THE CROWN ESTATE

FOR PUBLIC USE

Cable Route Identification & Leasing Guidelines

Transmission Assets for Offshore Renewable Installations

Contents

Abbreviations

AC	Alternating Current
AfL	Agreement for Lease
AoS	Area of Search
ASSI	Areas of Special Scientific Interest
BCA	Bilateral Connection Agreement
BEGA	Bilateral Embedded Generation Agreement
CRIA	Cable Route Identification and Approval
CRP	Cable Route Protocol
DA	Designated Area
DC	Direct Current
ESO	Electricity System Operator
GIS	Geographic Information System
HRA	Habitats Regulations Assessment
m	Metre
MCZ	Marine Conservation Zone
MDE	Marine Data Exchange
NETS	National Electricity Transmission System
NGET	National Grid Electricity Transmission
OFTO	Offshore Transmission Owner
OREI	Offshore Renewable Energy Installation
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TA AfL	Transmission Asset Agreement for Lease
WF AfL	Wind Farm Agreement for Lease

Glossary of terms

The following provides a description of relevant terms as used in this guidance (the precise meaning of which is set out in the Agreement for Lease (AfL) and Lease documents where applicable):

Term	Definition
Act	A written statute or law passed by a legislative body.
Agreement for Lease (AfL)	An agreement with The Crown Estate for the use of the seabed. The Agreement for Lease allows a developer to enter into a Lease to construct assets on the seabed provided certain conditions are met (including the granting of statutory development consents).
Annex I Habitats	Habitats listed in Annex I of the Habitats Directive. This Annex lists habitats of Community Interest for which Special Areas of Protection can be designated.
Area of Search	An area of seabed within which site selection for a preferred cable route is being undertaken.
Areas of Special Scientific Interest (ASSI)	A site designated under the Environment (Northern Ireland) Order 2002.
Authority	An authority whether statutory, public, local, binding, European, international or otherwise, government department or agency, regulator or a court of competent jurisdiction.
Cable Route	An area of the seabed laid out by the developer to allow the passage of a number of Supply Cables from an OREI to the shore used for the transmission of electricity generated by the OREI. By the time the Cable Route is established in the Agreement for Lease it forms part of the Option Site which later becomes a DA Route and ultimately a Designated Area in the Lease.
Cable Route Identification and Approval (CRIA)	A document submitted by a developer to The Crown Estate as part of an application for a Transmission Asset Agreement for Lease.
Cable Route Protocol (CRP)	This comprises a set of requirements developed by The Crown Estate, detailed in Appendix 1, to help developers establish transmission system infrastructure, including export cabling.
Compensatory Measures	Compensatory measures under HRA are required when an adverse effect on integrity cannot be ruled out on a feature of

Term	Definition
	a protected site from impacts associated with a plan or project. These measures are put forward as part of a derogation designed to deliver the same ecological value or compensate for the loss of the same feature, habitat or species to ensure the coherence of the National Site Network.
Designated Area Route (DA Route)	An area extending either side of a centre line shown on a plan in the Lease, situated within the Option Site and within which the Designated Area(s) will be situated. The location and width of the DA Route are to be approved by The Crown Estate (under the Transmission Agreement for Lease) based on the developer's justified requirements and determined by the number of cables and their granted spacing.
Designated Area (DA)	The part of the foreshore (where applicable) and seabed in which a Supply Cable(s) is/are to be located, being a strip running from the boundary of the Substation Site to another Substation and/or to the shore, having a width of 30m.
Development Consent Order	An order granting development consent for a Nationally Significant Infrastructure Project pursuant to and as defined in the Planning Act 2008 (as amended).
Dredging Restriction Zone	Where applicable, an area extending within a stated distance, either side of a Designated Area or Cable Route, within which The Crown Estate will not grant licences or consents to third parties for the dredging or removal of materials.
Electricity System Operator	The Electricity System Operator of Great Britain, currently undertaken by National Grid.
Environmental Impact Assessment (EIA)	An assessment of the biological, physical, social, and other environmental effects of a project or a development, which is to be used to prepare an Environmental Statement in support of a formal application for a Development Consent Order or equivalent.
Environmental Statement	Prepared by a developer as part of an Environmental Impact Assessment in support of certain planning applications.
European Sites	European Sites include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Sites of Community Importance (SCIs), candidate SACs and potential SPAs and (as a matter of government policy) Ramsar Sites. These sites are protected within the National Site Network in the UK under the Habitats Regulations.

Term	Definition
Generator Cables	The cables in or under the Wind Farm Lease area for the passage of electricity generated by each of the turbines to a Substation or other point of connection and/or the transmission of telecommunications in connection with the offshore wind farm installed, pursuant to the Wind Farm Lease.
Geographical Information Systems (GIS)	A computer system for capturing, storing, checking and displaying spatial and geographic data.
Habitats Regulations	Collectively the most recent statutory instruments (as amended from time to time) that transpose or originally derive from the transposition of the requirements of the Habitats Directive and Birds Directive into legislation in England, Wales and Northern Ireland including the Conservation of Habitats and Species Regulations 2017, The Conservation of Off-shore Marine Habitats and Species Regulations 2017 and The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended).
Habitats Regulations Assessment (HRA)	A recognised step-by-step process by which a competent authority, as required by the Habitats Regulations: a) determines whether a project or plan is likely to have a significant effect on a European Site or European Offshore Marine Site (either alone or in-combination with other plans or projects); and b) if so, undertakes an appropriate assessment of the implications of that project or plan for the affected sites having regard to their conservation objectives. In cases where an adverse effect on the integrity of a European site or European Offshore Marine Site cannot be excluded beyond reasonable scientific doubt, the competent authority should not agree to the plan or project unless it considers that the plan or project should proceed, relying on a "derogation" under the Habitats Regulations.
Habitats Regulations Sites	Special Areas of Conservation, Special Protection Areas and Ramsar sites (whether fully designated or not).
Lease	An agreement between a Project Company and The Crown Estate granting the Project Company certain property interests and/or rights over a relevant area of the seabed in order to carry out a project.
Lowest Astronomical Tide	The lowest level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions; this level will not be reached every

Term	Definition
	year. Note that Highest Astronomical Tides and Lowest Astronomical Tides are not the extreme levels which can be reached as storm surges may cause considerably higher and lower levels to occur.
Marine Conservation Zone (MCZ)	A site designated under the Marine and Coastal Access Act that protects a range of nationally important, rare or threatened habitats and species.
Mean High Water	The average height between mean high water springs and mean high water neaps.
Mean Low Water	The average height between mean low water springs and mean low water neaps.
Mitigation Measures	Protective measures forming part of a project that are intended to avoid or reduce any direct adverse effects that may be caused by a plan or project.
National Policy Statements	Produced by government to provide a policy framework for each infrastructure sector. They give reasons for the policy set out in the statement and must include an explanation of how the policy takes account of government policy relating to the mitigation of, and adaptation to, climate change.
National Electricity Transmission System (NETS)	The system in England and Wales consisting of mainly high voltage electric lines.
National Grid Electricity Transmission (NGET)	The owner of the electricity transmission network in England and Wales. NGET has a role in helping to connect energy projects to the network.
Offshore Renewable Energy Installation (OREI):	The offshore renewable energy project and in this instance an offshore wind farm means an offshore wind farm or floating offshore wind farm associated with the proposed Cable Route and subsequent Transmission Asset AfL and Lease.
Offshore Transmission Owner (OFTO)	A company appointed and licensed by Ofgem to acquire or install and own the Supply Cables and ancillary equipment forming part of the offshore electricity system for an OREI.
Option Site	An area of the seabed as established in the Transmission Asset Agreement for Lease to allow the passage of Supply Cables and installation of Substations, for a specific project. The location and area of the Option Site are to be approved by The Crown Estate based on the developer's justified requirements. The Option Site also encompasses the passage of Supply Cables

Term	Definition
	between the Substation Site and the edge of the OREI (which area is otherwise part of the Wind Farm AfL). The Option Site may therefore overlap with the Wind Farm AfL.
Preliminary Environmental Information Report	The report providing information on the project and emerging environmental impacts used to support and inform the pre-application consultation process prior to a formal application for a Development Consent Order or equivalent.
Project Company	A special purpose limited liability company established specifically for the objective of developing a particular project, which will enter into (as and when required) the Wind Farm AfL and the Wind Farm Lease, and may also be the Transmission Entity, for the purposes of the Transmission Asset AfL and the Transmission Asset Lease with The Crown Estate.
Proximity Check	A check over a proposed shape or area against the spatial data held by The Crown Estate in its GIS database.
Protected Sites	Sites that receive protection by means of certain legislation in recognition of their biodiversity and/or geological value.
Ramsar	A site designated in accordance with the Ramsar Convention on Wetlands of International Importance.
Security and Quality of Supply Standard	Sets out the criteria and methodology for planning and operating the National Electricity Transmission System.
Sites of Special Scientific Interest (SSSI)	A site designated under the Wildlife and Countryside Act.
Special Areas of Conservation (SAC)	A site designated under the Habitats Directive.
Special Protection Areas (SPA)	A site classified under the Wild Birds Directive.
Statements of Common Ground	A written statement prepared jointly by the applicant and any interested party, which contains agreed factual information referred to in the consent application.
Statutory Nature Conservation Bodies (SNCB)	A statutory body with the responsibility to manage conservation sites and advise on impacts. This includes any or all of Natural England, Natural Resources Wales, Scottish Natural Heritage, Northern Ireland Department for the Environment, Agriculture and Rural Affairs and the Joint Nature Conservation Committee.

Term	Definition
Strategic Environmental Assessment (SEA)	A system of incorporating environmental considerations into policies, plans, programmes and strategies.
Substation Site	The area of the seabed circular in shape situated in the Option Site, with a diameter of 200m, in which an offshore substation or an offshore converter station is to be erected within an OREI.
Supply Cable	All cables and ancillary equipment to be installed in the Designated Area and Substation Site for the conveyance or passage or transmission to shore of electricity generated by the OREI or otherwise required for the operation of the OREI (but excluding the Generator Cables).
Transmission Asset Agreement for Lease (TA AfL)	The Agreement for Lease granted to a Transmission Entity or Project Company for the associated OREI in relation to the Option Site and eventual installation of the Transmission Asset Infrastructure.
Transmission Asset Infrastructure	The Supply Cables, the Substation Site and ancillary equipment owned by the Transmission Entity and forming part of the offshore electricity transmission system.
Transmission Asset Lease	A lease to be entered into between The Crown Estate and a Transmission Entity in respect of an offshore transmission route, in accordance with the relevant Transmission AfL.
Transmission Entity	The counterparty to a TA AfL or TA Lease, which may be an OFTO or the Project Company of the WF AfL or WF Lease.
UK National Site Network	The national site network within the UK territory comprising the Protected Sites already designated under the Habitats and Wild Birds Directives and any further sites designated under the Habitats Regulations.
Wind Farm Agreement for Lease (WF AfL)	The initial Agreement for Lease granted to the wind farm developer for the OREI.
Wind Farm Lease	The Lease granted to the wind farm developer for the OREI.

2.0 Introduction

This document provides guidance for developers when preparing their application to The Crown Estate for a Cable Route linked to an Offshore Renewable Energy Installation (OREI). The guidance has been updated for Floating Offshore Wind Leasing Round 5 whilst remaining relevant to Round 4 and Extension projects. The guidance is subject to period reviews to ensure relevancy for the broader transmission sector in the context of The Crown Estate's whole of seabed approach, seabed routemap and strategic objectives.

The purpose of the guidance is to make developers aware of The Crown Estate's requirements in granting property rights for Cable Routes and the detail of Transmission Asset Infrastructure that must be provided for approval. This guidance outlines the process to be followed regarding Cable Route application, assessment and approval (or rejection), introducing a Cable Route Identification and Approval (CRIA) submission process.

The guidance is generic and therefore suitable for all Transmission Asset Infrastructure in relation to OREIs, although the terms "wind farms", "Leasing Round 4", "Leasing Round 5" and "Extensions Leasing Round" are referred to from time to time.

Cables being laid onto the seabed

This guidance encourages early dialogue between the developer, The Crown Estate and the relevant authorities to facilitate securing an appropriate Cable Route, incorporating due consideration for the environment and other users of the sea. This is supported by a series of overarching principles that provide best practice guidance on how cable route planning should be undertaken. Developers must have regard to these principles in the planning of Cable Routes.

This document does not provide guidance on best practice of cable spacing and route design, but includes reference to a desktop study entitled "Principles of Cable Routing and Spacing, The Crown Estate (UK) 2012" commissioned by The Crown Estate to assess appropriate spacing between Supply Cables placed adjacent to each other within a Cable Route. The study is further

described in Section 4 and can be downloaded from the Marine Data Exchange (MDE).

This guidance articulates the procedure of formalising the Cable Route and Transmission Asset Infrastructure in a Transmission Asset Agreement for Lease (TA AfL) and the levels of protection offered during this phase. It describes the requirements surrounding entry into the construction phase and exercising the option for the Lease.

The guidance can be read in conjunction with relevant Agreement for Lease and Lease documents from The Crown Estate as a number of the terms and definitions in this guidance document relate to terms and definitions used in those agreements. As the legal drafting differs between agreements (e.g. Extensions Leasing Round, Leasing Round 4 and Leasing Round 5 AfLs), this guide is generic and the legal agreements will always take precedence in the event of any conflict or other discrepancy between documents.

2.1 The Crown Estate's role in cable routing

For the avoidance of doubt, this document relates to leasing of the offshore part of the Cable Route, from the generating site to Mean Low Water (or Mean High Water where The Crown Estate owns the foreshore at the landfall location). It does not provide guidance relating to the planning or delivery of the onshore cable route, but the approach set out in the Cable Route Protocol (CRP) is strongly encouraged for onshore cable planning. Separately, and recognising the potential impacts of Cable Routes on coastal communities, The Crown Estate has placed new requirements on bidders in its Leasing Round 5, to engage with affected communities (see Section 2.3), and will continue to assess how it can best act, beyond its leasing activities, to support communities along the coast.

The Crown Estate may grant a Wind Farm Agreement for Lease (WF AfL) to a developer for an OREI. These WF AfLs are options that provide developers with an appropriate framework to consider an identified area of the seabed for its suitability for developing an OREI. The WF AfL does not constitute rights to construct and operate an OREI and The Crown Estate will only grant such rights through the execution of a Lease when the developer has obtained all of the necessary consents and satisfied conditions and obligations set out in the WF AfL.

The WF AfL will usually cover the proposed OREI area only and not the Cable Route. As the feasibility of developing the project progresses, desktop studies followed by survey work are typically carried out and a Cable Route is identified. The developer may then apply to The Crown Estate for a Transmission Asset AfL (TA AfL) that covers the proposed Cable Route and offshore substation locations (which will typically be within the OREI area). It is a requirement of The Crown Estate that such an application is accompanied by a CRIA, further detailed in Section 7. This requires information to be submitted on project specification and justification, planning and third-party interests, commercial set-up and guarantor, and must demonstrate compliance with the requirements set out in the CRP (Appendix 1). The CRIA provides the evidence required for The Crown Estate to make its decision on granting the TA AfL.

In most cases, a developer will seek a TA AfL in advance of making an application for statutory development consents. Early engagement with The Crown Estate as the route evolves is highly encouraged to help manage potential proximity issues.

It should be noted that the TA AfL will cover only the Cable Route and the area within which the offshore substation(s) may be located and, depending on the extent of The Crown Estate's ownership, will generally extend from the OREI to Mean High Water. If The Crown Estate does not own the foreshore at the landfall location, the rights granted in the TA AfL will ordinarily only extend to Mean Low Water. In some counties or locations, The Crown Estate's ownership may only extend to the level of Lowest Astronomical Tide.

2.2 Key stakeholder interactions

The identification and leasing of Cable Routes and Transmission Asset Infrastructure for an OREI involves multiple stakeholders including, but not limited to, offshore renewable energy developers, The Crown Estate and the ESO. The interactions of these three organisations in cable route planning and indicative timeline for when each interaction occurs are summarised in the diagram below.

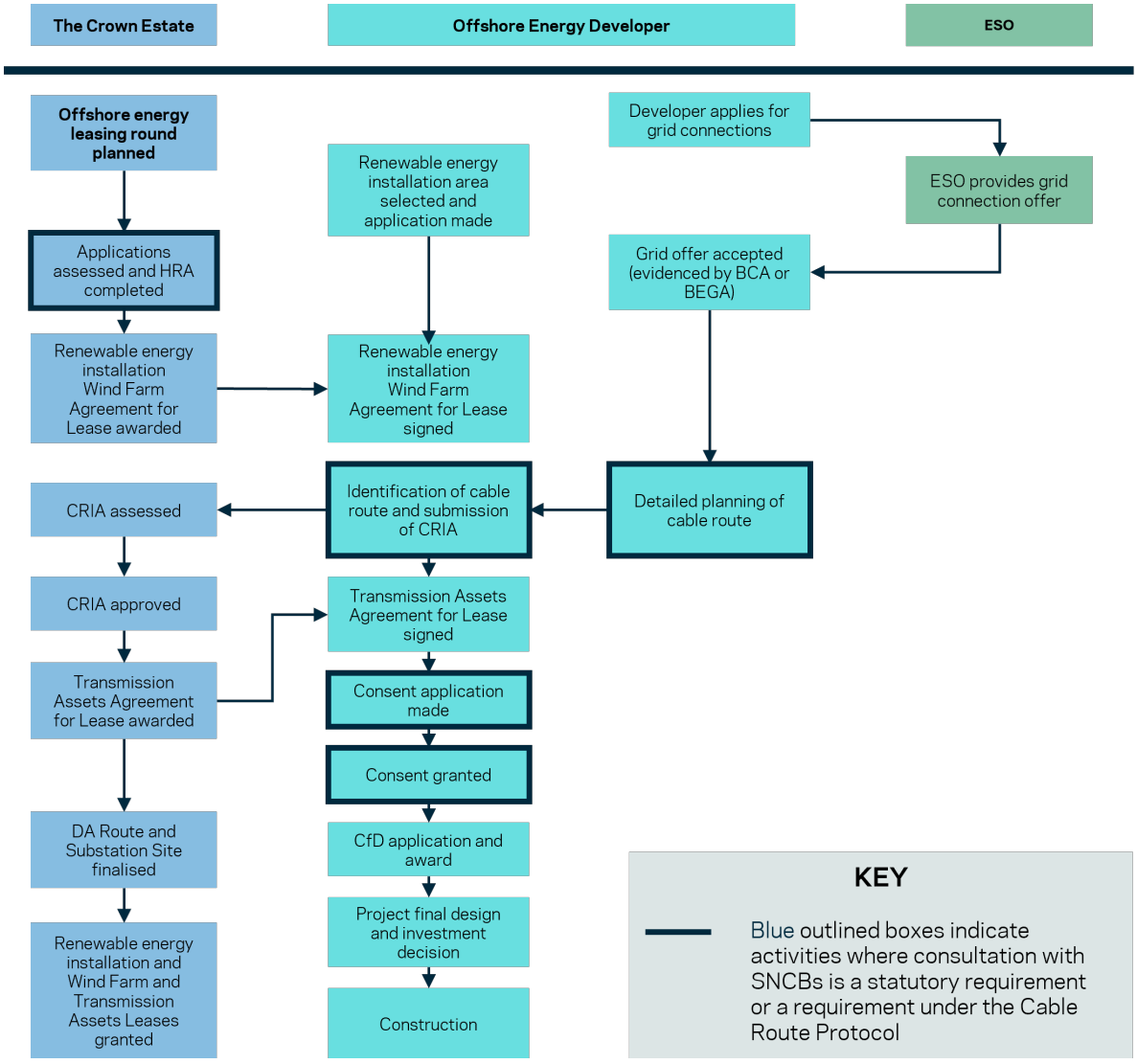


Figure 1 Key interactions relevant to typical Cable Route identification and leasing

Land option agreements for the onshore cable route will be negotiated separately by the

developer with onshore landowners (or, where The Crown Estate is also an onshore landowner, separately with the relevant land agent).

A pre-requisite of submitting a CRIA and applying to The Crown Estate for a TA AFL is a bilateral connection agreement (BCA) or bilateral embedded generation agreement (BEGA) with the ESO, along with indicative onshore cable route information to demonstrate how the offshore and onshore routes interact.

2.3 Floating Offshore Wind Leasing Round 5

Floating wind turbine

(photo by courtesy of BW Ideol and V. Joncheray)

Floating Offshore Wind Leasing Round 5 (Leasing Round 5) seeks to establish a new floating wind sector in the Celtic Sea off the coasts of South Wales and South West England. It is expected to be the first phase of commercial development in the Celtic Sea, bringing an exciting opportunity to create up to 4.5GW of renewable energy capacity, while acting as a springboard for new social, economic and environmental opportunities. Leasing Round 5 aims to deliver the total capacity on offer across three project development areas (PDAs), each with an individual capacity of up to 1.5GW. Project Companies will have the flexibility to develop each PDA in distinct projects or phases using a stepping-stone approach to suit developer risk appetite and to allow the supply chain to build its capacity and capability to serve this new market.

The Leasing Round 5 WF AfL (supplied to Prequalified Bidders as part of the Leasing Round 5 Invitation to Tender Stage 1 documentation) sets out the contractual basis for entry into a TA AfL, a process that is described in Section 8. A key part of this contractual requirement is the fulfilment of the Cable Route Identification and Approval (CRIA) process, described in Section 7.2, to obtain The Crown Estate's written approval of the Cable Route. As such, this document is key for developers to understand the detail of the process that must be followed to obtain the necessary land rights for the offshore Cable Route and Substations and / or converter stations, after being awarded a WF AfL on the outcome of the Leasing Round 5 tender process.

Although outside the formal scope of this guidance, successful bidders in Leasing Round 5 will also be required under their Wind Farm AfLs to deliver an impact plan and an engagement plan outlining how they will work with communities affected, directly or indirectly, by their proposed Round 5 developments (as outlined on page 45 of the Round 5 Information Memorandum

3.0 Connecting to the National Electricity Transmission Systems (NETS)

Developers wishing to connect generation to the National Electricity Transmission Systems (NETS) will need to secure an agreement with the ESO. However, the grid connection process is undergoing significant change and reform. Details of those changes and the current process can be found on the ESO website.

Since 2020, transmission network requirements for offshore wind have been assessed through the ESO's offshore coordination project, details of which can also be found on the ESO website. This sets out the process for how a high level network design evolves to be a recommendation for grid connections of offshore wind.

The decision to submit an application for a grid connection is made by the developer independently of their negotiations with The Crown Estate for an AfL.

The onshore grid connection location is secured when a grid offer from the ESO is received and accepted by the developer. Only at this point will the developer be in a position to start considering in detail the potential Cable Route and onshore cable route options to connect the OREI to the onshore grid. Following a process of Cable Route optioneering, the developer will then be in a position to make an application to The Crown Estate for a TA AfL.

It is important to note that following acceptance of a grid connection agreement, it is still possible that a connection point may change before or after a TA AfL has been granted. Where this happens, The Crown Estate will work with the developer to agree the most appropriate way forward.

Cable laying from beach

4.0 Cable Route Protocol (CRP)

OREI export transmission cabling has the potential to cause impacts in marine and coastal environments. In addition to the requirement to install cables, there is often a need for seabed preparation (possibly including sand wave clearance) and post-installation cable protection (which may include rock dumping). Direct impacts from these activities may be particularly significant for those sensitive coastal and offshore habitats which are permanently changed, or lost, as a result of cabling. Indirect impacts on marine mammals, birds and fish may also occur as a result of impacts on the habitats which support them.

The Crown Estate has identified that the following pressures from export transmission cabling (without appropriate avoidance and mitigation measures) have the potential to impact upon habitat and species features of Protected Sites (both marine and terrestrial (where relevant)):

- Habitat loss
- Habitat gain
- Direct physical damage
- Indirect physical damage
- Toxic contamination
- Temperature (for some habitats)
- Suspended sediment
- Introduction of invasive non-indigenous species

The Crown Estate Act 1961 places a general duty on The Crown Estate to maintain and enhance the value of the estate with due regard to the requirements of good management. As a public, competent, or managing authority or public body under various Acts (outlined in Table 1), The Crown Estate has statutory duties in relation to the marine (including the foreshore) environment in England, Wales and Northern Ireland. These duties co-exist with The Crown Estate Act but place more specific responsibilities on The Crown Estate.

Under the Marine and Coastal Access Act 2009, public authorities have a duty to ensure that, in exercising their functions, they best further or (if that is not possible) least hinder the achievement of the conservation objectives of Marine Conservation Zones (MCZs).

In practical terms, this means that when entering into, or changing a seabed agreement, The Crown Estate must consider the potential effects of that agreement on the habitats and species for which MCZs have been designated.

Under the Wildlife and Countryside Act 1981/Environment (Northern Ireland) Order 2002 (as amended) and Wildlife and Natural Environment Act (Northern Ireland) 2011, The Crown Estate has a duty to take reasonable steps consistent with the proper exercise of its functions to further the conservation and enhancement of the special features of Sites of Special Scientific Interest (SSSIs) and Areas of Special Scientific Interest (ASSIs). The Crown Estate is obliged to look at the impacts of its activities on SSSIs/ASSIs and give notice to the relevant Statutory Nature Conservation Bodies (SNCBs) before carrying out or authorising operations which are likely to damage the features for which SSSIs/ASSIs are notified.

As a Competent Authority under the Habitats Regulations, The Crown Estate is required to conduct a plan-level Habitats Regulations Assessment (HRA) for any leasing/licensing activity that constitutes a 'plan', assessing impacts on the UK national site network and other relevant designations (e.g. Ramsar sites) before any seabed rights can be awarded.

Table 1 – The Crown Estate's role as a public, competent, or managing authority or public body under relevant legislation

Role	Legislation	Statutory Duty
Public Authority	Marine and Coastal Access Act 2009/Marine Act (Northern Ireland) 2013	Have regard to Marine Plans and the Marine Policy Statement and consider MCZs in decision making
Competent Authority	Conservation of Habits and Species Regulations 2017; Conservation of Offshore Marine Habitats and Species Regulations 2017	Requirement to undertake plan-level HRA for any leasing/ licensing activity that constitutes a 'plan' where the potential for likely significant effects on European Sites cannot be excluded
Public Authority	Environment (Wales) Act 2016	Maintain and enhance biodiversity
'Section 28G' Authority/Public body	Wildlife and Countryside Act 1981/ Environment (Northern Ireland) Order 2002	Notify SNCBs of impacts on, and change of occupation in, SSSIs / ASSIs
Public Authority	Natural Environment and Rural Communities Act 2006 (as amended by the Environment Act 2021)	Have regard to conserving and enhancing biodiversity

In order to fulfil its statutory obligations, The Crown Estate has therefore developed a CRP as an avoidance and mitigation measure for potential cabling impacts to Protected Sites, both marine and terrestrial (where relevant).

The CRP is set out in Appendix 1. It has evolved from the plan-level HRA process undertaken for the 2017 Offshore Wind Extensions Plan, and will be secured as a mandatory requirement within the TA AfLs. Adherence to the CRP is a prerequisite for granting a TA AfL.

The CRP comprises a set of requirements for developers which are designed to manage the offshore export cable planning process with the aim of minimising impacts to Protected Sites. The CRP must be followed by developers as they progress project planning and they will be required to demonstrate compliance with the CRP within the CRIA provided to The Crown Estate as part of the TA AfL process. If a developer is unable to demonstrate compliance, a

TA AfL will not be granted.

The CRP has had regard to other relevant planning policy documents and consenting processes that cover offshore aspects of wind farm development, and is intended to complement these and remain relevant to all offshore energy developments. This includes consideration of the Overarching National Policy Statement for Energy (EN-1), the National Policy Statement for Renewable Energy Infrastructure (EN-3), statutory marine plans, the UK Marine Policy Statement, the third Offshore Energy Strategic Environmental Assessment (SEA) and the pre-application consultation requirements of the Planning Act 2008 (as amended).

Cable laying vessel with jacket wind turbine and Substation

5.0 Cable Route planning and principles

5.1 Principles of cable routing and spacing (evidence-based study)

The Crown Estate commissioned a cable spacing study in March 2012 with the objectives of identifying, reviewing and assessing the factors affecting the routing and spacing of transmission cables for offshore wind farm developments. The study provides assistance to developers in planning Cable Routes for offshore wind farms, as well as to The Crown Estate in assessing developers' proposals.

The findings, conclusions and recommendations from the study are compiled in a report: 'Principles of Cable Routing and Spacing, The Crown Estate (UK) 2012' which can be found on the MDE.

The report provides a technical, environmental and commercial overview of the effects of routing transmission cables in proximity, and as such, remains relevant to all offshore energy developments. The contents of the report form a point of reference that may assist developers when planning Cable Routes for offshore energy projects. Whilst directed primarily at developers, the report also provides useful and relevant information and is an important reference source to the wider investment, insurance, OFTO, stakeholder and regulatory communities and offers a better appreciation of the matters influencing the spacing between transmission cables.

The report contains a number of worked examples designed to illustrate the conclusions from the study. The figures quoted are not prescriptive but are intended to provide an indicative spacing between cables to give developers an appreciation of various scenarios. It is generally proposed that a risk-based approach will form the foundation of any cable spacing advocated in the route development.

The report identifies four important issues that will have a defining influence on the routing and spacing of transmission cables:

1. Route design and development
2. Cable spacing to meet the requirements of the Security and Quality of Supply Standard
3. Installation, operation and maintenance of existing and future transmission cables
4. The effects of electromagnetic fields on navigation and ecology.

The CRIA should demonstrate that developers have taken into consideration the overall routing and any cable spacing principles as suggested in this study, where applicable.

5.2 Cable Route planning – overarching principles

This section sets out overarching principles that provide best practice guidance for how cable route planning should be undertaken to ensure good management of land and seabed, and to avoid or minimise environmental impacts. Compliance with the CRP will not be assessed on these principles, however, developers are to have regard to these principles in the planning of Cable Routes. The specific requirements of the CRP are set out in Appendix 1.

Principle 1

It is anticipated that planning of Cable Routes and onshore cable routes will be undertaken concurrently. Use of the approach set out in the CRP for onshore cable planning is strongly encouraged. Where applicable, onshore cable planning should have regard to relevant National Policy Statements and national and local terrestrial planning policy frameworks.

Principle 2

Where elements of offshore cable route planning take place before a developer enters into a WF AfL with The Crown Estate, the use of the approach to offshore cable route planning set out in the CRP is strongly encouraged.

Principle 3

The CRP applies to all Protected Sites, both marine and terrestrial (where relevant), and known sensitive habitats. In planning the Cable Route, the emphasis should be on avoiding impacts on Protected Sites. If this is not possible, effects should be reduced to a minimum through design. Mitigation should be the last resort following the 'avoid, reduce, mitigate' hierarchy. If it is not possible to avoid all Protected Sites, and known sensitive habitats outside of Protected Sites, developers must demonstrate to The Crown Estate that they have selected the least damaging route.

Principle 4

Planning of Cable Routes should be undertaken in close consultation with SNCBs such as Natural England, Natural Resources Wales and, where appropriate, the Joint Nature Conservation Committee. Other non-statutory consultees should also be included in the consultation where appropriate (including, but not limited to, The Wildlife Trusts and Royal Society for the Protection of Birds and other users of the sea or their representatives, including fisheries and navigational safety). Consultation should continue from the earliest stages of route planning through to consent application, and consultees should be kept informed about how their advice has or has not been incorporated into the cable route planning process. It may be helpful to agree an engagement plan at the outset with any consultees to set expectations and ensure that required timescales are met, but the fundamental requirement is for consultees to be given the opportunity to provide advice. The developer should discuss management of confidential information with the consultees, and to enable timely consultation, may wish to seek Non-Disclosure Agreements.

Principle 5

Where it is necessary to mitigate the effects of cabling at project level, appropriate measures should ideally be agreed with statutory stakeholders and be capable of being secured within project design and/or consents. Mitigation measures will also need to be acceptable to competent authorities.

Principle 6

Developers should have regard to the current best practice cabling environmental considerations provided by SNCBs. Developers should also have regard to other cabling guidance and advice produced by SNCBs from time to time, including 'lessons learned' reports, cabling sensitivity documents and research reports from projects relevant to the impacts of cables on the environment.

Principle 7

Cable Routes and onshore cable routes should be identified and planned in conjunction with other infrastructure and developers, where necessary sharing routes and landfalls in order to minimise land use (offshore and onshore) and impact to land, the environment and stakeholders. This principle of proactive coordination should be applied not only in route identification, but throughout the lifecycle - so should also manifest in engagement with stakeholders, in making consent applications, in acquiring land, in developing construction and installation techniques. In project design, development, construction and operation it is important that the principle of proactive coordination is applied.

Principle 8

To ensure efficient land take and deployment, cable route and landfall planning should anticipate, and not constrain, future development needs, especially at restricted locations. Developers should demonstrate a logical, ordered and sequenced approach to routes and landfall sites, as well as spacing of cables, accordingly.

Principle 9

Developers should demonstrate that they have sought and applied feedback to their Substation Site and offshore and onshore cable route plans from previous projects and existing OFTOs in order that improvements can be continuously applied from previous construction and operational experience.

Principle 10

Developers should seek to apply common or standard design approaches and philosophies for their transmission assets and associated infrastructure in order that the supply chain can be engaged and enabled on a more holistic basis, especially on a local, regional and temporal basis.

6.0 Early dialogue and conflict checking

Through the regular interactions between the developer and The Crown Estate during project development activities, there is an opportunity to have ongoing dialogue about Cable Route issues well in advance of submitting a formal application for a Cable Route.

The dialogue should seek to clarify a number of important questions in relation to the proposed route, including the anticipated consenting process and how the developer's planning of cable routing and spacing (applying the evidence-based study or similar) will lead to a mutually acceptable agreement on cable spacing, with acceptable risk levels to the cables, but at the same time allowing the development of other commercial enterprises.

The Crown Estate must ensure that the legitimate interests of others are not constrained whilst developer uncertainty on their Cable Route remains high.

6.1 Proximity Check process

For all proposed Cable Routes, The Crown Estate must carry out a Proximity Check on the geographical information provided by the developer to identify any existing assets, interests or plans granted or noted by The Crown Estate which may be affected by the proposed Cable Route. The Crown Estate has set trigger distances for each sector to identify any spatial interactions and the distances are assessed on a sector by sector basis. In order to undertake the Proximity Check, the developer must submit the geographical data for the proposed Cable Route to the relevant offshore wind asset manager and OFTO asset manager at The Crown Estate for assessment in its GIS database. The data should be supplied in ESRI shape file or file geodatabase format in a geodetic WGS1984 (EPSG code 4326) projection with Marine Environmental Data and Information Network standard (v.2.3.7) metadata.

The data will be retained as confidential information in a GIS database and used to enhance The Crown Estate's understanding of the developer's likely Cable Route. The initial findings of the Proximity Check will be shared with the developer, highlighting any spatial interactions (subject to any confidentiality restrictions). Sometimes developers will need to submit a revised proposed Cable Route following The Crown Estate's initial feedback. As the findings from a Proximity Check are only valid for three months, it is not uncommon for the Proximity Check to be re-run upon receipt of a revised proposed Cable Route and as part of the entry into the TA AFL.

The Crown Estate will classify the proposed Cable Route as a 'registered interest' (i.e. an initial indication of a preferred route before it has been worked up sufficiently to be incorporated into the TA AfL).

By recording the proposed Cable Route in the GIS database, The Crown Estate will be alerted to any interactions which could have a spatial interaction or competing interest and will determine the appropriate course of action to manage such interactions.

7.0 Cable Route Identification and Approval (CRIA)

The initial WF AfL granted by The Crown Estate for an OREI will cover the proposed OREI area only. Once the developer has defined a Cable Route for consideration, the proposed Cable Route can be submitted to The Crown Estate for consideration as an Option Site under a TA AFL, by applying the CRIA process. If the CRIA is approved by The Crown Estate, the process for entering into a TA AfL that covers the proposed Cable Route and offshore substation locations can begin. Further clarification on the process for entering into a TA AfL is provided in Section 8.

7.1 Initial technical assessment of the proposed Cable Route

Prior to submission of the full CRIA, the developer should submit the coordinates in the form of a shape file of the proposed Cable Route to The Crown Estate who will conduct a Proximity Check as described in Section 6.1. Together with this shape file, the developer should also submit a draft CRIA to The Crown Estate for initial assessment. This allows The Crown Estate to take a view on the completeness of the technical documentation and to request additional information in advance of the full application, if necessary.

7.2 Contents of the CRIA application

Before submitting an application to The Crown Estate for a proposed Cable Route, the developer should have completed a careful analysis of the cable routing, spacing issues and preliminary survey activity. The application should demonstrate that the developer has taken into consideration the cable route planning principles in Section 5.2, any cable spacing principles as detailed in The Crown Estate's study report 'Principles of Cable Routing and Spacing, The Crown Estate (UK) 2012' (where applicable), and confirm that the actions undertaken satisfy the requirements as set out in the CRP (Appendix 1).The contents of the application should follow the template table of contents provided in the CRIA (Appendix 3), which has three main sections:

- Part 1 – Project specification and justification
- Part 2 – Planning and third-party interests
- Part 3 – Commercial set-up and Guarantor

In Part 1 of the CRIA, the developer must present the proposed routing and justify the chosen route. When advocating a specific spacing between adjacent cables, the developer will need to assess the operational and technical risks against their own commercial interests and those of the investors and other stakeholders. The description should include the issues the developer has considered in arriving at the proposed Cable Route, using cable spacing principles suggested in the evidence-based study report (or similar). The developer should also include details on which consultants have inputted into the selection of the proposed Cable Route. The application must include a draft specification of the works, i.e. a list of the equipment proposed to be installed on the site for the cable project (for specific details refer to Appendix 3).

The developer may not necessarily have clear details of cable spacing, number of Supply Cables

and equipment requested in Part 1 at the time of application. This can result in more than one proposed Cable Route. In all circumstances, when submitting an application the developer must provide a justification of the proposed Option Site, likely to be the extent of the survey area for detailed survey investigations.

The developer will then have an opportunity to work further with the technical layout so that the specific information can be provided under the TA AFL ahead of entering into the Transmission Asset Lease as further discussed in Section 8 and Section 9.

The extent of the proposed Option Site must also be provided in the form of a GIS shape file and in WGS84 format. The Option Site is expected to be an irregular shape/polygon thereby allowing some flexibility to avoid known spatial interactions, and will form the red line boundary area over which the TA AfL is granted.

The developer has an obligation to ensure that the proposed Cable Route is compliant with certain criteria requested in Part 2, such as planning restrictions and any potential consequences for third party interests, in addition to demonstrating compliance with the CRP. The developer must demonstrate the consideration they have applied to the requirements of existing parties and that discussions have been held to find a mutually acceptable solution (noting that in some cases, formal consent from the third party will be a requirement of the TA Lease). When demonstrating compliance with the requirements of Part 2, it is acceptable to signpost to other relevant documentation, such as chapters of an Environmental Statement. Supporting documents should be provided alongside the CRIA or provided via a working hyperlink if available online. Where signposting is used, the CRIA must still summarise how compliance has been achieved and include the relevant chapter, section and paragraph references. Reference solely to a chapter of a draft Environmental Statement will not be sufficient. Part 3 deals with the anticipated corporate set-up of the proposed Transmission Entity.

7.3 Formal review and approval of the Cable Route

Following the initial feedback from The Crown Estate on the draft CRIA, the developer will prepare the full CRIA documentation in compliance with the application template and submit it to The Crown Estate through the relevant offshore wind asset manager and OFTO asset manager for formal review and approval as set out in the WF AfL. The Crown Estate will confirm, in writing, the decision of the CRIA to the developer, which may include a request that the developer re-submit the CRIA with alternative Cable Route options.

8.0 Entering into the Transmission Asset Agreement for Lease (TA AfL)

If The Crown Estate determines that the submission of the CRIA is acceptable and that compliance with the Cable Route planning principles in Section 5.2 and with the requirements of the CRP has been adequately demonstrated, it shall confirm approval, in writing, to the developer.

Following approval by The Crown Estate, the process of entering the TA AfL with the Transmission Entity will begin. In addition to satisfying the requirements of the CRIA and CRP, entering into the TA AfL will also be subject to the Transmission Entity complying with all necessary and proper requirements as defined in the WF AfL.

Where there is no requirement for the export cables of an OREI to be owned and operated by an OFTO (i.e. where the export cable voltage is less than 132kV), the process followed to grant rights for the Cable Route following approval of the CRIA may be different to that described in Sections 8-11. This typically applies to small test and demonstration OREIs, and the wording in the AfLs of these projects sets out the required process which should be followed.

8.1 Formalising the Cable Route in the TA AfL

Once the Cable Route has been agreed between the developer and The Crown Estate through the CRIA process, the Cable Route and future location of the Substation Site can be formalised in the TA AfL in the form of an Option Site.

The Option Site must include all seabed that will be required for the installation of the Supply Cable(s), Substation Site(s) and any other associated installations. The Option Site is likely to overlap in full or in part with the WF AfL area. The Option Site must include any foreshore under the ownership of The Crown Estate, if applicable.

The Option Site may cover an area sufficient for more than one proposed Cable Route, if more than one potential Cable Route was approved by The Crown Estate following the developer submitting their CRIA. In this scenario, the TA AfL will be granted with an obligation on the developer to reduce the number of proposed Cable Routes within which all Supply Cables will be located ahead of TA Lease entry. The approval of more than one Cable Route would only occur if the developer has provided sufficient evidence and justification to The Crown Estate as to why more than one Cable Route is the only viable option.

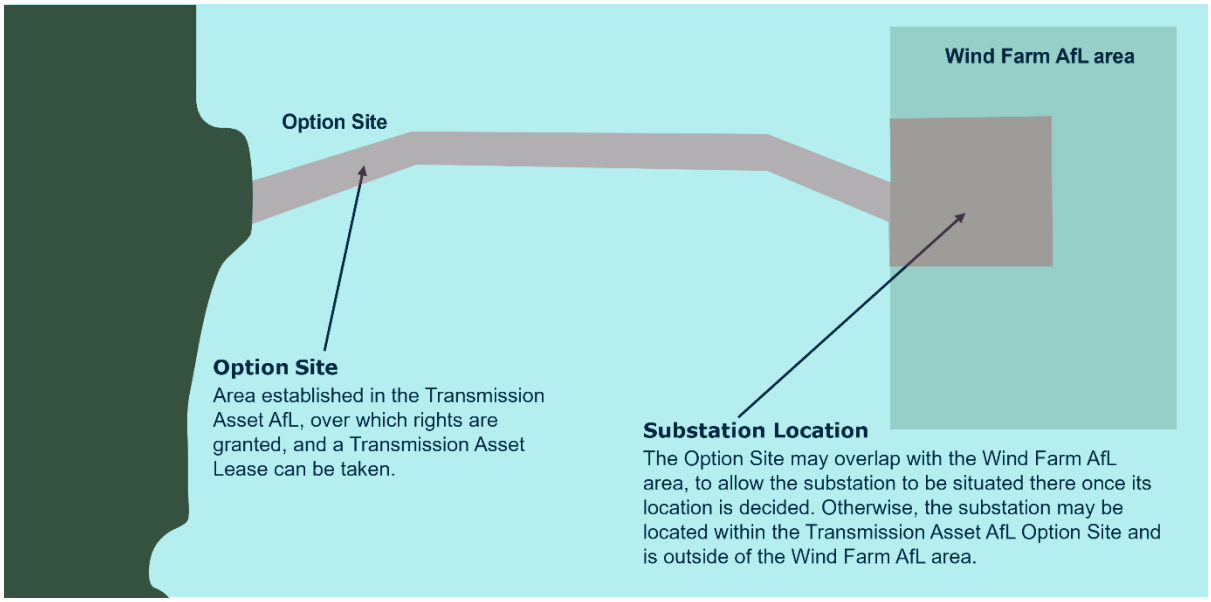


Figure 2 – Agreement for Lease

8.2 Rights of protection in the Agreement for Lease

The developer is afforded only limited protection over the Option Site under the TA AfL in which a non-exclusive right to take a TA Lease has been secured. The Crown Estate is entitled to grant non-proprietary rights to third parties to carry out works which cross or otherwise conflict with the developer's Option Site (with an obligation to notify the developer before and after doing so) – with a reservation made in the third-party lease or licence to allow the future grant of the TA Lease without the third party's consent.

The TA AfL also allows The Crown Estate to grant rights to third parties for dredging or removing or injection of materials (including of gas) within the Option Site, however such rights must be terminated prior to the commencement of the TA Lease, to the extent that the area of the Option Site over which rights have been granted forms part of the DA Route.

On exchange of the TA AfL, the area of the Option Site shall be entered into The Crown Estate's GIS database. This enables The Crown Estate to be alerted to any potential future interactions with the Option Site and determine the appropriate course of action to manage such interaction, in line with the obligations under the TA AfL. The Crown Estate will ensure that any subsequent interests from third parties over an Option Site are brought to the Transmission Entity's attention and will work to facilitate co-operation between the parties in order to resolve any possible conflicts of interest.

9.0 Entering into the Transmission Asset Lease (TA Lease)

Once the project has received all necessary consents and the developer is ready to serve notice to take the TA Lease, the DA Route and Substation Site must be submitted to The Crown Estate for review prior to formalising the TA Lease documentation, as set out in the TA AfL.

It is strongly recommended that the developer provides periodic updates regarding the DA Route and Substation Site during the period of the TA AfL, as the definition of the DA Route is developed, to mitigate the risk of non-approval.

9.1 Formalising the Cable Route for entering the TA Lease

The Transmission Entity under the TA AfL is required at this stage, and after all front-end engineering design studies have been finalised, to provide The Crown Estate with the following specific information:

i. The final centreline and proposed width of the DA Route by reference to co-ordinates and a plan showing the centreline of the DA Route and the Substation Site
ii. The number of Supply Cables
iii. The requested spacing between the Supply Cables
iv. The proposed depth of the DA Route and Substation Site
v. Evidence that the specification of the works will use an asset management system that will be capable of being certified to, or commensurate with ISO 55000
vi. Specification of the works, i.e. an exhaustive list of the equipment to be installed on the site for the cable project. The list will be appended to the TA Lease and should include:
    - Maximum number and working voltage of cables (AC or DC)
    - Offshore Substations (including details of foundation type and dimensions of structure)
    - Offshore Converter stations (including details of foundation type and dimensions of structure)
    - Any ancillary equipment
    - Any anemometry equipment
    - Any scour protection materials
    - Communications equipment or cables
    - Cable protection (e.g. anticipated burial depths, matting, rock dumping, inshore protection)
    - Number and details of third party asset crossings on the route
    - Cable joint chambers (relevant for the foreshore)
    - Conduits
vii. A shapefile of the final onshore cable route, onshore substation site and onshore converter station site associated with the project.

The cable spacing study mentioned in Section 5 will be used to assist developers and The Crown Estate in agreeing, on an evidence basis, the appropriate spacing between Supply Cables to be applied in the TA Lease.

In the TA Lease, the Cable Route will be defined as a DA Route shown on the lease plan with a red line, within the approved distance of which the Designated Area(s) must be situated. The Designated Area(s) are each 30m wide and as a requirement of the TA Lease, the position of the Designated Area(s) must be approved by The Crown Estate.

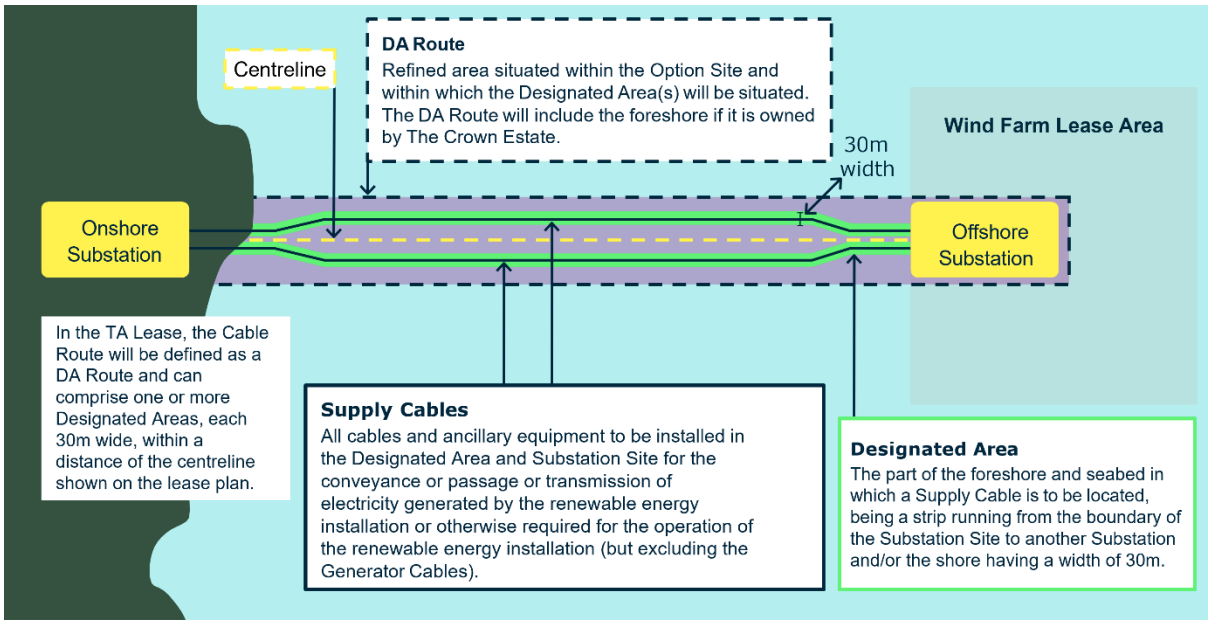


Figure 3 – Lease (Pre-construction)

9.2 Rights of protection in the TA Lease

Once the TA Lease has been granted, more extensive rights of protection are introduced. Importantly, from this stage, the consent of the Transmission Entity is required before The Crown Estate grants any new leases or licences (which were not contemplated by the TA AfL or TA Lease) which cross or intersect with the Designated Area(s) or grants any new rights for conduits or cables within the Substation Site.

The consent of the Transmission Entity is not required for the installation within the Substation Site or Designated Area of the Generator Cables of the connected OREI. Rights for the Generator Cables from the OREI to connect into the Substation Site are reserved in the TA Lease.

Depending on the type of agreement, there may be a Dredging Restriction Zone extending 235m on either side of each Designated Area; in effect a Dredging Restriction Zone extending 250m from the centre line of each Supply Cable.

The Crown Estate will be entitled to grant rights to third parties, without restriction, outside of the Designated Area and Dredging Restriction Zone.

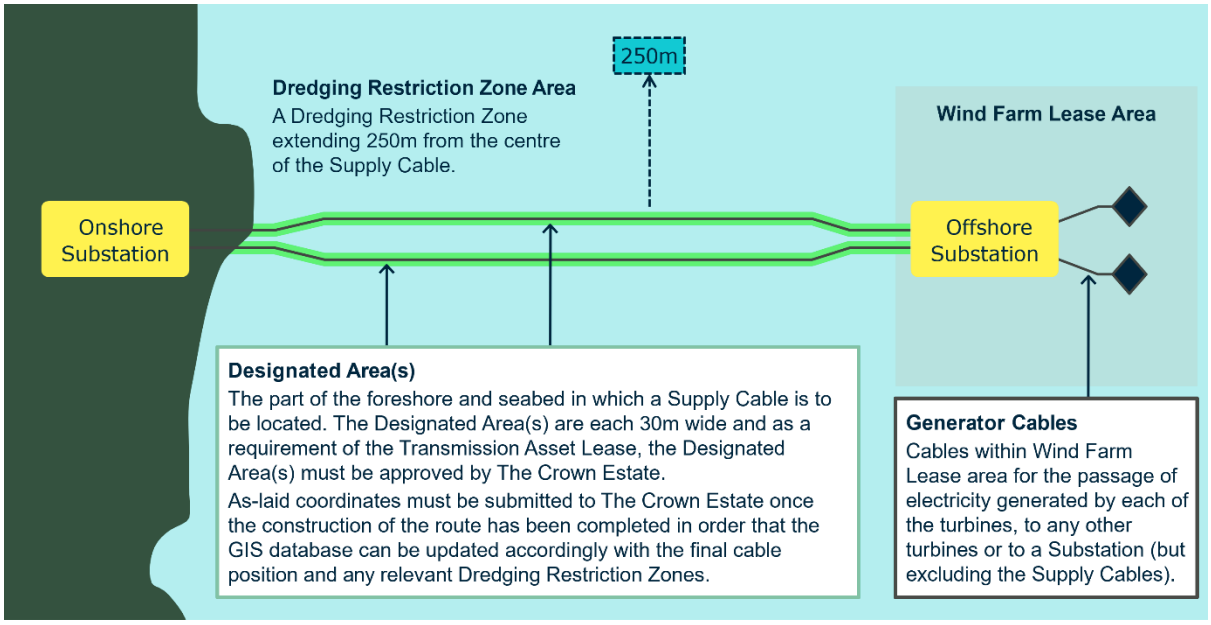


Figure 4 – Additional Terms

10.0 As-laid coordinates and potential adjustments to the route

The Cable Route established in the TA Lease and displayed on the lease plan will show the DA Route. The Designated Areas will only come into being once approved by The Crown Estate under the relevant clauses of the TA Lease. Once approved, a Land Registry compliant plan of the Designated Area(s) is annexed to the TA Lease. Any required amendments to the Designated Area(s) – including cable repairs which result in cable being re-laid outside of the existing Designated Area(s) - will require the prior consent of The Crown Estate.

As-laid coordinates must be submitted to The Crown Estate once construction has been completed, in order that the GIS database can be updated with the final Cable Route and Substation locations and where relevant, any Dredging Restriction Zones. The Crown Estate reserves the option to require evidence, to its reasonable satisfaction, of works being completed in accordance with the agreed specification including as-laid plans and co-ordinates.

A clear process will be agreed between The Crown Estate and the Transmission Entity to ensure this data is obtained from the Transmission Entity following completion of any works. The Crown Estate needs this information to ensure developers' interests are accurately flagged during its Proximity Check process for other seabed developments.

The same applies to post-installation cable protection, the coordinates for which The Crown Estate will require for proximity checking. It should be noted that rock protection along the Cable Route is not permitted unless it has been approved by The Crown Estate as part of the specification for the TA Lease.

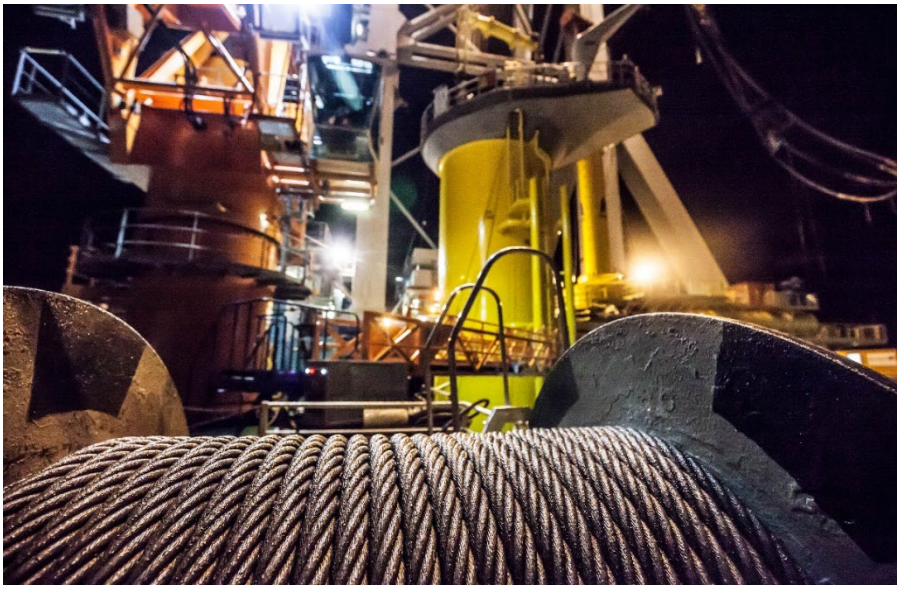
Cable laying plough on beach

11.0 Delineation of leases after the generator-OFTO split

The tenant of the TA Lease will assign the TA Lease to the OFTO along with ownership of the OFTO assets following conclusion of Ofgem's OFTO tender process (unless an OFTO was appointed in advance of construction, in which case the OFTO will already be the tenant of the TA Lease). Further detail about the OFTO tender process can be found on Ofgem's website: Welcome to Ofgem | Ofgem.

The Designated Area(s) will overlap the area of seabed within the WF Lease where the Supply Cables have been laid - i.e. from the edge of the wind farm site to and including the Substation Site. The WF Lease contains a reservation which allows the Designated Area(s) to be placed here without any requirement for consent from the wind farm tenant. The TA Lease will generally include the site of the offshore Substation(s) and any other offshore converter stations, even though they may sit within the bounds of the wind farm site. Where a Substation Site is within the boundary of the wind farm site that part of the seabed will be removed from the WF Lease, to avoid an overlap of leased areas.

The rights of the wind farm tenant to manage its Generator Cables in the Offshore Substation Site area are subject to the rights of the TA Lease, whilst the TA Lease gives the OFTO rights to run Supply Cables within the Substation Site as well as between the Substation Site and the shore. Refer to the Figures in Section 9.



Construction foundation and cable

APPENDIX

Appendix 1

Cable Route Protocol (CRP)

The CRP comprises a set of requirements for developers in the planning of offshore Cable Routes. Compliance with these requirements is secured within the WF AfL and must be demonstrated within the CRIA document which will accompany an application to The Crown Estate for a TA AfL.

Much of the activity contained within the CRP requirements is aligned with the pre-application consultation that developers will need to undertake as part of preparing for submission of an application for development consent (including any evidence plan requirements). It is therefore anticipated that many developers will incorporate the requirements of the CRP into their pre-application consultation process. Where evidence of consultation is required within the CRIA, this will therefore be equivalent to the evidence that developers will need to submit as part of their application for development consent.

Requirements

Requirement 1

Where elements of Cable Route planning have taken place before a developer has entered into a WF AfL with The Crown Estate, these must be clearly set out within the CRIA (since The Crown Estate can only enforce compliance with the requirements of the CRP after the developer has entered into the WF AfL).

Requirement 2

Under the CRP, developers must undertake consultation with SNCBs throughout the route selection and refinement process (see Figure 1). The nature of this consultation will vary from project to project, but to be effective the consultation should be ongoing throughout the process and both parties must provide clear information and advice within the agreed timeframes.

Developers must demonstrate within the CRIA that clear information on the proposed Cable Route has been provided for SNCBs at appropriate stages in Cable Route planning and that SNCB advice has been sought at appropriate stages (whether through formal or informal consultation). A summary of engagement to date and SNCB views on information shared by the Applicant must be included in the CRIA. It is acknowledged that some elements of the cable planning process are time-constrained and that delays in receiving input from consultees can result in difficulties for developers. Development of an engagement plan is strongly encouraged. If difficulties have been encountered in engagement, these should be clearly stated within the CRIA and taken into consideration by The Crown Estate.

Requirement 3

In planning survey work on potential Cable Routes (or exploratory works within a Cable Route (AoS), developers must consult with SNCBs to ensure that they have the opportunity to provide feedback on the scope and adequacy of the overarching survey plan. Consultation on the survey plan will be required in order to obtain individual survey licences, and evidence of this consultation is required within the CRIA including a summary of the feedback received, including how SNCB concerns have been addressed.

Requirement 4

Developers must demonstrate within the CRIA that planned Cable Routes are in alignment with the relevant policies and, where applicable, the principles within the applicable National Policy Statements and relevant marine plan(s) (including draft marine plans). Particular note should be taken of cable-specific policies within marine plans.

Requirement 5

Developers must demonstrate within the CRIA that planned cable corridors have taken into account the outcomes of the relevant plan-level HRA (where applicable). This includes any specific requirements on cable planning, any geographically-specific findings and the examples of appropriate project-level cable mitigations.

Requirement 6

Developers must demonstrate within the CRIA that they have had regard to documents and advice produced by SNCBs in relation to offshore export cabling, including current best practice guidance.

Developers must also have regard to the outcomes of relevant research programmes which are available at the point of submitting the CRIA. This may include (amongst other things) research into the impacts of cabling, the recovery of habitats and the efficacy of mitigation measures.

Initial Area of Search

A developer will usually commence the process of Cable Route planning with reference to the offshore Substation Site and onshore grid connection point agreed with the ESO and then consider a broad AoS for the possible onshore cable route and offshore Cable Route.

Until a grid connection agreement between the developer and the ESO has been signed by both parties, the developer is not in a position to commence a CRIA or engage in discussions with The Crown Estate regarding entry into a TA AfL.

The aim of Requirements 8 to 10 (below) is to ensure that, through consultation, the developer has identified the environmental sensitivities within the offshore AoS and that consultees understand the engineering constraints within the AoS before detailed Cable Route optioneering commences. The consultation will necessarily be on high-level information; the aim is not to have all possible information and to pin down all the details of cable planning, but to ensure that both developers and SNCBs are starting from the same point at the outset of the cable planning process.

It is anticipated that Requirements 8 and 9 can be discharged in a single consultation which should ideally take place as soon as possible after the grid connection location is known. This will probably precede formal Environmental Impact Assessment scoping. Provided it is well documented, the consultation could be undertaken through a written report or an interactive workshop session.

Requirement 7

The developer must request a Proximity Check of its proposed AoS and have regard to the findings of this check in Cable Route planning. This includes identification of any requirement for minimum separation distances from existing assets and any potential requirement to negotiate proximity agreements with other tenants. Iterative checks on refinements of the AoS are recommended but are only a requirement where there is a change in location or an increase in size of the AoS.

Requirement 8

Within the offshore AoS the developer must identify (and map where possible) the following, which are to be given significant weight in Cable Route planning:

- Habitats Regulations sites (SACs, SPAs and Ramsar sites, whether fully designated or not)
- MCZs and SSSIs/ASSIs (whether fully designated or not)
- Features of these Protected Sites (including priority habitats and species), including the sensitivities of each of these to impacts from export cabling (either through consultation with SNCBs or by use of the information available from conservation advice packages for sites)
- Protected Sites with conservation objectives to recover features to favourable condition
- Areas of known Annex I habitat outside protected areas but within the AoS
- Habitats that are known to be irreplaceable unique, rare, and/or fragile (either through consultation with SNCBs or by using the information available within SNCB reports).

Having completed this exercise the developer must consult with SNCBs (and, where appropriate, other relevant non-statutory consultees) to ensure that the best available evidence about the environment and specific sensitivities have been incorporated into the AoS mapping, and that the consultees have the opportunity to provide additional narrative about particularly sensitive areas or areas of concern to them. Evidence of this consultation, including a summary of the outcomes and the way in which SNCB concerns have been addressed, must be provided in the CRIA.

Requirement 9

Developers must prepare an outline view of the possible cabling infrastructure requirements (acknowledging that this may change as the design of the project evolves). The outline should include the potential number and capacities of the export cables with their indicative spacing requirements and the additional structures (e.g. offshore substations and converter stations) which the project is likely to require. Where there are uncertainties in the required infrastructure these should be set out (with reasons).

Within the AoS, developers must identify (and where possible, map) hard engineering constraints such as existing infrastructure or licence areas, challenging ground conditions and sections of the coast where landfall is not possible. Developers should also form an initial view on the likely areas within the AoS where cable preparation works and/or cable protection may be needed (noting that this information is likely to change as survey work is undertaken). Where possible, this information should be presented alongside the environmental information from Requirement 8.

The developer must consult with SNCBs (and, where appropriate, non-statutory consultees) to ensure they understand the likely infrastructure requirements and constraints and that they have the opportunity to raise

any areas of concern about placement of infrastructure (including cable protection) and any specific Protected Sites or habitats outside of the Protected Sites network. Evidence of this consultation, including a summary of the outcomes and the way in which SNCB concerns have been addressed, must be provided in the CRIA.

Detailed Cable Route planning

Following identification of an AoS, developers will typically work through a Cable Route planning process which narrows down options to a shortlist and then a final route (which will be submitted to The Crown Estate for inclusion in a TA AfL).

Requirements 11 to 13 aim to ensure that this process is undertaken in close consultation with SNCBs. Consultation need not be through formal reporting, but it is expected that regular and iterative communication is undertaken as cable optioneering progresses and that consultees have ample opportunity to provide input to the process well before a final route is selected. Essentially, consultees should be given sufficient opportunity to provide input to the process well before a final route is selected, and are kept informed about how their input is being considered in optioneering.

Requirement 10

Developers must demonstrate in the CRIA that they have undertaken regular consultation with SNCBs as the Cable Route selection process progresses. In line with the requirements for pre-application consultation, communication should be comprehensively documented but need not take the form of formal reporting. The frequency of communication is a matter for agreement between developers and consultees, taking into account consultee resource constraints.

The consultation must encompass the entire process from AoS to final route selection and should include communication of the evolving understanding of cabling infrastructure requirements (including cable protection) as well as the evolving understanding of environmental and technical constraints on the Cable Route. Evidence of this consultation, including a summary of the outcomes and the way in which SNCB concerns have been addressed, must be provided in the CRIA.

Requirement 11

Where SNCBs provide advice and guidance during the Cable Route planning process this must be clearly documented and considered in Cable Route decision-making. The way in which SNCB advice has been incorporated into the Cable Route plan must be documented in the CRIA.

If a developer chooses not to follow SNCB advice, or where a developer disagrees with the conclusions of the SNCB, it must provide clear and detailed justification of this in the CRIA. The level of justification should be similar to that which will ultimately be required within Statements of Common Ground with the SNCB(s).

Developers must include within the CRIA, copies of any formal advice on the Cable Route received from SNCBs or non-statutory consultees. Where such advice is not yet available (for example where the CRIA is submitted in advance of formal consultation on the Cable Route), developers must either request that SNCBs provide a letter to accompany the CRIA which sets out their position on the Cable Route, or develop a joint statement with SNCBs for inclusion in the CRIA, setting out the areas of agreement and disagreement over the Cable Route.

Requirement 12

Where applicable, the expectation (set out in Principle 3 in Section 5.2) is that the Cable Route should avoid the risk of harm to Habitats Regulations sites and other Protected Sites. Where this is not possible and a developer seeks to rely on mitigation measures and / or compensatory measures for engineering or commercial reasons, the developer must be able to demonstrate within the CRIA that appropriate weight has been given to environmental considerations in the Cable Route evaluation process. In practice, this means that within the CRIA the developer must demonstrate that careful consideration has been applied to the potential impact of the route on Protected Sites throughout the process and that all reasonable efforts have been made to avoid environmental impacts and adverse effects on the integrity of sites.

If avoidance is not possible, this must be clearly justified (including reasons why alternative Cable Routes are unsuitable); only then can mitigation be considered. If mitigation is included in a Cable Route option, the CRIA must present sufficient evidence to The Crown Estate that suitable mitigation approaches have been considered and can be employed on the project to avoid environmental impacts and adverse effects on the integrity of Habitats Regulations sites. Advice given by SNCBs on the efficacy of proposed mitigations and compensatory measures should be provided where available and the mitigation and / or compensation must be capable of being secured in project consents.

Requirement 13

Within the CRIA the developer must either demonstrate that the following activities have been undertaken, or present a coherent programme for their completion:

- Consultation on a Preliminary Environmental Information Report which includes the Cable Route or wider Area of Search; and
- A full assessment of the environmental impacts of the Cable Route within an Environmental Statement and/or separate report to inform the HRA.

Cable laying vessel

Appendix 2 – CRP compliance

The CRP has evolved from the plan-level HRA process undertaken for the 2017 Offshore Wind Extensions Plan, and comprises a set of requirements for developers in the planning of Cable Routes. Compliance with these requirements is secured within the WF AfL and adherence to the CRP is a prerequisite for granting a TA AfL.

The table below represents guidance on how to fill out the CRP, a blank version of which can be found on The Crown Estate website. This form should be used to demonstrate compliance with each CRP requirement; it is acceptable to reference where this information has been provided in the main CRIA information submission where relevant, including document name, page and paragraph number. Some requirements are linked and it may be preferable to address more than one requirement in the same cell of the table and/or body of text in the CRIA, with appropriate cross-referencing.

Developer	Tender / Leasing Round	Project Name
CRP requirement	Information required in italics. Developer to populate accordingly.	
General requirements		
Requirement 1 Early offshore Cable Route planning	*Where elements of Cable Route planning have taken place before a developer has entered into an offshore energy installation AfL with The Crown Estate, these must be clearly set out within the CRIA.*	
Requirement 2	*Demonstration that clear information on the Cable Route has been provided for SNCBs at appropriate stages in Cable Route planning, and that SNCB advice has been sought at appropriate stages. Development of an engagement plan is strongly encouraged. If difficulties have been encountered in engagement these should be clearly stated, and this will be taken into consideration by The Crown*	

Consultation with SNCBs throughout the route selection and refinement process	*Estate. (Note: link to Requirement 11) Please provide a summary of how SNCB views have been addressed and, if not addressed, provide the relevant justification.*
Requirement 3 Consultation with SNCBs in planning survey work	*Please provide evidence that SNCBs have been consulted as part of planning survey work on potential Cable Routes (or exploratory works for an Area of Search), and that they have had the opportunity to provide feedback on the scope and adequacy of the overarching survey plan. Please provide a summary of how SNCB views have been addressed and, if not addressed, provide the relevant justification.*
Requirement 4 Alignment with National Policy Statements and relevant marine plan(s)	*Demonstration that planned Cable Routes are in alignment with the relevant policies and principles within the applicable National Policy Statements and relevant marine plan(s) (including draft marine plans). Particular note should be taken of cable specific policies within marine plans.* *Please identify the relevant policies and confirm that these have been given due regard and that the project is aligned with these as a whole. Any aspect that does not align with a policy should be highlighted / discussed in more detail.*
Requirement 5 Alignment with outcomes of the relevant Plan-level HRA (where applicable)	*Please demonstrate that the planned Cable Routes have taken into account the outcomes of the relevant Plan-level HRA (where applicable) as documented in the Report to Inform Appropriate Assessment, including any specific requirements on cable planning, any geographically-specific findings and the examples of appropriate project-level cable mitigation.*
Requirement 6 Regard to SNCB documents, advice and best practice guidance	*Demonstration that regard has been given to documents and advice produced by SNCBs in relation to export cabling, including best practice guidance and the outcomes of relevant research programmes which are available at the point of submitting the CRIA. (Note: Link to Requirement 11)*

Initial Area of Search	
Requirement 7 Request Crown Estate GIS Proximity Check of proposed AoS	*Please demonstrate that a Proximity Check has been requested and its findings have been considered in Cable Route planning, including identification of any requirement for minimum separation distances from existing assets, and any potential requirement to negotiate proximity agreements with other tenants of The Crown Estate.*
Requirement 8 Identification of key environmental sensitivities within the offshore AoS	*Please provide evidence that within the offshore AoS the following have been identified (and mapped where possible), and given significant weight in Cable Route planning:* – *Habitats Regulations sites (SACs, SPAs and Ramsar sites, whether fully designated or not);* – *MCZs and SSSIs/ASSIs (whether fully designated or not)* – *Features of these Protected Sites (including priority habitats and species)* – *Protected Sites with conservation objectives to recover features to favourable condition; and* – *Areas of known Annex I habitat outside protected areas but within the AoS* – *Habitats that are known to be irreplaceable or very difficult to replace (e.g. chalk reef).* *Please provide evidence that consultation with SNCBs (and other relevant non-statutory consultees where considered appropriate) has been undertaken, and that consultees have had the opportunity to engage and provide information about particularly sensitive areas or areas of concern to them.*
Requirement 9 Outline of possible cabling infrastructure	*Please provide an outline view of possible cabling infrastructure requirements (acknowledging that this may change as the design of the project evolves). The outline should include the potential number and capacities of the export cables with their indicative spacing requirements and the additional structures (e.g. Substations and converter stations) which the project is likely to require. Where there are uncertainties in the required infrastructure these should be set out (with reasons).*

	Within the AoS, please identify hard engineering constraints such as existing challenging ground conditions and sections of the coast where landfall is not possible. Please provide an initial view on the likely areas within the AoS where cable preparation works and/or cable protection may be needed (noting that this information is subject to change as survey work is undertaken). (Note: where possible, this information should be presented alongside environmental information from Requirement 8) *Please provide evidence that consultation with SNCBs (and where considered appropriate, other non-statutory consultees) has been undertaken so that they understand the likely infrastructure requirements and constraints, and that they have had the opportunity to raise any areas of concern about the placement of infrastructure (including cable protection) and specific Protected Sites or features.*
Detailed Cable Route planning	
Requirement 10 Regular consultation with SNCBs through Cable Route selection process	*Please provide evidence that regular consultation with SNCBs has been undertaken as the Cable Route selection process progresses. Consultation must encompass the entire process from AoS to final route selection and should include communication of the evolving understanding of cabling infrastructure requirements (including cable protection) as well as the evolving understanding of environmental and technical constraints on the Cable Route. Consultees must be given the opportunity to comment on proposals.* *Recognising that the CRIA may be submitted at different stages of a development's planning and consenting process, plans for ongoing and future engagement should also be highlighted.* *(Note: Link to Requirement 2)*
Requirement 11	*Please document where SNCBs have provided advice and guidance during the Cable Route planning process, and how this has been considered in Cable Route decision-making. The way in which SNCB advice*

SNCB advice and guidance provided during Cable Route planning process	*has been incorporated into the Cable Route plan must be documented. If the SNCB advice has not been followed, or where there the developer disagrees with the conclusions of the SNCB, please provide clear and detailed justification of this. The level of justification should be similar to that which will ultimately be required within Statements of Common Ground with the SNCB(s).* *Please provide copies of any formal advice on the Cable Route received from SNCBs or non-statutory consultees. Where such advice is not yet available (for example where the CRIA is submitted in advance of formal consultation on the Cable Route), developers must either request that SNCBs provide a letter to accompany the CRIA which sets out their position on the Cable Route, or develop a joint statement with SNCBs for inclusion in the CRIA which sets out the areas of agreement and disagreement over the Cable Route.* *(Note: Link to Requirement 6)*
Requirement 12 Appropriate weight given to environmental considerations	*Demonstration that the potential impact of the route on Protected Sites has been carefully considered throughout the Cable Route evaluation process, and that all reasonable efforts have been made to avoid environmental impacts and adverse effects on the integrity of sites. If avoidance is not possible then this must be clearly justified (including reasons why alternative Cable Routes are unsuitable) and only then can mitigation be considered.* *If mitigation is included in a Cable Route option, please provide evidence that suitable mitigation approaches have been considered and can be employed on the project to avoid environment impacts and adverse effects on integrity of Habitats Regulations sites. Advice given by SNCBs on the efficacy of proposed mitigations should be provided where available, and the mitigation must be capable of being secured in project consents.*
Requirement 13	*Demonstration that the following activities have been undertaken, or a coherent programme is in place for their completion:*

Programme for PEIR consultation and Environmental Statement and/or HRA	• *A consultation on a Preliminary Environmental Information Report which includes the Cable Route or wider A o S; and* • *A full assessment of the environmental impacts of the Cable Route within an Environmental Statement and/or separate report to inform HRA.*

Appendix 3 – CRIA information submission

The developer will be required to provide the following information in their CRIA information submission to The Crown Estate. The CRIA must be in relation to an onshore grid interface site that has been agreed between the developer and the ESO in a bilateral connection agreement (BCA) or bilateral embedded generation agreement (BEGA). The CRIA information is to be submitted to the relevant offshore wind asset manager and OFTO asset manager.

When completing this pro-forma, developers should be cognisant of and seek to evidence how they have met the requirements contained within the CRP (Appendix 1).

Developer	Tender / Leasing Round	Project Name
Date	Revision	Author
Section of Route	*Information required in italics. Developer to populate accordingly.*	

Summary Information		
0.1	Introduction and narrative summary of the project	*Overview of the Cable Route proposal, including any project(s) to which it relates and a chart/plan showing the onshore grid interface site, the proposed Cable Route, proposed offshore Substations and offshore converter stations (if known)and project locations (if applicable).* *Include details of the BCA or BEGA between the developer and the relevant onshore network owner confirming the development of and onshore grid interface.*

Part 1 – Project Specification & Justification		
1.1	Extent of Proposed Corridor	*To provide:* a. *a GIS shape file of the proposed Cable Route and any Offshore Substations and Offshore converter stations (if known). The data should be supplied in ESRI shape file geodatabase format in a geodetic WGS1984 (ESPG code 4326) projection with MEDIN standard (v.2.3.7) metadata* b. *a plan showing the entire route* c. *a larger scale plan of the landfall location*
1.2	A description of the proposed routeing and a justification of corridor width (and where applicable, cable spacing if multiple systems).	*Describe the process you have gone through to identify the corridor proposed, including details of any survey work which you have undertaken.* *A narrative presentation of the proposed routeing of the proposed corridor width.* *This section should demonstrate that you have taken into consideration the overall routing principles set out in Section 5.2 and any cable spacing principles as suggested in The Crown Estate's evidence-based study (where applicable): Principles of Cable Routing and Spacing, The Crown Estate (UK) 2012* *The proposed number and spacing of cables must be included, and a rationale for how this links with the width of corridor requested. If the number and spacing of cables is unknown at the time of application, then a justification for the sought after survey area (the width of the corridor) must still be provided with a timeline as to when the number and spacing of cables will be known.* *Please state if the corridor proposed is representative of a definitive route, or if further refinement of the route is required. Please demonstrate how the width of the corridor route has been minimised to prevent unnecessary sterilisation of the seabed but sufficient to accommodate the anticipated requirements of the project. If the*

		route will be further refined, please outline your process for identifying the refined route and the timescales for doing this, making sure that it is clear which elements of work will be undertaken before and after development consent.
1.3	A draft specification of the works	*A list description of the equipment proposed to be installed on the site for the project. This should include:* – *Cable diameter and material* – *Maximum number and working voltage of cables (AC or DC)* – *Burial depth for cables* – *Cable protection (e.g. anticipated burial depths, matting, rock dumping, inshore protection)* – *Cable joint chambers (this is relevant for the foreshore) Any other cables or communications equipment* – *Offshore Substations (including details foundation types, dimensions of structures and burial depth)* – *Offshore converter stations (including details of foundation types, dimensions of structures and burial depth)* – *Any ancillary equipment* – *Any scour protection materials*
1.4	Description of installation techniques and onshore works	– *Installation techniques (for all applicable assets within the Option Site - relevant to Substation and converter platforms, offshore cables and cable installation at landfalls)* – *The nature of works proposed at the landfall site* – *The connection point to the onshore transmission or distribution system and confirmation of relevant onshore network owner* – *Overview of the works required onshore as part of the project*

1.5	Any other relevant technical information	*Such other technical descriptions may be useful for The Crown Estate's understanding of the project, including information about any consultants engaged by the developer to provide input to the project and their scope of works.*
Part 2 – Planning & third party interests		
2.1	Planning & Consenting	a. *List the key consents which will be required for the transmission assets, and your plan for achieving these consents (including approximate timescales).* b. *List the environmental/other user constraints that you are aware of on the corridor, and explain how you intend to mitigate these impacts. Particular mention should be made of potential impacts on any SACs, SPAs, MCZs/MPAs, SSSIs/ASSIs, and the way in which these will be managed.* c. *Briefly describe whether there is a marine plan in place for this location and if so, how you meet the objectives of the adopted plan.* d. *Describe any stakeholder engagement which you intend to, or have already undertaken on the corridor, including approximate dates for any future stakeholder engagement* e. *Confirmation that the proposed Cable Route accords with any relevant Appropriate Assessment and applicable SEA.*
2.2	Third party interests	*Please provide a list of third-party assets (or known proposed assets) which are potentially affected by your proposed corridor and the way in which these interactions are being/will be managed including any discussions that have been held to find a mutually acceptable solution. It may be convenient to present this in the form of a table.* *This will be reviewed by The Crown Estate against a Proximity Check which will be undertaken along the corridor proposed. If you would like an early version of this check to inform the proposed corridor, please let us know.*

2.3	Other relevant information	*Such other information as may be useful for The Crown Estate's consideration of the location of the proposed Option Site, taking into account the cable route planning principles in Section 5.2.*
Part 3 – Commercial set-up and Guarantor		
3.1	Corporate set-up of Transmission Entity	*A description of the corporate set-up of the Transmission Entity and its corporate linkage to the developer (if different). The Transmission Entity may either be the project company, or an OFTO if you have opted for the OFTO build approach in the case of offshore wind.*
3.2	*For offshore wind only Summary of OFTO strategy including key decision gates	*Confirmation whether generator or OFTO build approach is being adopted, and rationale for this.* *Summary of the key risks this approach mitigates or introduces to the project and confirmation of how these risks will be managed.* *Key decision gates/milestones under the OFTO process (e.g. when you expect an OFTO tender would start/ end and when assets would transfer to an OFTO, if the generator build approach is being adopted).*

Any relevant appendices (such as other details which the developer deems to be relevant for the assessment of the proposed corridor route) may be included in the application

Appendix 4 – Document control

Document Details

Author	Morris Bray, Transmission Portfolio Manager, Marine
Document Name	Transmission Cable Route Identification & Leasing Guidelines
Version Date	05 August 2024
Effective Date	05 August 2024
Version	5.1
Issue	TWO
Review Date	August 2025

Document Review

Modified Date	15 August 2024
Author	Morris Bray
Version	5.1
Description of changes	Update to the guidance to reflect the inclusion of Leasing Round 5 Floating Offshore Wind, whilst ensuring the guidance remains relevant for Round 4 and ongoing Extension Rounds.

If you have any questions about this Cable Route Guidance, please contact: Power.transmission@thecrownestate.co.uk

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