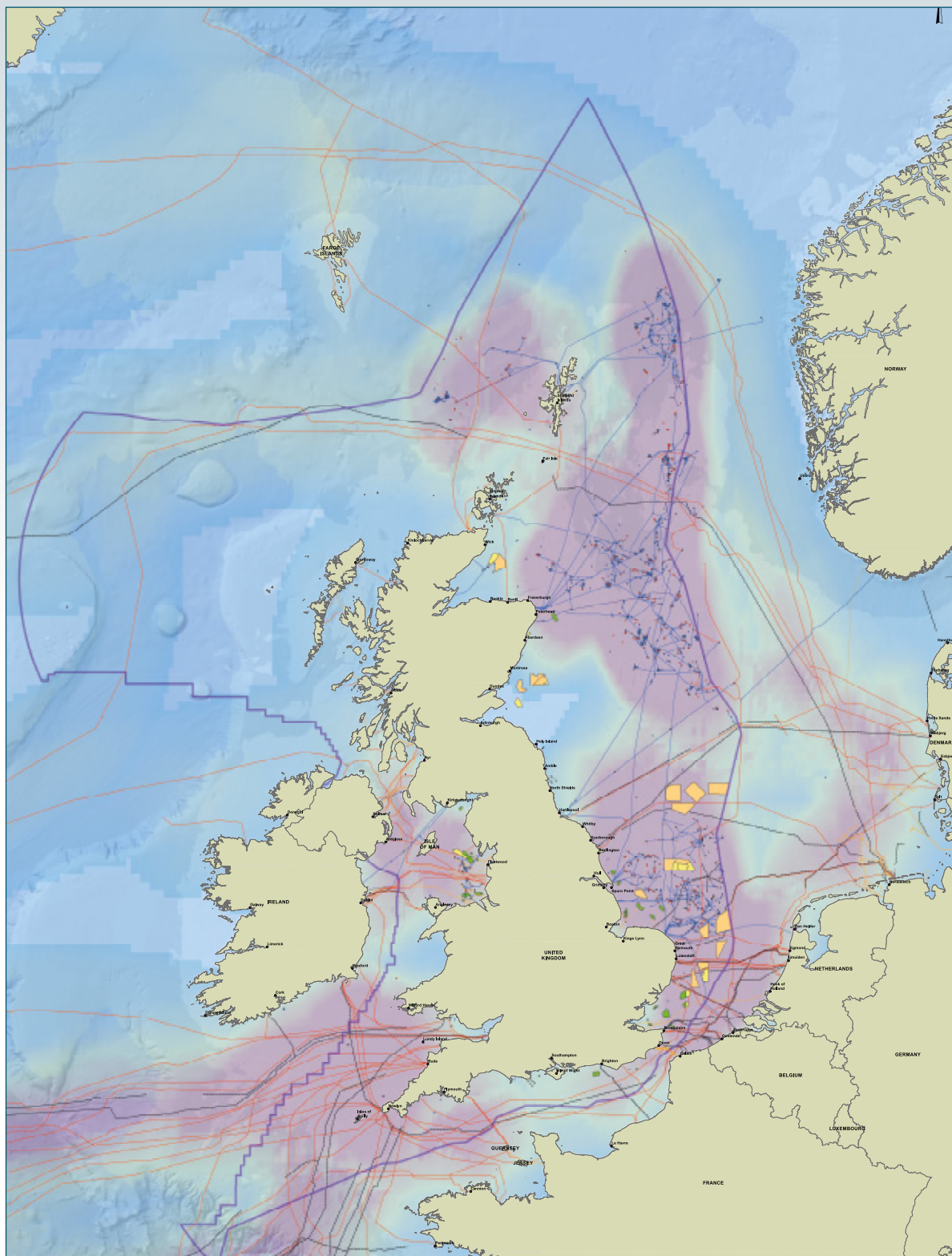


An Introduction to ~~~~
Subsea Cables
~~~~ **around the UK**  
**and North Western Europe**





| RENEWABLE ENERGY                                                                                                                                                                          | OIL & GAS                                                                                                                                                                                | SUBSEA CABLES                                                                                                                                                  | ADDITIONAL INFORMATION                                                                                                              | PRODUCTION INFORMATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Windfarm (Operational)</li> <li>Wind Farm ( Under Construction)</li> <li>Wind Farm ( Proposed/Consented)</li> <li>Wind Farm Power Cable</li> </ul> | <ul style="list-style-type: none"> <li>Suspended Wells</li> <li>Subsurface Structures Oil &amp; Gas</li> <li>Surface Structures Oil &amp; Gas</li> <li>Oil &amp; Gas Pipeline</li> </ul> | <ul style="list-style-type: none"> <li>Subsea Telecomms Cable</li> <li>Subsea Power Cable</li> <li>Out of Use Cable</li> <li>ESCA Non Members Cable</li> </ul> | <ul style="list-style-type: none"> <li>UK Exclusive Economic Zone</li> <li>Asset Density High</li> <li>Asset Density Low</li> </ul> | <p>Production Information</p> <p>Date: January 2018</p> <p>Projection: WGS 1984 World Mercator</p> <p>Spheroid: GCS WGS 1984</p> <p>Datum: WGS 1984</p> <p>Scale: 1:4,000,000</p> <p>This product and all associated data is issued as a guide only. Seafish, cable/structure owners and distributors accept no responsibility for any inaccuracies however caused. Please be aware that other structures &amp; cables may exist in addition to those shown on this chart. All data supplied by IIS-ORCA &amp; FundaFE projects. Please see <a href="http://www.iis-orca.eu/">www.iis-orca.eu/</a> <a href="http://www.funda-fe.eu/">www.funda-fe.eu/</a></p> |

## 1. Introduction

This document has been prepared to give an introduction to the subsea cable sector around the UK and North Western Europe and to highlight work in recent years that supports both existing and future projects. It is targeted at anyone who has an interest in subsea cables or wants to gain a better understanding of the industry.

The document provides an overview of the subsea cable industry by setting out information on the technology being used and the importance of the industry to the economy. In addition, the document sets out our growing understanding of the environmental impacts of cable activity on the seabed and the importance of working with others to ensure that the cable industry contributes to good management of the seabed and the marine environment. To this end the European Subsea Cables Association (ESCA) works closely with regulators and stakeholders to support the continued development of marine policy, spatial planning and the practical implementation of legislation that licenses activities in the marine environment to ensure effective solutions for both the industry and the environment.

The aim of this document is not to be exhaustive in the information it contains, but to provide a background and then point the reader to those sources that give further detail and information.

There are two basic categories of cable and a brief description of each is given below.

### 1.1. Telecommunication cables

The first international submarine cable, a copper-based telegraph cable, was laid across the English Channel between the United Kingdom and France in 1850 and since then, the submarine telecommunications industry has been connecting countries and continents around the world. Since the introduction of millisecond communication in the 1940s with telephone connections, the development of fibre optics in the late 1980s has enabled the volume of traffic along cables to rise by orders of magnitude since then. It has been calculated that the capacity of a single transatlantic cable has increased by a factor of 100,000 in 25 years (1). What this all means is that telephone conversations, the Internet, emails and television are all reliant on subsea cables so that 97% of the world's

communications are now transported around the world via fibre optic submarine cables.

Access to the Internet worldwide is increasing and the demand for internet capacity is increasing at a rate of about 40% per year (1), as is the number of devices that people own that have Internet access, such as smart phones and laptops. Facebook, Netflix, Google, iTunes and email are part of everyday life and all require subsea cables. There is, therefore, an increasing need to meet the demand for more and better data movement, so that while cables are becoming increasingly effective at carrying information, there is still a need for more cables to meet the needs of the modern world. ESCA estimates that we may reach capacity in 5 to 8 years after which time more cables will be an absolute necessity (2).

### Submarine Telecoms Cable structure

Since 1986, submarine telecommunication cables have been made using fibre optics, which are strands of glass not much thicker than hair. Data can be transmitted along these strands at the 2/3rds the speed of light and over hundreds of kilometres without interference.

Each fibre optic strand is capable of carrying vast amounts of information. The latest technology could potentially provide 12-24 Terabits down just one fibre optic pair; the equivalent of 375 million simultaneous telephone calls. The number of fibre optic pairs in a cable varies, usually dependant on length, from around 2 - 16 for a Trans-Atlantic cable, but up to 200 for a cable across to Europe (2).

In addition to fibres, submarine cables require a power path (needed to carry power to signal boosting equipment), insulation and protection, consisting of either a metallic screen with additional polythene layer or varying combinations of steel armour wires, depending on location and how the cable is laid on the

sea floor. Armouring is particularly important in inshore areas where there are dangers from damage by anchor drag from shipping and trawl fishing equipment (2).

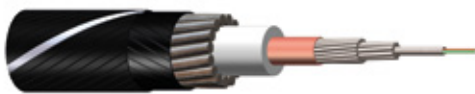
#### Common types of Submarine Telecommunications Cables



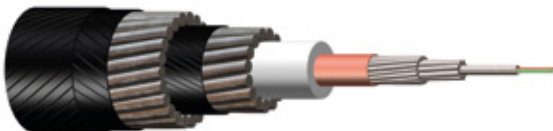
**LW = Light Weight**



**LWP = Light Weight Protected**



**SA = Single Armour**



**DA = Double Armour**

### 1.2. Power cables

Power cables provide electrical energy transmission between two points, e.g. local and regional distribution, grid transmission and for export of power from offshore generation developments such as wind farms. Subsea power transmission is typically medium or high Voltage and either alternating or direct current (AC or DC respectively).

Cable design and insulation medium can vary with technology and includes, oil filled, mass impregnated paper insulation or with synthetic materials, e.g. XLPE

and may be single or double armoured with external steel wire armouring.

The first submarine cable to carry electricity was laid across the Isar River in Bavaria in 1811. Since then they have evolved significantly and developments in technology and design have allowed them to be of ever increasing capacity and length. The importance of submarine power cables has also increased enormously in recent years with the huge growth of offshore renewable energy and, in particular, wind turbines.

Interconnector cables are increasingly being laid to move energy freely throughout Europe, thereby ensuring security of supply (2). Being able to share energy between countries reduces the frequency and severity of high price spikes and smoothes supply and demand timelines.

Submarine power cables can be anything from 60mm to over 200mm in diameter and can be High Voltage AC (Alternating Current) or High Voltage DC (Direct Current). The selection criteria for which type of cable to use is heavily dependent on the route length, voltage, transmission capacity and Grid synchronisation.

A very useful source of reference material is available Cigre (3).

## 2. Subsea cables and the economy

Both telecommunications and power cables play an increasingly important role in modern living and the value of the subsea cables sector is clearly growing rapidly as a response to this.

### 2.1. Telecommunications cables

While discussion about the future is speculative, it is clear that Internet traffic will continue to increase and that capacity is needed to ensure that data moves efficiently and rapidly (3). A recent report by Huddersfield University values the contribution of telecommunications subsea cables to the UK economy at £62.8 billion (4) and cites many sources which demonstrate that the value of the internet is growing rapidly as the importance of the Internet to economic growth and business development grows. It is important to note, however, that the Internet and digital economy is wide ranging and growing at an enormous rate which is difficult to measure accurately.



**Example of a HV DC bi-pole cable featuring copper core, XLPE insulator, semiconducting screen and concentric copper return conductors**

An example of the growing importance of the need for speed was given in a report by Information Week Magazine which advised that in the world of Algorithmic Stock Trading, a 1 millisecond advantage in speed over a submarine cable from New York to London can be worth £100 million a year to major brokerage companies (4). This is, however, only a small aspect of the capacity of cables and the majority of traffic is unable to detect such minute differences, but what is absolutely clear is that none of this internet traffic would occur without subsea cables and that growth in all these areas is driving the need for new international subsea cables.

In a similar vein, and to stress the importance of the UK subsea cable sector, the Financial Times reported that financial institutions are dependent on subsea cables and that moving financial centres away from London would require huge investment by other countries to match the facilities that already exist in the UK (5).

## 2.2. Power cables: export cables from offshore energy and interconnectors

The subsea cables industry is critical to the transmission of power from offshore renewable energy

projects as well as creating a more globalised energy sector as seabed power interconnector systems can transmit electricity between countries.

Interconnector cable systems enable secure and affordable supply of energy between countries. They improve sustainability, by providing a means to pass surplus energy between countries when too much is generated at once to be used domestically, and should therefore make a significant contribution to forging a lower carbon economy both in the UK and Europe (6). Great Britain has 5 interconnectors in operation to Ireland, Northern Ireland, France, The Netherlands and Belgium. A new electricity interconnector that will link Great Britain and Belgium is currently being installed. Links between Great Britain and Norway and Great Britain and France have commenced installation in 2018 to add to those interconnector projects that are currently in the development stages between Great Britain and France, Germany and Denmark.

Demand for more interconnected UK and European energy is driven by European energy and environmental policy. The European Union 2030 climate and energy framework (6) refers to Member States achieving 10% interconnection by 2020 and aiming for 15% by 2030.

A preliminary estimate of the economic value of the UK electricity subsea cables industry to the UK energy sector is given as £2.8 billion pa (4), but this figure will grow as both the interconnector and export cable markets expand. For example, a report (7) on the development of offshore renewable energy published in 2013 advised that the UK economy could gain £6.7bn per year and 150,000 jobs by 2020. A more recent document prepared by The Crown Estate (8) suggests that there will be double-digit growth at least until 2020. The UK continues to be the most attractive place to invest in offshore wind globally and it is estimated that offshore wind will provide 10% of the UK's electricity demand by 2020.

## 3. Marine Planning and Policies – Good Practice Engagement

The National Marine Policy Statement is the framework for preparing marine plans and taking decisions affecting the marine environment (9). Provision of national and regional marine plans became a statutory obligation under the Marine and Coastal Access Act, 2009.





The importance of subsea cables has led to a fully integrated link with marine planning, policy development and implementation which has been achieved through active involvement by the subsea cables industry in the development of both marine policy and plans.

### 3.1. The UK Marine Policy Statement

The Marine Policy Statement (MPS) (9) sets out the broad framework and policies for delivering sustainable development in the marine environment and, as such, provides significant direction for the development of individual marine plans in all the Devolved Administrations.

#### ***The MPS recognises that...***

***“Submarine cables are part of the backbone of the world’s power, information and international telecommunications infrastructure, and socially and economically crucial to the UK.”***

#### ***It also recognises that...***

***“Impacts from cable installations on the sea bed are low and spatially minor” and tend to occur only “due to the physical disturbance involved during placement.”***

At the same time as setting the context in terms of the importance of the subsea cables sector and the typically low levels of environmental impacts that result from installation and operation, the MPS also provides

an overview of where key impacts may occur to help focus considerations in production of marine plans and licensing decisions. It suggests that cable laying could cause impacts:

- On the marine environment; for example, where cable protection, rock armour or concrete mattresses are required and potentially in the intertidal areas where the cables are brought ashore.
- If the cable runs through any site designated as being of national or international importance for cultural heritage or nature conservation or other sensitive areas such as designated shell fish sites and spawning or nursery ground for economically important fish species. Other potential impacts could include disturbance to known or undiscovered archaeological sites.

#### ***The MPS goes on to state...***

***“The importance of telecommunication and power cabling as vital infrastructure for the domestic and global economy should be recognised in Marine Plans and for integrating across marine plan boundaries.”***

In support of this importance, the MPS also notes that the continued development, operation and maintenance of cables is vital. Working with others to ensure that this is the case is something that the cable industry has emphasised when working with relevant agencies during the development of Marine Plans.

### 3.2. Marine Plans

Marine planning in the UK is a statutory requirement managed by Department for Environment, Food and Rural Affairs (Defra (10)), and states that Marine Plans should set out priorities and direction for future development within a plan area and influence sustainable use of marine resources as well as help marine users understand the best locations for their activities, including where new developments may be appropriate. Marine plans should also guide those who regulate the marine environment to assist them in delivering sustainable development by ensuring that social and economic aspects are considered in addition to environmental aspects when administering licence applications.

Based on the MPS, Marine Plans need to acknowledge that while cables are often buried below the sea bed to protect them from damage from trawling and anchors, given the increased activity in the UK marine area, there is a risk that the number of incidents may increase. The MPS suggests that

***“Through the marine planning process, marine plan authorities should help facilitate the co-ordination of marine activities, a better understanding among relevant industries and the communication of guidelines to ensure both the safety of these installations and safe access to them for maintenance purposes.”***

#### **Marine Planning in England, Wales, Scotland and Northern Ireland aims to:**

- Ensure multiple benefits from the marine environment – understanding opportunities for co- location of activities and uses of the marine environment so that we can maximise “win- wins”.
- Optimise opportunities for the sustainable exploitation of all sectors, particularly those with substantial room for growth including coastal tourism, aquaculture and renewable energy.
- Take practical opportunities to secure ecosystem recovery to support resilience whilst enabling the sustainable exploitation of natural resources within limits.
- Focus more on providing benefits to society, but particularly for coastal communities, from the marine environment.

**This advice goes further as increasingly developers will need to show that their proposals are in accordance with Marine Plans and that in doing so they should:**

- Engage early across and between relevant stakeholders;
- Apply the general cross-cutting and sector-specific policies set out in Marine Plans to guide proposals;
- Consider the potential beneficial and adverse impacts of their proposed activity on the economy, society and the environment;
- Minimise adverse effects and maximise opportunities for coexistence and securing multiple benefits;
- Consider relevant sectoral marine planning and contribute to strategic sectoral planning initiatives;
- Supply the information required for the relevant public authorities to assess their proposal(s)
- Ensure that evidence provided is sound and proportionate given the development in question and its associated risks; and
- Support filling evidence gaps by gathering and sharing evidence on the impact of developments



Marine plans, with bespoke policies for subsea cables for the whole of the UK should be in place by 2021, after which developers will always need to refer to Marine Plans when planning new work. This is important as Section 58 of the Marine and Coastal Access Act states that a public authority must make any authorisation and enforcement decision in accordance with the appropriate marine policy document and how this legislation relates to marine plan policies from an applicant's perspective.

Marine Plans in England are all complete or in production. There are currently single plans being developed for Wales and Northern Ireland and the Scotland Plan is complete, although consideration is being given to Regional plans to support the main plan. Consequently, there will be differences in the way that Marine Plans are drafted in the UK and what they say. It is therefore important that promoters wishing to lay cables are aware of the status of the local Marine Plan and the policies that relate specifically to cables and other areas that may relate to cables, such as environmental protection. ESCA continues to engage in the development of marine plans to ensure consistent consideration of subsea cable projects and will continue to work with planners in monitoring and reviewing plans in the future.

In terms of the status of Marine Plans in Mainland European countries, good progress is being made in The Netherlands, Germany, Ireland, Spain, Portugal and France and this is expected to continue.

## 4. Brief technical description of cable operations

The design and operation of subsea cables is technical and significant expertise is required in the design, construction installation, operation and maintenance of all subsea cables. This document cannot aim to cover the information regarding technical aspects of subsea cables, but a wealth of guidance and information exists in a range of technical guidelines for ESCA members and covers everything from design to decommissioning (see Appendix 1).

Generally telecommunication submarine cables are no larger than 60mm diameter, although submarine power cables can be anything from 70mm to 210mm in diameter and can be AC or High Voltage AC (Alternating Current) and High Voltage DC (Direct Current). The selection criteria for which type of power cable to use is heavily dependent on the route length, voltage, transmission capacity and Grid synchronisation. Typically for a route length less than 80km, AC would be the most economical system as it is the cheaper technology, but it is limited by the distance it can go. Longer distances have to be undertaken using DC technology and the use of higher system Voltages is also being introduced to extend cable reach even further. AC cables are “three phase” cables, and are

laid either as a bundle in a three core formation, or as three separate cables. The configuration of DC cables is dependent on the DC system. There are two main types: mono-pole and bi-pole. Generally speaking they consist of two conductors, either laid separately, bundled together or in a co-axial arrangement. More information on power cables can be found in Worzyck (3).

## 5. Subsea Cable law

Subsea cable law is complex and defined by a range of legislation and regulation, both domestic and international. In 2016 ESCA commissioned Winckworth Sherwood LLP to produce an overview of the law relating to subsea cables to help ensure both project developers, regulators and other stakeholders are able to work from a common understanding of the legislation. This document (11) is available on the ESCA website by request or through membership of ESCA. The document comprises a number of chapters which breakdown the law into discrete areas covering UK and relevant International and EU law.

Different aspects of law relate to different statutory locations, such as coastal, 0nm to 12nm, up to territorial limits and the open sea and the report clarifies where and how the law applies to these different areas. The report also recognises that there are still ‘grey’ areas where the law is unclear and it provides pragmatic advice on how these can be addressed and emphasises that it is essential to work with regulators to achieve this.

The document also includes useful summaries and flow diagrams to assist in showing the reader where the law applies from 0nm to 12nm and from 12nm to 200nm out to sea.

In summary, the principle regulations of the subsea cable industry in the UK and the issue of marine licences under which it operates is prescribed by the following legislation and regulations:

The Marine and Coastal Access Act 2009; and Marine Works (EIA) Regulations 2007 (as amended).

These can be viewed at the following link:

<http://www.legislation.gov.uk/ukxi/2007/1518/contents/made> (12)

Since the enactment of the Marine and Coastal Access Act, there has been some confusion over how the law



should be applied, partly as a result of the varying nature of the laws representing both international and domestic obligations, but also over interpretation of the wording of the legislation. The Winckworth Sherwood report summarises the legal position and this has recently been accompanied by the drafting of a desk note by the Marine Management Organisation which governs marine licensing in England. This was drafted in conjunction with ESCA and clarifies many of the issues that have been raised over the years concerning the laying and repair of cables. Normally these desk notes are internal guidance for MMO staff, but the MMO have made this note available as a public document so that there is a consistent basis for planning work for both the cable industry and MMO. The desk note is available on the ESCA website (13) as a public document and it is recommended that anyone interested in applying for a licence for cable activity should read this and the Winckworth Sherwood report. Although the MMO note technically only applies to England, it provides valuable guidance for any UK activity.

In addition to the above guidance, Solent Forum has also produced a very useful practical guide to the consenting process which is available on:

**[http://www.solentforum.org/publications/key\\_publications/coastal\\_consents\\_guide](http://www.solentforum.org/publications/key_publications/coastal_consents_guide) (14)**

This provides very useful guidance on where consent may be needed for work, information on designated conservation sites, information on planning and a directory of useful contact points.

## 6. The environmental impact of cable activity

It is increasingly recognized by regulatory bodies that cables can be laid on the surface of the seabed or buried, dependent on which is preferred by the operator. Burial of cables for physical protection is important where there is a risk of damage by external factors such as anchor impacts or entanglement with fishing gear, but the process does cause some disturbance to the seabed during installation operations. Laying cables directly on the surface may be perceived to have a reduced impact during laying operations but can be considered as creating environmental impacts through the development of non-native habitats which may lead to the introduction of species non-native to the area.

Whichever course of action is taken, assessment of the potential environmental impacts of laying the cable is essential in the licensing process. The Winckworth Sherwood report (11) examines the legal requirements in great detail as the right to lay cables is enshrined in marine law (principally UNCLOS), but the principles of Environmental Impact Assessment are largely universal.

EIA is the assessment of the environmental consequences (positive and negative) of a plan, policy, programme, or project that might cause significant environmental damage before any decision is made on whether to allow the proposal to proceed. In relation to subsea cables, it is undertaken mostly at assessment of individual proposed cable routes, but of course may be linked to offshore wind development and the export of power cables from the offshore array to shore.





It should, however, be stressed that in many instances EIA under the EIA Directive is not obligatory for cable laying (see 11), but it is increasingly recognised that undertaking some form of voluntary Environmental Assessment should be of considerable value to the developer in making applications to regulatory bodies and in speeding up the process of gaining consent.

[ec.europa.eu/environment/eia/eia-legalcontext.htm](https://ec.europa.eu/environment/eia/eia-legalcontext.htm) (15)

Much has been written about the potential environmental impacts of cable laying and although there is an increasing amount of evidence to assist the assessment process. Some of the earlier guidance is based on the application of the precautionary principle; such as the OSPAR Best Environmental Practice (16). This guidance still applies in OSPAR waters, but the increasing amount of evidence which demonstrates that cables can have a relatively benign impact on the marine environment has led to a recognition that the OSPAR guidance must be updated in 2020/1 when OSPAR undertakes its Quality Status Review and that, as a consequence there will be less reason to apply the precautionary principle if objective evidence is available on environmental impact.

There are two important developments that are assisting the process of helping to clarify the impact that cable activities have on the sea bed. The first of these is a very useful summary of the literature which has been prepared on objective studies into the impacts on the environment by Carter (17) and the second is the work that Natural England have carried out to provide conservation advice on cable activities based on their own studies of the literature available (18).

In summary, the outcome of this work is that there is increasing evidence that impacts are short term and that the long-term impacts created by electromagnetic disturbance and heat loss are typically negligible. Natural England's conservation advice is a very comprehensive on-line system that allows a developer to scope activities in relation to the conservation features of a designated site. The system will also determine whether these interactions should be considered as insignificant or whether they should be studied further as part of environmental assessment. Natural England are hopeful of developing this work further to provide an on line tool which would assist developers even further in this approach.

It is important to note that the information above is specifically related to cable laying and burial, but in some cases, particularly for power cables, it can be necessary to pre-sweep or dredge the crests of sandwaves or areas of mobile sediment to protect the cables from exposure from sediment mobility. It should be noted, however, that the work undertaken to define pre-sweeping quantities should aim for a minimum impact to balance the need for cable protection, noting that in areas of high seabed mobility the protection of cable, environmental impact and requirement for periodical remedial maintenance work need careful evaluation and although it has the benefit of laying cables in deeper channels to avoid movement and possible damage from anchors and trawl equipment, it may have a greater environmental impact. The reasoning behind this approach is that if a cable becomes exposed it can be at risk from instability in a dynamic environment or contact damage from third party activities. As power cables are often greater in diameter and, as a consequence, less flexible than telecommunications cables it can be problematic to route cables around areas of sediment mobility or through troughs between sandwaves and therefore sometimes pre-sweeping is the only feasible option, particularly in areas of the seabed where routing is constrained by other seabed users.

Such work requires environmental assessment and assessment of options for disposal of the material requires significant amounts of seabed material to be moved while the cable is laid. ESCA and the regulatory bodies are currently looking at this issue with the aim of preparing a best practice approach. It should be emphasised, however, that this practice is currently not standard to the industry and may well require separate consenting.

## 7. Co-existence

Cables are at risk from natural phenomena such as earthquake which can cause serious rupturing, but the more likely risk in UK waters is damage from benthic trawl fishing gear and anchor impacts from shipping. ESCA works closely with Seafish to provide information to fishing vessels on the location of cables and although ESCA pays for this work the information is supplied by Kis-Orca free of charge to encourage skippers to avoid cables or lift gear while passing over the area where cables are known to be laid. Even though cables are only buried where the developer feels this is required and appropriate, the industry still strongly supports moves to prevent fishing over cables whether or not they are buried and it is increasingly hoped that regulatory and planning authorities will make this part of good marine management.

A good introduction to KIs-Orca and further details about the Kis-Orca charts showing the location of cables is given in the news section of the ESCA website (2).

While planning cable routes it is also essential to look for other activities along potential routes and for other users to be notified of possible cable activity. A good example of the working practices which have been developed is the ESCA/BMAPA proximity guideline which was developed between the cable sector and marine aggregates and is also available on the ESCA website (2).

## 8. Liaison and communication

All the above makes it clear that liaison and communication with regulators and other sea users is critical to good cable operations and activities and it is recommended that this takes place from the outset and before routes are determined.

## 9. References

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## Appendix 1.

Technical guidance notes available to ESCA members

**Guideline 01** - Fishing Liaison

**Guideline 01** - Appendix 01 - Principal UK Fishing Organisations

**Guideline 01** - Appendix 02 - Principal Operational Regulations

**Guideline 01** - Appendix 03 - Fishing Claims forms & Guidance Notes

**Guideline 01** - Appendix 04 - Guidance Fishing Reps

**Guideline 01** - Appendix 05 - Guidance Notes for Guard Vessels

**Guideline 01** - Appendix 06 - Telecom Cable Works Notice

**Guideline 02** - UKHO Liaison

**Guideline 04** - Offshore Liaison

**Guideline 05** - Inclusion of SCUK Recommendations

**Guideline 06** - Proximity of Wind Farms

**Guideline 07** - Rock Placement

**Guideline 08** - Appendix 6.2 - Typical Decommissioning Summary Report

**Guideline 08** - Submarine Cable Decommissioning

**Guideline 09** - Interfaces During Cable Fouling Incidents

**Guideline 10** - Research Vessel Safe Working Distances

**Guideline 12** - Reporting Faults Caused by Anchors to the MAIB and MCA

**Guideline 13** - Fishing Compensation

**Guideline 14** - Power Cable Installation

**Guideline 15** - Power and Renewable Energy Cable Repair

**Guideline 17** - Testing of AC and DC Subsea Power Cables

**Guideline 19** - Marine Aggregate Extraction Proximity



European Subsea Cables Association

39 Nightingale Road  
Guisborough  
North Yorkshire  
TS14 8HA

[www.escae.org](http://www.escae.org)