# ERM ESG Advisory & Transaction Services

# High-level Review of EIA Documentation: Project Titan

Presented to: Glennmont Partners
Presented by: ERM

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# TwinHub
## *Consents Analysis*

- Marine License (ML) L/2022/00016/1 issued by the MMO on 12 January 2022
  - The ML expires 11 January 2032 but as per condition 5.2.40, all construction activity needs to be finished by 11 January 2027. This should be checked against project programme. Any delay to these conditions may need an updated environmental assessment.
  - The ML allows for up to 7 anchors per floating platform with a '*3m diameter grouted pile drilled to a depth of approximately 6m below the seabed*'. Depending on seabed type and geotechnical investigations, this may be restrictive and other anchor types may need to be added.
  - Total installation time for the anchors is predicted to be up to 45 days. This relatively short installation time will reduce the risk of significant delays to construction from weather/vessel availability/.
  - There are a number of project-specific conditions in the ML which will need to be adhered to pre, during and post construction. The following conditions are noted as medium/high risk to the project:

# TwinHub
## *Consents Analysis*

| Marine Licence condition number | Project Stage | Condition Wording | Risk | Notes |
|---|---|---|---|---|
| 5.2.1 | Pre-construction | *Confirmation of the exact locations of the anchors must be submitted to the MMO 10 weeks prior to the commencement of licenced activities, alongside details obtained from the ground investigations and survey work. Works shall not commence until written approval is given by the MMO.* | Medium | Detailed ground investigations (i.e. Geotech surveys) may identify ground conditions unsuitable for the drilled pin piles set out in the ML. Any change in anchor type (i.e. to allow percussive piled anchors) would require a ML variation with additional assessment of environmental impacts. |
| 5.2.3 | Pre-construction | *An archaeological Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) must be submitted to the MMO at least 10 weeks before any activity commences. The licensed activities must not commence until written approval is provided by the MMO. All activities must adhere to the terms of the WSI and PAD.* | Medium | An unexpected archaeological discovery could lead to the necessity to re-site the project which may require further assessment and ground investigations. |
| 5.2.8/5.2.9 | Pre-construction | *An Annex I Reef report outlining the proposal for potential targeted surveys of potential Annex I reef in the centre of the development site must be submitted to the MMO for approval in writing at least 6 months prior to the proposed commencement of activities. This report should include the consideration of a targeted drop-down video survey.The report should also outline monitoring proposals, should the need for monitoring be confirmed (if Annex I reef is identified within the Proposed Development site and impacts on this feature cannot be avoided).*<br><br>*Should any report approved by the MMO under condition 5.2.8 of this licence require any pre-construction surveys to be undertaken, the outcome of the surveys, in line with the requirements issued within the approved report, must be submitted to the MMO for approval at least 10 weeks prior to the proposed commencement of activities. The licensed activities must not commence until written approval is provided by the MMO.* | Medium | There is a risk of discovering extensive Annex 1 reef which is biogenic and therefore ephemeral in nature. The need to undertake drop down video surveys and the potential for post construction monitoring could incur additional costs to the project.<br><br>As the MMO needs to approve the pre-construction surveys they will likely consult with Natural England which could propose objections to the disturbance of Annex 1 reef, or propose an extensive monitoring programme. |

# TwinHub
## *Consents Analysis*

| Marine Licence condition number | Project Stage | Condition Wording | Risk | Notes |
|---|---|---|---|---|
| 5.2.10 | Pre-construction | *A fish monitoring plan outlining the potential monitoring of environmental impacts to fish during the construction and operation of the techniques and technology for the Twin Hub floating offshore wind farm must be submitted to the MMO in writing for review and approval at least 6 months prior to the proposed commencement of activities.*<br><br>*Monitoring to be considered and assessed within this fish monitoring plan should include, but not be limited to:*<br><br>*-The effects of electromagnetic fields (EMF) on electro-sensitive fish receptors to vertical and buried cables. The report should at least provide energy transmission data such as the actual levels of EMF being emitted by suspended cables once the array is operational.*<br><br>*-The use of remote camera systems to collect data on mobile epi-benthic species.*<br><br>*Outputs of any monitoring included within any written MMO approval of the fish monitoring plan must be submitted to the MMO within the timescales stipulated in the approval.* | Medium | While the calculation of the EMF from cables is relatively straightforward, it will be challenging to design a monitoring programme to demonstrate the effects of EMF on fish in non-laboratory conditions.<br><br>Approval of a suitable monitoring study may take pro-active engagement with relevant stakeholders (i.e. Natural England) and could be relatively costly. |
| 5.2.11 | Pre-construction | *The authorised project shall not commence until the following has been submitted to and approved by the MMO. All detail required to be approved under this condition must be submitted to the MMO for approval at least 6 months prior to the commencement of the authorised project except where agreed by the MMO in writing.*<br><br>*-A plan to be agreed in writing with the MMO following appropriate consultation with Trinity House, the MCA and UKHO, setting out proposed details of the authorised project, including the:*<br>*a) number, dimensions, specification, foundation type(s) and depth for each WTGs, offshore platforms, substations and meteorological masts;*<br>*b) the grid coordinates of the centre point of the proposed location for each WTG, platform, substation and meteorological mast;*<br>*c) proposed layout of all cables; and*<br>*d) location and specification of all other aspects of the authorised project.* | Medium | Given the relatively novel design of TwinHub there may be additional navigation concerns from stakeholders when compared to more conventional fixed-bottom turbines.<br><br>The project does not have a S36A consent which extinguishes navigational rights at sea, as such stakeholders may have concerns around collision risks and insurer liability. |

# TwinHub
## *Consents Analysis*

| Marine Licence condition number | Project Stage | Condition Wording | Risk | Notes |
|---|---|---|---|---|
| 5.2.13 | Pre-construction | *A Fisheries Liaison and Coexistence Plan (FLCP) covering the period of construction and operation must be submitted to the MMO for approval.*<br>*The FLCP must include, but not be limited to:*<br><br>*(a) the appointment and outline of responsibilities of a fisheries liaison officer;*<br><br>*(b) a description of how the commencement and nature of licensed activities will be discussed to address the interaction of the licensed activities with the fishing industry;*<br><br>*(c) other details of agreed fisheries related measures discussed with the industry*<br><br>*The plan must be submitted to the MMO at least 6 months prior to the proposed commencement of activities and the licensed activities must not commence until written approval is provided by the MMO.* | Medium | Any fisheries negotiations can be uncertain and can lead to the possibility of the Developer having to provide financial compensation to fishers. This could lead to additional project costs and also the negotiations can take time and could lead to project delays. |
| 5.2.37 | Navigation Conditions (Project wide) | *A swath bathymetric survey to IHO Order 1a of the area within the Offshore Order Limits extending to an appropriate buffer around the site, must be undertaken, unless otherwise agreed in writing by the MMO.*<br>*This should fulfil the requirements of MGN654 and its supporting 'Hydrographic Guidelines for Offshore Renewable Energy Developers', which includes the requirement for the full density data and reports to be delivered to the MCA and the UKHO for the update of nautical charts and publications. This must be submitted as soon as possible, and no later than 3 months prior to construction. The project limit shapefiles must be submitted to MCA.*<br>*The Report of Survey and any submissions to MCA and UKHO under this condition must also be sent to the MMO within 48 hours of submission.* | Medium | The requirement to undertake a swath bathymetric survey to assess shipping and navigation risks for the update of charts and publications will add more expense the project and will need to planned well in advance (unless agreement can be made with the MMO that it is not required) to avoid potential delays to the project programme. |

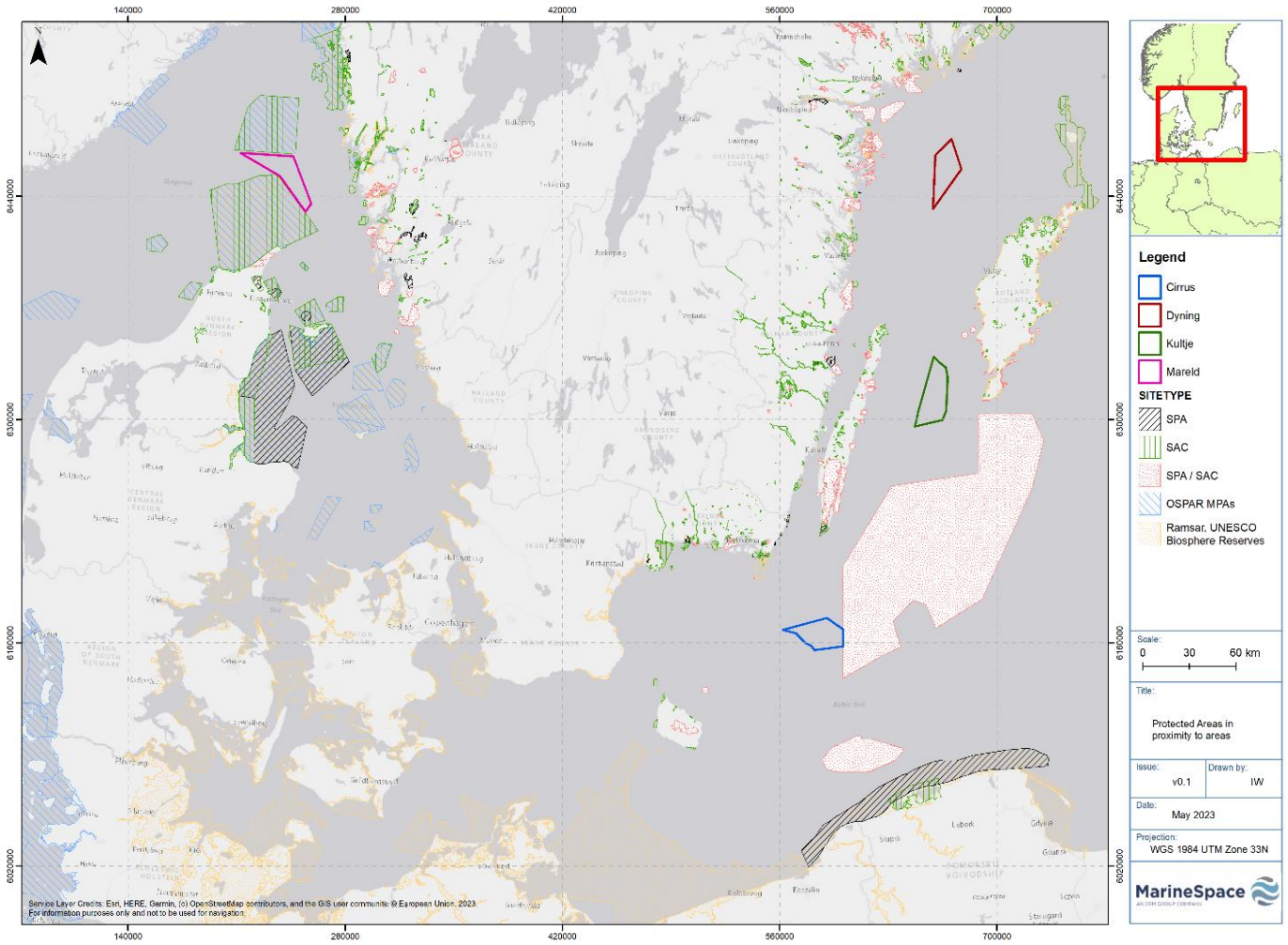
# TwinHub

## *Consents Analysis*

| Section 36 condition umber | Project Stage | Condition Wording | Risk | Notes |
|---|---|---|---|---|
| 5.17.1 | Pre-construction | *Device-specific risk assessments that will be required will lead to the identification of mitigation measures to minimise the risk to navigation to a level that is as low as reasonably practicable* | Medium | Device (wind turbine) specific risk assessments may require further mitigation measures to be secured in consultation with the Maritime and Coastguard Agency (MCA) |

# Freja Offshore Wind (Sweden)

*Cirrus, Dyning, Kultje & Mareld*




## Cirrus:

- 31 SPAs within 100km of development site
- Hoburgs bank och Midsjöbankarna SPA / SAC located directly east of development site which includes protection for ducks, guillemot and common porpoise
- No further SACs located within 20km

## Dyning:

- 26 SPAs within 100km of the development site
- Sankt Anna och Gryts skärgårdar SPA located closest (~32km)
- No SACs located within 20km

## Kultje:

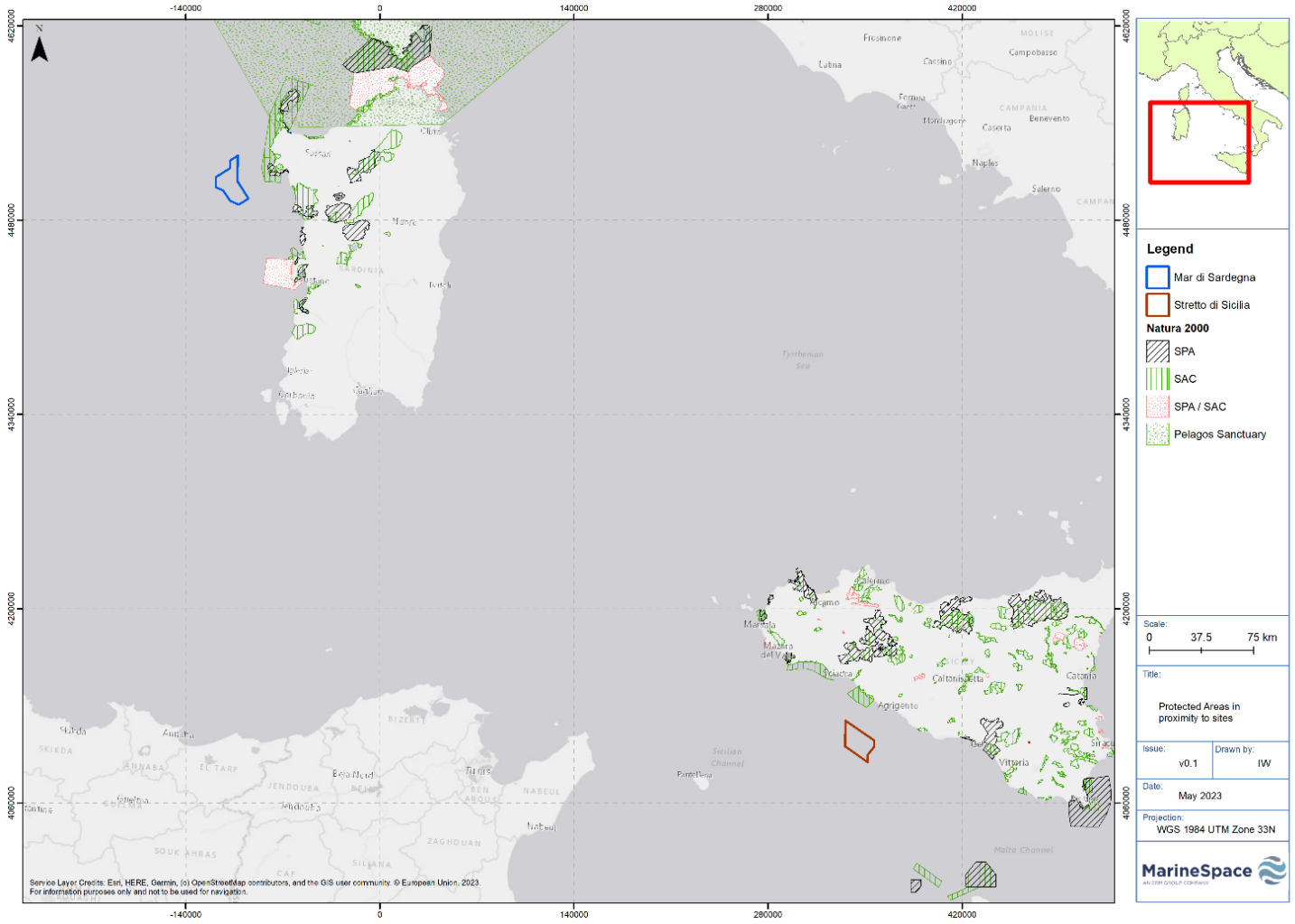
- 48 SPAs within 100km of the development site
- Hoburgs bank och Midsjöbankarna  SPA / SAC located closest (~21km)
- No SACs located within 20km

## Mareld:

- 31 SPAs within 100km of the development site
- Skagens Gren og Skagerak SAC and Bratten SAC located directly next to development site
- Råbjerg Mile og Hulsig Hede closest SPA (~33km)

# AvanHexicon (Italy)

## *Mar di Sardegna & Stretto di Sicilia*




### Mar di Sardegna:

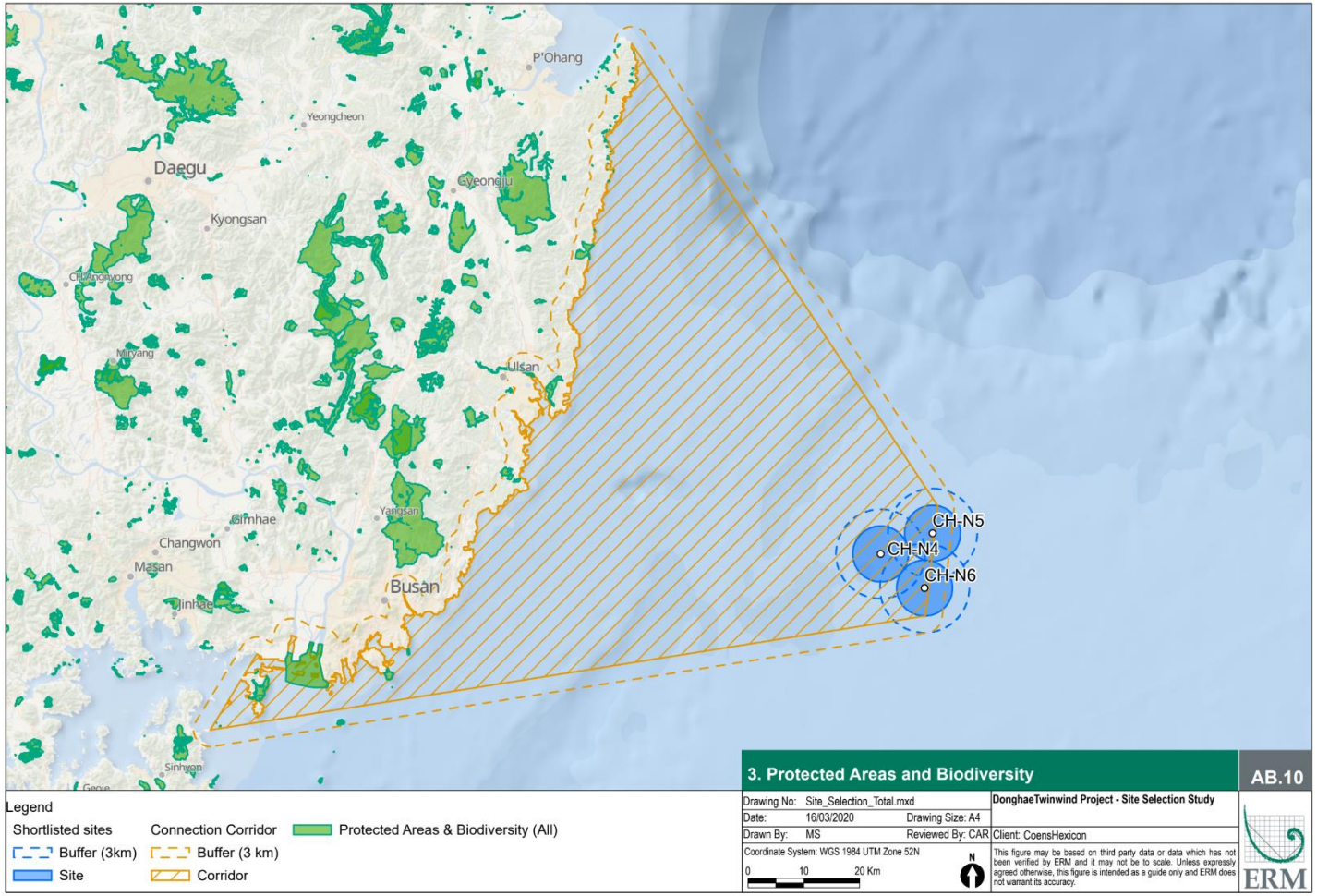
- 20 SPAs within 100km of the development site
- Stagno di Pilo, Casaraccio e Saline di Stintino SPA located closest (~1km)
- 7 SACs within 20km of the development site
- Stagno di Pilo e di Casaraccio SAC located closest (~1km)

### Stretto di Sicilia:

- 9 SPAs within 100km of the development site
- Torre Manfria, Biviere e Piana di Gela SPA located closest (~22km)
- 7 SACs within 20km of the development site
- Bosco di Santo Pietro SAC located closest (~7km)

# Munmu Baram (South Korea)

*CH-N4, CH-N5 and CH-N6 60/80km off the Ulsan Coast*




## CH-N4, CH-N5 and CH-N6:

- There are only 4 marine national parks in South Korea and none within 100km of the sites.
- There are no nature conservation sites overlapping the array areas.
- There is an Ecosystem and Landscape Conservation Area in the cable connection corridor in the Ulsan estuary.
- There are no Marine Protected Areas in the array or cable corridor areas.
- There is a Wildlife Protection Area in the cable connection corridor in the Ulsan estuary.
- A Wetland Protected Area and a Key Biodiversity Area are both located to the south of Busan overlapping the cable corridor.
- Overall the array sites do not overlap with any nature designated sites and the cable corridor only overlaps protected sites along the coast. Currently, the projects have a low consenting risk from interaction with nature protected sites .

# Summary

## TwinHub (UK):

- Generally standard S36 and ML consent conditions associated with an offshore wind farm.
- Medium consent risks associated with:
  - Annex 1 reef presence in agreement with MMO
  - Updated Written Scheme of Archaeology
  - Ministry of Defence air defence radar mitigation agreement
  - Fisheries Liaison and Coexistence Plan and potential compensatory measures
  - Lack of S36A consent and potential navigational concerns with novel turbine design

## Freja Offshore Wind (Sweden):

### Cirrus

- Medium consenting risk from interaction with Natura 2000 sites
- Collision risk/displacement impacts and underwater noise impacts associated with Hoburgs bank och Midsjöbankarna SPA / SAC and other local SPAs

### Dyning

- Medium/low consenting risk from interaction with Natura 2000 sites
- Collision risk/displacement impacts to coastal based SPAs, dependant on species protected and associated vulnerability to collision/displacement impacts

### Kultje

- Medium consenting risk from interaction with Natura 2000 sites
- Collision risk/displacement impacts to coastal based SPAs, dependant on species protected and associated vulnerability to collision/displacement impacts

### Mareld

- Medium/high consenting risk from interaction with Natura 2000 sites due to large number of site located in close proximity
- Collision and underwater noise impacts associated with Skagens Gren og Skagerak SAC and Bratten SAC
- Collision risk/displacement impacts associated with local SPAs

## AvanHexicon (Italy):

### Mar di Sardegna

- Medium/high consenting risk from interaction with Natura 2000 sites due to large number of coastal sites likely to interact with cable corridor.
- Collision risk/displacement impacts and underwater noise impacts to local SPAs and SACs

### Stretto di Sicilia

- Medium consenting risk from interaction with Natura 2000 sites
- Collision risk/displacement impacts and underwater noise impacts to local SPAs and SACs

## Munmu Baram (South Korea)

### CH-N4, CH-N5 and CH-N6

- Overall the array sites do not overlap with any nature designated sites and the cable corridor only overlaps protected sites along the coast. Currently, the projects have a low consenting risk from interaction with nature protected sites

# Thank you

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