wrecks with historical value, underwater cemeteries</td>
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<tr>
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<td>Cultural heritage areas (underwater landscape parks etc)</td>
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<tr>
<td>Oceanographic</td>
<td>Deep water (over 70m)</td>
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<tr>
<td></td>
<td>Rocks Seabed</td>
</tr>
</tbody>
</table>

#### Spatial Constraints

- **Hard constraints** (exclusions)
- **Soft constraints**
- **Hard constraints** (exclusions)
- **Soft constraints**

- Line infrastructure
- Offshore High Voltage Stations (OHVS) → converter stations
Spatial analysis

No constraints

High constraints
Environmental analysis

EXAMPLE

Legend
- Cable corridors
- Nature Protection Areas
- Administrative borders
- High OWP

0  60  120 km