LLM in Natural Resources Law and International Environmental Law

Submarine Power Cables and the Marine Environment

Legal obligations of the Coastal States in the North-East Atlantic

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Abstract

Submarine Cables have been laid on the seabed since the nineteenth century and have special status according to international law, which provides for the right of all states to lay cables and pipelines on the seabed. Only recently, due to increased number of cables and the cumulative impact adding to other offshore activities, awareness is raised in relation to the impact on the marine environment, which to some extent is not fully understood by scientists.

Interconnection of electricity markets and the increase in use of renewable energy sources, such as wind and currents, with offshore power generation, is promoting submarine power cables as important energy infrastructure, in addition to the better known role of carrying telecommunications.

This thesis describes the international obligations of the coastal states, in relation to submarine power cable projects, and operation of those in marine areas where coastal states exercise jurisdiction. The main focus is on the protection of the marine environment, while taking into account the importance and special status of such cables. The potential impact is considered and to what extent there may be obligations assess, prevent, manage or mitigate such impact. These obligations are found in the general principles of international law, and in international agreements. Further, the obligations as stipulated in EU law are highlighted, and special attention paid to the approach of the two EFTA states, Iceland and Norway, parties to the EEA Agreement. Focus is set on the planning and permitting requirements for cable projects, to show how well they serve to fulfil the international obligations, using Iceland as an example of national implementation.
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<th>Description</th>
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<tbody>
<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
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<tr>
<td>CJEU</td>
<td>Court of Justice of the European Union</td>
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<td>COP</td>
<td>Conference of the Parties</td>
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<td>CRS</td>
<td>Cable Route Survey</td>
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<td>CS</td>
<td>Continental Shelf</td>
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<td>DSD</td>
<td>Dangerous Substances Directive</td>
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<td>DTS</td>
<td>Desktop Study</td>
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<td>EEA</td>
<td>European Economic Area</td>
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<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<td>EFTA</td>
<td>European Free Trade Association</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>ESPOO</td>
<td>Convention on Environmental Impact Assessment in Transboundary Context</td>
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<td>EU</td>
<td>The European Union</td>
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<td>FAO</td>
<td>Food and Agriculture Organisation of the United Nations</td>
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<td>HVAC</td>
<td>High Voltage Alternating Current</td>
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<td>HVDC</td>
<td>High Voltage Direct Current</td>
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<tr>
<td>ICJ</td>
<td>International Court of Justice</td>
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<td>ILA</td>
<td>International Law Association</td>
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<td>ILC</td>
<td>International Law Commission</td>
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<td>INPA</td>
<td>Icelandic National Planning Agency</td>
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<td>ITLOS</td>
<td>International Tribunal for the Law of the Sea</td>
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<tr>
<td>MSPD</td>
<td>Marine Spatial Planning Directive</td>
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<td>MPA</td>
<td>Marine Protected Area</td>
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<td>MS</td>
<td>Member States of the EU</td>
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<td>OJ</td>
<td>Official Journal of the European Union</td>
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<td>OSPAR</td>
<td>Convention for the Protection of the Marine Environment of the North-East Atlantic</td>
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<td>PCI</td>
<td>Project of Common Interest</td>
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<td>SEA</td>
<td>Strategic Environmental Impact Assessment</td>
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<td>SPP</td>
<td>Strategic Policy Plan</td>
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<tr>
<td>TEU</td>
<td>Treaty on the European Union</td>
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<tr>
<td>TEN-E</td>
<td>Trans-European Energy Networks</td>
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<td>TFEU</td>
<td>Treaty for the Functioning of the European Union</td>
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<tr>
<td>TSO</td>
<td>Transmission System Operator</td>
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<tr>
<td>TYNDP</td>
<td>Ten Year Network Development Plan</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNCED</td>
<td>United Nations Conference on Environment and Development</td>
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<td>UNEP</td>
<td>United Nations Environmental Program</td>
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<td>UNTS</td>
<td>United Nations Treaty Series</td>
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1. Introduction

1.1 Submarine cables

In today’s world submarine cables serve different purposes with increasing importance in the modern world. Submarine cables are an important state-to-state infrastructure serving twofold purpose, transmitting information and transmission of energy. They provide communications by carrying the internet traffic across the globe. They have increasing importance as an energy infrastructure with high voltage electricity power cables allowing flow of energy to accommodate energy supply and demand in different areas. The increasing utilisation of offshore wind energy calls for the use of submarine power cables to transmit energy onshore. Submarine cables are also important for the purposes of marine scientific research, such as bathymetric research and collecting information on weather and currents. Finally as an example submarine cables are used by the military or for military purposes.

The history of submarine cables goes back to the nineteenth century. The first submarine commercial telegraph cable crossing the English Channel between Dover and Calais was laid in 1850.\(^1\) In 1858 the first telegraph cable was laid across the Atlantic between Newfoundland and Ireland and telegraph cables soon were to be spread globally.\(^2\) The approximate length of submarine telegraph cables laid on the seafloor has been estimated around 725,000 km.\(^3\) With the coaxial telephone cable and technological advancements the way was paved for the laying of submarine telephone cables on the seabed in the 1950s. By 1983 it is estimated that around 190,000 km of such cables had been laid.\(^4\) In 1986 the first commercial glass fiber optic submarine cables were laid connecting islands in Japan, Corsica with mainland and UK and Belgium.\(^5\) Today submarine cables are the prevailing mode of transmitting the internet traffic and other communication around the globe.\(^6\) Independent cable systems were in 2012 estimated approximately 213 and 877,122 km.\(^7\) It is estimated that around 95% of overseas communications are now carried by such cables.\(^8\)

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\(^1\) Stewart Ash: "The development of submarine cables", p. 20.
\(^2\) Ibid, see further p. 22 and onwards. The 1858 cable eventually was a failure indicating that much was still to learn about various problems regarding construction and laying of such cables. A second cable was laid across the Atlantic in 1866 with better outcome. Before the end of the nineteenth century submarine telegraph cables had been laid across the Pacific connecting North America with Asia and Australia. With introduction of the wireless telegraph service after the First World War expansion of telegraph cables declined.

\(^3\) Stephen C. Drew & Allan G. Hopper, “Fishing and submarine cables working together”, p. 6.


\(^5\) Stewart Ash: "The development of submarine cables", p. 34.


\(^7\) Ibid, p. 2.

\(^8\) Stephen C. Drew and Alan G. Hopper, “Fishing and submarine cables working together, p. 6.
The development of submarine power cables has been much slower. The purpose of laying submarine power cables has historically been mainly twofold: First to connect remote island communities that were cut off from the main power grids on land and second to join energy markets to facilitate trade in energy.\(^9\) More recently they serve to transmit energy to shore from offshore energy farms.

Distance is a crucial factor when transmitting high voltage electricity which has limited the length of submarine power cables as compared to telegraph cables. In 1954 a 98 km long power cable was built to connect Gotland to mainland Sweden and in 2005 it was first viable to build the Basslink of 298 km connecting the power grids of Australia with Tasmania.\(^10\) In the last decade submarine power cable projects have become more and more advanced with cables laid over longer distance and deeper waters, currently the deepest laid cable is at 1600 m depth, connecting Sardinia with the mainland.\(^11\)

In the Greater North Sea there are several power cables interconnecting states. Four cables connect Norway and Denmark, the Skagerak cables, the most recent entering into service in 2014. In 2011 the BritNed connector between the UK and the Netherlands was operational. With fast developing technology the longest submarine power cable today is the 576 km long NordNed cable carrying 730 MW of electricity connecting the power grids of Norway and the Netherlands. Currently in the planning phase are connections between Norway and Germany (NordLink) and Norway and the UK (NSN cable).\(^12\) In addition the NEMO project of 1GW cable connecting the UK and Belgium is under way to be operational in 2018.\(^13\) Proposals have been made for around 900 km link between Iceland and the UK.\(^14\) Figure 1 below gives some idea, although incomplete, of the number of cables laid on the seabed in the North-Atlantic.

The EU has identified submarine power cables as important infrastructure for secure supply of energy by connecting electricity markets; see chapter 2.2.3 below.

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\(^9\) Malcolm Eccles, Joska Ferencz and Douglas Burnett: *Submarine power cables*, p. 301.
\(^10\) Ibid, p. 303.
\(^11\) Ibid, p. 304.
\(^12\) https://www.iscpc.org/cable-data/power-cable-systems/, accessed on 25 April 2016.
Figure 1. Submarine cables in the North-Atlantic region (incomplete).15

1.2 Issues and problems

The North Atlantic Ocean is a maritime area with a lot of human activity putting strain on the environment, such as navigation and intense utilisation of resources which makes sound management of the area complicated. All the different activities on the seabed and in the watercolumn above have impact on the marine environment.

The Convention for the Protection of the Marine Environment of the North-East Atlantic\textsuperscript{16} (OSPAR) is a venue for regional cooperation of coastal states. In 2009 the OSPAR Commission\textsuperscript{17} published an assessment of the environmental impact of submarine cables (2009 OSPAR Assessment).\textsuperscript{18} The assessment drew attention to the fact that increased number of cables, especially power cables, are likely to be laid on the seabed of the North Atlantic Ocean.\textsuperscript{19} The assessment concluded that concerns about the environmental impact are only recent due to increase in number of cables on the seabed relating to increased numbers of offshore windfarms.\textsuperscript{20} The main factors relating to power cables and identified as having potential negative impact in the process of laying were damage and disturbance of the seabed and seabed organisms, re-suspension of contaminants buried in the seabed, visual disturbance, noise and vessel emissions and wastes. In the operating phase electromagnetic fields, thermal radiation and introduction of artificial hard substrate were noted.\textsuperscript{21}

The 2009 OSPAR Assessment was used as a preparation for the conclusions of the 2010 Quality Status Report\textsuperscript{22}, (QSR 2010). According to the report human activity is causing pressure on the marine environment of the North East Atlantic.\textsuperscript{23} The report outlines lack of knowledge relating to the impact of submarine power cables.\textsuperscript{24} It further identifies number of human activities, including cables, which cause habitat damage and disturbance, including land reclamation, dredging, sand and gravel extraction, structures, dumping etc, that are likely to increase in future.\textsuperscript{25}

Attention is also drawn to the cumulative effect of the different human activities which include fisheries and offshore activities. The collective environmental effects of different

\textsuperscript{16} OSPAR was accepted on 22 September 1992 and came into force 24 March 1998, registration number I-42279 United Nations Treaty Series (UNTS). Current contracting parties are Iceland, Norway, the UK, Denmark, Sweden, Finland, Germany, the Netherlands, Belgium, Luxembourg, Switzerland, France, Spain and Portugal, see further information on the OSPAR homepage, www.ospar.org.

\textsuperscript{17} OSPAR, Art. 10.

\textsuperscript{18} Assessment of the environmental impacts of cables, Biodiversity Series. OSPAR Commission, 2009, publication number 437/2009, pp. 2-19.

\textsuperscript{19} Ibid, p. 6.

\textsuperscript{20} Ibid, p. 15.

\textsuperscript{21} Ibid, p. 8, Table 1.

\textsuperscript{22} Quality Status Report, OSPAR Commission, 2010, pp. 2-176.

\textsuperscript{23} Ibid, p. 11.

\textsuperscript{24} Ibid, p. 104.

\textsuperscript{25} Ibid, p. 122.
human activities are held to be unclear and a call is made for all new and existing uses of the sea and seabed to be monitored and assessed and managed if necessary. An integrated management of all different factors putting strain on the environment, including spatial planning, is promoted.\textsuperscript{26}

The laying of cables and pipelines on the seabed may also interfere with other legitimate uses of the sea and seabed. As an example ships anchors and fishing gear can easily become entangled with cables and pipelines on the seabed causing damage and inconvenience, and creating a risk for the vessel.\textsuperscript{27}

\section*{1.3 Objective and main research question}

In the above light the main objective of the present study is to describe and analyse the international legal obligations in relation to protection of the marine environment that coastal states must take into account in relation to the laying and operation of submarine power cables in ocean areas where they exercise jurisdiction. The focus is exclusively on the coastal states in the North-East Atlantic that are members of the European Union (EU) and the European Free Trade Association (EFTA).

Submarine power cables are highlighted in this thesis as important infrastructure for electricity transmission for secure supply of electricity. Attention will also be drawn to the special status of submarine cables according to international law. At the same time they also may have negative impact on the marine environment. The thesis addresses the issues that arise in relation to the laying and operation of these cables in relation to the protection of the marine environment and attempt is made to clarify how international law, including EU law, is responding.

As stated above offshore activity puts strain on the marine environment of the North Atlantic Ocean which is likely to intensify. This includes increased number of submarine power cables and still growing number of other cables for different use that are laid on the seabed. The thesis addresses the question if submarine power cables can be considered to have environmental consequences. It identifies international commitments of the coastal states and gives brief account of how they may be implemented at national level, with planning and permitting requirements, assessments and protective measures. The commitments relate to pollution prevention and the protection of habitats and species in the

\footnotesize\begin{itemize}
  \item \textsuperscript{26} Ibid, p. 120.
  \item \textsuperscript{27} More than 2/3 of cable faults are related to entanglement of fishing gear and anchors. See Stephen C. Drew & Allan G. Hopper, \textit{Fishing and submarine cables working together}, p. 7.
\end{itemize}
marine environment and the obligation to assess environmental impact of submarine power cables.

The international obligations of the coastal states are based on different legal sources and instruments, including public international law, EU and EEA law. The different commitments of the EU states on the one hand and the EFTA states on the other hand must be specifically addressed.

Different international legal obligations of the coastal states must be taken into account in the study. While the coastal state may have international obligations to protect the marine environment it may also have the obligation to allow the laying of submarine cables and pipelines on the seabed. At EU level there are obligations in relation to energy security and supply which may have implications for the coastal state. These different obligations are taken into account in the overall evaluation even though commitments in relation to protection of the marine environment are the main focus.

1.4 Study’s structure and methodological approach

Chapter 2 of the theses introduces submarine power cables as important marine infrastructure for transmission of electricity. The special legal status of submarine cables and pipelines is described and account given of the jurisdictional rights and duties of coastal states in the maritime areas where they exercise sovereign rights. Different types of submarine power cables and the process of laying cables is briefly introduced. Furthermore the potential environmental impact and mitigating measures are introduced and discussed.

The thesis is built around two main chapters, 3 and 4, that contain the legal analyses that will form the basis of the findings and conclusions on the legal obligations of the coastal states.

Chapter 3 describes obligations according to public international law. First, general principles of public international law of interest, mainly the no-harm principle relevant for transboundary infrastructure, and the precautionary principle, are put into the context of submarine power cables and attempt made to identify how these principles may affect the coastal states obligations. Then important international agreements are analysed in order to understand how they address the issue of infrastructure like submarine power cables and the potential environmental impact. Submarine cables are subject to the regime of the 1982 Law of the Sea Convention\(^{28}\) (LOSC) which is central for this thesis in many ways. First due to

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the special status of submarine cables in connection with the legal status of the maritime areas involved and second how the convention stipulates obligations to protect the marine environment. Regional commitments according to the OSPAR, based on the LOSC, are also essential and will be described. Finally, obligations according to other international agreements will be defined in relation to submarine power cables.

Chapter 4 looks at the issue from the EU/EEA perspective and describes how EU environmental policy entails obligations of the coastal states to take measures in order to manage human activity in the marine environment, including submarine power cables. A closer look is taken at the obligations in relation to the protection of the marine environment in the context of cable projects, including the assessment of environmental impact. The final part of the chapter describes to what extent the EFTA states have the same obligations as the EU states.

Finally Chapter 5 intends to shed some light on how the international obligations are implemented at national level, taking the example of Iceland, and Chapter 6 contains the conclusions of the thesis.

The method used in this study is legal analysis of traditional sources of international law, including general principles, international agreements, case law of international courts and other sources.

The main focus is on the obligations to protect the marine environment. The implications in relation to other uses of the sea and the seabed are interconnected however there is not room for detailed analyses for that purpose although the conclusions may have relevance there also. Extensive international obligations in relation to pollution from vessels, which are used in connection with submarine power cable projects, are not addressed for the same reason.

The thesis describes obligations of the coastal state, including procedure relating to permits and assessment of environmental impact. Public participation and access to justice will not be addressed specifically in this context beyond what is necessary in order to describe the international obligations in relation to environmental impact assessment.

Geographically, the thesis is confined with the maritime areas where the coastal states bordering the North-East Atlantic, all EU/EEA states, exercises jurisdiction and enjoy sovereign rights and duties. The special status of Greenland and the Farao Islands will not be discussed here.
2. Submarine cables and the marine environment

2.1 Introduction

This chapter introduces submarine power cables, different types of cables, cable laying methods and the potential impact the laying and operation of such cables has on the marine environment. Before that the special status of submarine cables according to international law as provided in the LOSC must be introduced along with the jurisdictional rights and obligations of coastal states in different maritime areas. Firstly however account will be given of the increasing importance of submarine cables as a means to transmit electricity, interconnecting national electricity grids and connecting offshore activities to the shore.

This chapter introduces submarine power cables, different types of cables, cable laying methods and the potential impact the laying and operation of such cables has on the marine environment. Before that the special status of submarine cables according to international law as provided in the LOSC must be introduced along with the jurisdictional rights and obligations of coastal states in different maritime areas. Firstly however account will be given of the increasing importance of submarine cables as a means to transmit electricity, interconnecting national electricity grids and connecting offshore activities to the shore.

2.2 Implications for transmission of electricity

2.2.1 Important electricity infrastructure

As noted in Chapter 1.1 submarine power cable technology is developing fast and longer cables are being laid connecting national grids of European states. At the same time submarine power cables are rapidly gaining importance as electricity transmission infrastructure.29

Interconnection of the national electricity grids in Europe is considered vital for Europe’s energy security, promotion of competition as well as for achieving the EU’s targets for decarbonisation.30 This includes inter alia interconnection of markets to secure supply, to enable flow of electricity from low to high demand areas and to increase competition leading to a more affordable energy and efficiency. High-voltage long distance transmission

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of electricity is considered important for promoting increased use of renewable energy in the EU.\textsuperscript{31}

Liberalisation of energy markets is the modern trend in many parts of the world.\textsuperscript{32} The demand for interconnecting electricity markets is therefore likely to increase in future, which may promote the use of submarine power cables in the North-East Atlantic region where interconnecting markets demands the use of such cables. Increase in generation of renewable offshore energy like wind energy and energy from wave and currents demands submarine cables to connect to the shore.

Transmission of electricity in the coastal states focused on in this study is in the hands of one or more Transmission System Operators (TSOs), frequently publicly owned entities, which have exclusive rights and corresponding obligations in relation to the electricity transmission system. As an example Statnet is the TSO in Norway, in Denmark it is Energinet and in the UK and Germany there are four TSOs in each state.\textsuperscript{33} The TSO in Iceland is Landsnet hf., which is a company owned by public entities in the energy sector. The laying of submarine power cables in the North-East Atlantic would usually involve some of these entities.

\textbf{2.2.2 International law promoting energy infrastructure}

At the international level steps have been taken in order to promote the interconnection of electricity networks supporting the current trend described in 2.2.1 above. The recent conclusion of The International Energy Charter (IEC) in 2015 is an example of this. Most of the coastal states dealt with in this paper and the EU are signatories to the IEC.\textsuperscript{34}

The provisions of the IEC reflect the common view of the contracting parties that connecting energy networks, including electricity networks, is important. The IEC strongly promotes access to national, regional and international markets for energy products and stresses the importance of the development of international energy transmission networks.\textsuperscript{35} Also they state the importance to diversify supply routes of energy.\textsuperscript{36}

\begin{thebibliography}{99}
\bibitem{33} See further the homepage of Entso-e, the European network of TSOs in electricity, https://www.entsoe.eu/about-entso-e/inside-entso-e/member-companies/Pages/default.aspx , accessed on 22 april 2016.
\bibitem{35} Ibid, title II, points 2 and 3.
\bibitem{36} Ibid, point 10.
\end{thebibliography}
Moreover interconnecting power networks and transmission of electricity via high-voltage power lines is seen as a means to develop integrated regional energy markets and promote access to sustainable energy.\textsuperscript{37} The IEC, even if not entailing binding obligations, nevertheless is clearly reflecting that energy infrastructure is viewed as an important means to promote energy security and sustainable energy consumption.

\subsection*{2.2.3 Interconnection of the EU electricity market}

Efforts have also been made at EU level to increase interconnection of the common electricity market. The so called TEN-E Regulation\textsuperscript{38} provides for the so called Projects of Common Interest, including 52 electricity interconnections. In 2014 the European Council called for measures to meet the target of at least 10\% of electricity generation of the Member States being interconnected. Figure 2 shows the projects intended to reach this target, including submarine power cable projects.\textsuperscript{39}

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure2.png}
\caption{Map of first PCI list for electricity interconnectors in Member States below 10\% connectivity.\textsuperscript{40}}
\end{figure}

\begin{footnotesize}
\textsuperscript{37} Ibid, Title III.
\textsuperscript{38} Regulation 347/2013 on guidelines for trans-European energy infrastructure, OJ 2013, L 115, 39.
\textsuperscript{39} COM(2015) 82 final, p. 2.
\textsuperscript{40} COM(2015) 82 final, p. 6.
\end{footnotesize}
Insufficient interconnections are among other things identified in the Northern Seas (including the North Sea, the Irish Sea and the English Channel)\(^\text{41}\) where the laying of connecting cables is necessary to make sufficient use of offshore and onshore electricity generation potentials in an area that is described as one of the most energy intensive regions of Europe.\(^\text{42}\)

Among the projects on the PCI list of projects and proposed conclusion are following interconnecting submarine power cables:\(^\text{43}\)

- Zeebrugge, Belgium - The vicinity of Richborough, UK
- Endrup, Denmark – Eemshaven, Netherlands
- La Martyre, France – Great Island or Knockraha, Ireland
- Three proposed interconnections between France and the UK
- Wilster, Germany – Tonstad, Norway (NordLink)
- Two connections between Ireland and the UK
- Interconnection between Norway and the UK
- Interconnection between Iceland and the UK (Ice Link)
- Revsing, Denmark – Bicker Fen, UK

The PCI list shows the important role of submarine power cable for the common Europe electricity market with increasing number of projects that could be putting pressure on the marine environment and other interests, such as fisheries and navigation. Therefore it is important to analyse the international legal framework of these projects including environmental obligations of the coastal states as regards the laying and operation of these cables.

### 2.3 Submarine cables and the Law of the sea

This chapter describes shortly the special status of submarine cables and pipelines according to public international law and serves as background for understanding the coastal state’s rights and obligations relating to submarine power cables in different maritime areas.

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\(^{41}\) TEN-E Regulation, Annex I (1).
2.3.1 History

The legal status of submarine cables and pipelines under international law has its roots in the doctrine that the oceans are free to use for all states equally, founded in the book *Mare Liberum*, written by Hugo Grotius and published in 1608.\(^{44}\)

In the late nineteenth century state practice accepted that the laying of submarine cables on the deep seabed constituted one of the freedoms of the high seas.\(^{45}\) The 1884 Convention for the Protection of Submarine Telegraph Cables\(^{46}\) (Cable convention) applicable outside territorial waters\(^{47}\) was based on the principle that any state enjoyed freedom to lay telecommunication cables on the seabed outside territorial waters of other states. In the commentary to its Draft Articles concerning the law of the sea\(^{48}\) the International Law Commission (ILC) regarded some principles of the Cable convention as reflecting existing international law on the subject including the freedom to lay cables on the seabed.\(^{49}\) Coastal states were required according to the Draft Articles to allow the laying of submarine cables on the seabed of the continental shelf (CS).\(^{50}\) In the Draft Articles the existing rules concerning telegraph cables were extended to include high voltage electrical cables and pipelines.\(^{51}\)

At the 1958 Geneva Conference on the Law of the Sea the laying of submarine cables and pipelines was accepted as one of the freedoms of the high seas that could be exercised by all states and was included in the 1958 Geneva High Seas Convention\(^{52}\) and in the 1958 Geneva Convention on the Continental Shelf.\(^{53}\)


\(^{45}\) Ibid., p. 156.

\(^{46}\) Adopted in Paris 14 March 1884, Australian Treaty Series 1901, 1

\(^{47}\) At the time of conclusion of the treaty state practice in Europe was to assert jurisdiction over coastal waters however international law on the territorial sea was developing and no general consensus on the general principles applicable, including what should be the breadth of the territorial sea. See Donald R Rothwell and Tim Stephens: *The International Law of the Sea*, p. 60-61.


\(^{49}\) Ibid, p. 293-294.

\(^{50}\) ibid, Art. 70 and commentary, p. 298. The Draft Articles proposed that coastal states would enjoy sovereign rights over exploration and exploitation of natural resources of the seabed and subsoil adjacent to the coast but beyond the territorial sea up to 200 m deep (or 100 fathoms), or beyond that where such exploitation was possible, see Art. 67 and 68.

\(^{51}\) Ibid, commentary, p.278.

\(^{52}\) The 1958 Geneva Convention on the High Seas was signed on 29 April 1958 and entered into force 30 september 1962, registration no. 6465, United Nations Treaty Series (UNTS) vol. 450, p.11. Currently there are 63 states parties (status as at 19.01.2015).

\(^{53}\) The 1958 Geneva Convention on the Continental Shelf was signed on 29 april 1958 and came into force 10 June 1964, registration no.7302, United Nations Treaty Series (UNTS), vol.499, p.311. Currently there are 58 states parties (status as at 19.01.2015).
2.3.2 The United Nations Convention on the Law of the Sea (LOSC)

2.3.2.1 General

The freedom to lay submarine cables and pipelines was more or less incorporated into the LOSC which is the international law of sea regime applicable today. The right to lay cables and pipelines is not absolute and is subject to other provisions of the LOSC and customary international law.

The LOSC regulates the breadth of the territorial sea as 12 nautical miles and outlines the right of coastal states to declare an exclusive economic zone (EEZ) of 200 nautical miles. Furthermore the LOSC provided for a new legal regime regarding the delimitation of the CS which is the part of the seabed and subsoil that extends beyond the territorial sea. The CS is a natural prolongation of the land territory extending to the outer margin of the shelf or at least up to 200 nautical miles from baselines. The provisions on the right of states to lay cables and pipelines are both in part V regarding the EEZ and part VI on the CS as well as in part VII regarding the High Seas. The general principle is that there exists a right of states to lay cables and pipelines within the EEZ and the CS of any state subject to the rights and duties of the coastal state according to the LOSC and subject to other rules of international law.

The principles relating to the territorial sea, EEZ and CS regime according to LOSC will be described below in relation to the laying of cables and pipelines.

2.3.2.2 The territorial sea and internal waters

As mentioned earlier the breadth of the territorial sea is 12 nautical miles measured from the baseline, which usually is the low water line as it is drawn on maps officially recognised by the coastal state. On the landward side of the baseline are internal waters of the coastal state. Within internal waters and the territorial sea the coastal state has sovereignty in accordance with LOSC and other rules of international law. This means that the coastal

54 LOSC, Art. 87.
55 Ibid, Art. 3.
56 Ibid, Art. 57.
57 Ibid, Art. 76 para. 1. If the outer margin of the Continental shelf extends beyond 200 nm the coastal state can establish the outer margin according to the rules in paras. 4 – 6 and the outer limits can be extended up to 350 nm. from baselines or 100 nm. from the 2.500 m isobath which is a line connecting 2.500 m depth.
58 Ibid art. 58.
59 Ibid art. 79.
60 Ibid art. 87 and 112.
61 Ibid art. 3 and 5. According to art. 7 a straight baseline may be drawn where the coast is deeply cut into or fringe of islands is situated along the coast, an example is the west coast of Norway.
62 Ibid art. 8. Archipelagic states can draw baselines connecting its outermost islands.
63 Ibid art. 2.
state has jurisdiction to regulate and authorize the laying of cables and pipelines. The question can be raised whether the coastal state is under an international obligation to authorize the laying of cables and pipelines within its territorial sea. The convention requires the coastal state to allow innocent passage by ships through its territorial waters for the benefit of freedom of navigation. In the absence of similar provisions relating to cables and pipelines it can be held that the coastal state has no obligation to allow such activities.

2.3.2.3 The EEZ and the CS

As a result of growing regulation in specific fields of international law including issues such as biodiversity, fisheries, navigational safety and maritime security, common management of the high seas is increasingly having effect on the traditional high seas freedoms. The introduction of the EEZ and CS regimes by the LOSC is an important part of this development and subjecting a large part of what previously was the high seas to the coastal state’s sovereignty and jurisdiction for defined functions.

The rules relating to the laying of cables and pipelines in the EEZ and the CS reflect balancing between competing interests. On one hand coastal states have sovereign rights to explore and exploit the natural resources and have jurisdiction over installations and structures, marine scientific research and in relation to marine environmental protection within its EEZ and on the CS. On the other hand all states have rights included in the high seas freedoms, such as freedom of navigation and to lay submarine cables and pipelines on the seabed. When submarine cables and pipelines are laid on the seabed within the EEZ, the rights and duties of the coastal state must be respected, and the laws and regulations adopted by the coastal state must be complied with in so far as they are in conformity with the LOSC and other rules of international law.

Article 79(1) LOCS stipulates the right of all states to lay cables and pipelines on the CS subject to the provision of paragraphs 2 – 5. Article 79(2) stipulates the obligation of the coastal state not to impede the laying of cables and pipelines on the CS subject to its rights to take reasonable measures to explore and exploit the CS and take measures in relation to control of pollution from pipelines, whereas pollution from cables is not mentioned specifically. Article 79(3) is worded as follows:

64 LOSC, art. 17.
66 LOSC, Art. 56(1).
67 Ibid, Art. 77.
68 Ibid, Art. 58 and 79.
69 Art. 58(3).
The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.

According to the wording of this provision the course for the laying of pipelines is subject to the consent of the coastal state. According to Rothwell and Stephens the laying of cables can follow any route subject to other conditions in Article 79; see further below.\textsuperscript{70} This difference between cables and pipelines as regards their delineation was not apparent in the 1956 ILC Articles on the Law of the Sea where delineation of cables on the CS also is subjected to coastal state consent to prevent interference with the exploitation of the seabed and subsoil.\textsuperscript{71}

2.3.2.4 Coastal state’s jurisdiction in the EEZ and on the CS – Articles 56 and 79 LOSC
As described above Article 79 LOSC reserves rights for the coastal state to regulate the laying of cables and pipelines on the CS, specifically as following:

1. Taking reasonable measures in relation to exploring and exploiting of natural resources.
2. Taking reasonable measures against pollution from pipelines.
3. Deciding the route of pipelines on the seabed.

According to Article 56 LOSC coastal states have jurisdiction in the EEZ in relation to installations and structures, marine scientific research and the protection and preservation of the marine environment.\textsuperscript{72} When coastal states exercise jurisdiction they must take into consideration the rights of other states\textsuperscript{73}, including the right to lay cables and pipelines according to Article 58 and 79.

Whereas the coastal state must not obstruct the laying of cables and pipelines other states must take due regard of the rights and duties of the coastal state and comply with its laws and regulations that are adopted in accordance with international law, including the LOSC.\textsuperscript{74} This requires careful balancing between different interests protected by international law.

It has been maintained that the coastal state’s jurisdiction relating to protection of the marine environment in the EEZ is exclusively in relation to pollution from ships and pipelines and not cables and \textit{inter alia} pointed out that they are not defined as an explicit

\textsuperscript{70} Donald R Rothwell and Tim Stephens: \textit{The International Law of the Sea}, p. 118.
\textsuperscript{72} LOSC, Art. 56(1)(b)(i), (ii) and (iii).
\textsuperscript{73} Ibid, Art. 56(2).
\textsuperscript{74} Ibid, Art. 58(3).
source of pollution under the LOSC.\textsuperscript{75} This view is based on a narrow interpretation, which is not necessarily the right approach since there are general obligations to protect the environment stipulated in the LOSC; see further Chapter 3. This thesis intends to answer the question to what extent the coastal state has obligations under international law to protect the marine environment in relation to the laying of submarine power cables; see Chapters 3 and 4. Where such obligations exist the possibility that the coastal state may exercise jurisdiction and regulate to fulfil these international obligations within the EEZ and CS cannot be excluded and should be viewed in the context of the relevant provisions of the LOSC. Regulation by the coastal state therefore may be justified on basis of the balancing of interests and to protect interests that are given protection under international law.

2.3.2.5 Other legitimate uses of the seas and the seabed

The right to lay cable and pipelines on the seabed is subject to the rights of other states and entities according to international law. Therefore consideration must be taken to other legitimate uses of the seas and the environment.\textsuperscript{76} This principle is applicable to the laying of cables and pipelines within and beyond national jurisdiction. Laying of cables and pipelines can affect navigation since anchoring is not always secure in the vicinity of cables and pipelines due to the risk of damaging them or anchors being lost compromising the security of vessels. The effect on exploration and exploitation of living and non-living marine resources must also be taken into account. Submarine cables and pipelines can interfere with exploitation of sedentary species and fish species living on and above the seabed.\textsuperscript{77} They can also have effect on exploitation of non-living resources of the seabed including minerals and metals.\textsuperscript{78}

Article 79(5) of the LOSC stipulates that while laying submarine cables and pipelines due regard is to be taken to existing cables and pipelines. In particular maintenance and operation of existing cables and pipelines is not to be hindered in any way. The same applies according to Article 112 of the LOSC relating to the seabed beyond the CS.\textsuperscript{79}

\textsuperscript{75} Tara Davenport: \textit{The installation of Submarine Power Cables under UNCLOS: Legal and Policy Issues}, p. 131.
\textsuperscript{76} Donald R Rothwell and Tim Stephens: \textit{The International Law of the Sea}, p. 156
\textsuperscript{77} Above, chapter 1.2
\textsuperscript{78} Ibid.
\textsuperscript{79} See also Donald R Rothwell and Tim Stephens: \textit{The International Law of the Sea}, p. 156.
2.3.3 Concluding remarks
As has been outlined above, and depending on their location, two sets of LOSC principles are applicable to submarine cables and pipelines.

Firstly, within the internal and territorial waters, the coastal state has sovereignty over the laying of cables and pipelines on the seabed, it can regulate, decide the route and stipulate any conditions according to national law, in conformity with international law.

Secondly, within the EEZ and on the CS, coastal states have jurisdiction in relation to particular activities, and in relation to protection of the marine environment in the EEZ. In exercising jurisdiction the right to lay cables and pipelines on the seabed must be respected by coastal states, which requires a careful balancing of rights and duties.

2.4. The process of laying submarine power cables
2.4.1 Different types of cables
There are two basic types of submarine cables used to transmit high voltage electricity, high voltage alternating current (HVAC) and high voltage direct current (HVDC) cables depending on the form or syntax of the electricity transmitted. The main practical difference as regards this paper is that HVAC power cables are not as efficient as HVDC due to more loss of energy during transmission so the latter type is more suitable for long range electricity transmission. Additionally HVDC cables create greater electromagnetic field in general than HVAC cables which may have environmental implications, see 2.5.3 below.

HVDC submarine power cables are basically either configured as bipolar or monopolar. Bipolar cable has two conductors, high voltage cable and a low voltage return cable. Monopolar cable has a single HV cable conductor using the seawater instead of a conductor as a return using submerged electrodes to transport the return current. Monopolar cables are rarely used because of the risk of electrolyses and due to environmental concerns relating to electrical magnetic fields.

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81 Ibid, p. 306-307. The critical distance for HVAC submarine power cable is with current technology considered about 50 km, see p. 306.
82 Ibid, p. 310.
84 Ibid. An example mentioned is the Basslink power cable connecting Tasmania with mainland Australia where plans of using mono polar cable were abandoned due to environmental concerns.
Modern cables are basically composed of a conductor, usually copper, insulation and an armour. They can be up to 300 mm in diameter and weight up to 140 kg/m depending on the current carrying capacity and thickness of armour.\textsuperscript{85}

### 2.4.2 Planning and surveying

Preparing the laying of a submarine cable involves preliminary route planning, preferably conducted already at the initial feasibility and conceptual design phase of the project. This includes among other things examination of available charts, physical constraints in the potential cable routes are identified, permit requirements are considered and viable landing sites are located.\textsuperscript{86} Following the preliminary route planning is the planning and surveying phase where proposed cable routes are studied in more detail.

Planning and surveying of the cable route usually takes place in two phases, desktop study (DTS) and cable route survey (CRS) which includes seismic studies. The DTS should include examination of landing site, geology, climatology, seismology, oceanography, activities such as shipping, environmental factors relating to flora, fauna and habitats and regulatory factors, such as maritime boundaries and statutory requirements.\textsuperscript{87}

In the DTS important factors to be determined are among others identifying shipping lanes and anchorage areas, restricted areas on bases of existing use like shipping, mining, military activities, sites with planned or abandoned dumping grounds for wastes, munition etc. Restricted areas based on environmental protection, like marine protected areas and sensitive areas such as coral reefs, and areas where there may be seasonal restriction due to species protection, relating to nesting of birds, migrating whales etc. Biological factors are assessed at the landing and on the seabed, such as habitats and species at the landing, seabed communities, spawning grounds etc. Culturally interesting sites and tourist attractions are also identified in this stage.\textsuperscript{88} The DTS provides for a proposed route, one or more, based on the information gathered during the DTS, which forms bases for detailed survey of the proposed route.\textsuperscript{89}

The recommended content of the DTS includes in addition to above mentioned detailed analysis of permitting requirements and regulatory factors. Environmental and man-made factors, fisheries and biological factors are also analysed in details.\textsuperscript{90} The DTS should

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\textsuperscript{85} About Submarine Power Cables, International Cable Protection Committee (ICPC), http://www.iscpc.org/

\textsuperscript{86} See further Graham Evans and Monique Page: “The planning and surveying of submarine cable routes”, p. 94-96.

\textsuperscript{87} ICPC Recommendation No. 9: “Minimum Technical Requirements for a desktop study”, ICPC, Issue 4 B, 6 March 2012, p. 4-8

\textsuperscript{88} Ibid, p. 7.

\textsuperscript{89} Ibid, p. 11.

\textsuperscript{90} Ibid, p. 12.
moreover include list of consulted individuals and organisations and bibliography of all research material.\textsuperscript{91}

The CRS is performed on the bases of the DTS and includes using sonar devices and magnetometers to map the seabed and the sub-bottom in order to obtain detailed description of the cable route and landing sites. This may \textit{inter alia} include the use of multi-beam echo sounders typically operating at 12 kHz to 300 kHz, side scan sonar using frequency range of 100 kHz to 500 kHz. Gravity corers may be used to explore the seabed soil and burial assessment performed.\textsuperscript{92}

\textbf{2.4.3 The cable laying process}

Submarine power cable is either laid on the seabed or buried beneath it. In water depths more than 2000 m and where the seabed is unsuitable for cable burial submarine cables are laid on the seabed.\textsuperscript{93} For shallower waters cable burial is recommended for the protection of the cable since damage can be caused to the cable by human activity such as fisheries. The consequences of a breakdown of a power cable can be significant and the repair cost is considerable. Cable burial was first introduced in 1986 when a cable between UK and Belgium was successfully laid using a ship towed cable plough.\textsuperscript{94} Modern techniques may involve that cable is buried in a narrow trench, less than 1 metre wide, that is cut by water jet or plough that lifts sediment from the seabed so the cable can be laid into the trench.\textsuperscript{95} Cables are commonly buried 1 – 10 metres under the seabed.\textsuperscript{96}

Where cable burial is not suitable concrete mattresses, articulated pipes, dumping of rocks or grout bags are used to protect cables.\textsuperscript{97} This can be appropriate where the seabed is rocky but also for environmental protection where burial process can damage seabed habitats or harm vulnerable species.

At the landing typically in case of sand or gravel coast the cable is laid in a pipe that is drilled through sandbanks on the coast and laid to a converter station before it is connected to the electricity grid. On land in the vicinity of the landing there may be need for laying of buried or overhead power lines. Converters are needed for shifting between AC and DC electricity current; see Chapter 2.4.1.

\begin{flushright}
\textsuperscript{91} Ibid. p. 13. \\
\textsuperscript{92} See further Graham Evans and Monique Page: “The planning and surveying of submarine cable routes”, p. 98-100. \\
\textsuperscript{93} Ibid \textsuperscript{94} Stewart Ash: “The development of submarine cables”, p. 35. \\
\textsuperscript{95} About Submarine Power Cables, http://www.iscpc.org/ \\
\textsuperscript{96} Ibid \textsuperscript{97} Malcolm Eccles, Joska Ferencz and Douglas Burnett: “Submarine power cables”, p. 314-15.
\end{flushright}
It is important for the coastal state to have exact details available on all phases of the cable laying process, including exact position of the cable. This might entail a requirement of a Load and Lay Report (LLR) prepared by the cable laying operator.\(^9\) The LLR report would include narrative of the whole cable installation process from clearance of the route and other pre-laying processes, the main laying process and post laying processes and inspection.\(^9\) This may be presented in text and charts and video records of the actual laying process. Even though this report is normally prepared in the interest of the owner of the cable the coastal state may also have interest in obtaining these information and may make permit conditional upon the delivery of this information.

### 2.5 Environmental impact of submarine power cables

#### 2.5.1 General

The OSPAR QSR 2010\(^{10}\) mentioned above in Chapter 1.2, draws attention to the cumulative effect of the different human activities on the environment, including submarine cables, and calls for management of these activities in order to protect the environment.\(^{101}\) The 2009 OSPAR Assessment highlights that due to an increased number of power cables to be laid on the seabed of the North Atlantic maritime area, the environmental impact of cables is considered likely to grow in the future.\(^{102}\)

The 2009 OSPAR Assessment points out several factors to be considered regarding the environmental impact of submarine cables. On the one hand there is disturbance and other effects on the seabed and organisms with possible negative effect on habitat and species. On the other hand there is chemical, noise and electromagnetic pollution which may have effect on the environment. A short overview of the assessment is given in the following sections.\(^{103}\)

#### 2.5.2 Disturbance and other impact on the seabed

The cable laying may result in disturbance, displacement and destruction of flora and fauna in the cable trench. Turbidity following the cable laying can temporarily have negative effect on some benthic and pelagic organisms.\(^{104}\)

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\(^{9}\) ICPC Recommendation No. 10, Issue 3A: *The minimum Requirements for Load and Lay Reporting and Charting*.

\(^{99}\) Ibid, p. 4.


\(^{101}\) Ibid, p. 120.

\(^{102}\) 2009 OSPAR Assessment, p. 4 (Executive summary).

\(^{103}\) For further reference see also Background Document on potential problems associated with power cables other than those for oil and gas activities, publication number 370/2008, OSPAR Commission, 2008. (2008 OSPAR background document)

In coastal areas the impact of disturbance depends highly on the location and different situations. Natural waves and currents in sandy coastal areas usually remove all physical disturbance within days or weeks.\(^{105}\) In coastal wetlands, tidal or intertidal areas, on the other hand, there is potential impact on flora and fauna that may take longer time to recover.

As regards the continental shelf and the slope the impact of cable laying is likely to be less on the seabed of the inner shelf, usually less than 30 m deep, due to natural sediment movement caused by sea current and waves, which removes the impact from the cable laying process, and also due to the ability of the seabed fauna to adapt to change.\(^{106}\) Since the seabed is more stable on the middle shelf disturbance may have more lasting impact however research indicates that the seabed recovers and impact on benthic species is not significant.\(^{107}\) On the outer shelf and upper slope, more than 70 m deep, impact is likely to last longer because sediment movement and supply is less than in shallower waters and sediments are more likely to be resistant and making cable trenches more persistent.\(^{108}\)

The destruction of flora and fauna in the narrow cable trench is unavoidable. An important issue is therefore how well the flora and fauna is likely to recover and how it will adapt to the changes occured.

The cable or its protective armour may also form an artificial hard substrate in a soft sediment area, which may invite non-local fauna into the ecosystem which can have long term local effect.\(^{109}\)

The negative impact of seabed disturbance is usually local, and limited to the cable trench, and therefore not essentially of a significant nature. However significant impact cannot be excluded in environmentally sensitive areas.\(^{110}\)

### 2.5.3 Pollution

Mainly four types of pollution can be seen as possible impact of the laying and operation of submarine power cables for the purposes of this thesis.\(^{111}\)

First, contamination of the sea and seabed may occur in relation to the laying of a cable resulting from the laying operation. Pollution can be a result of the laying process, from the ship or the equipment used to lay the cable, which involves IMO regulation not at issue in this paper. Pollution from the cable is only relevant if a cable breaks or decommissioned

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\(^{105}\) *Submarine Cables and the Oceans – Connecting the World*, p. 35.

\(^{106}\) Ibid.

\(^{107}\) Ibid.

\(^{108}\) Ibid.

\(^{109}\) 2008 OSPAR background document, p. 43.

\(^{110}\) Ibid.

\(^{111}\) 2009 OSPAR assessment, Table 1. In addition waste from cable laying vessels is mentioned but not considered further in this thesis.
cable is not removed and chemicals are submitted into the environment, especially if fluid is used as an insulator. There can be a risk of pollution when a cable is laid in heavily polluted sediment and contamination is released when the sediment is moved in the process of laying the cable. Dumped munition on the seabed is of special concern in this respect, mines and torpedoes, phosphorus incendiary devices and chemical weapons like mustard gas are scattered on the seabed in some parts of the North-Atlantic. This can pose serious threat to the environment and human health when dumped munition are encountered when laying cables on the seabed.

Second, noise pollution in the process of surveying and laying of a cable may potentially have effect on marine fauna. The impact of noise on marine fauna, possibly making species avoid the site or in the more severe cases cause injury to hearing ability, has been considered. Evidence that noise from the laying of cables has not been shown to potentially effect marine fauna. In general marine fauna is considered to be relatively insensitive to sound, nevertheless there is lack of specific knowledge as to the possible effects. Cable route surveying is done with high-frequency low-energy acoustic systems in order to define with sufficient precision the suitable cable route. These are held to pose only minor risk compared to high-energy mid-range sonar systems which potentially can be associated with stranding of whales.

Third, in the operational phase, negative impact has been considered in relation to electromagnetic field (EMF) around power cables. Transmission of electricity creates both direct magnetic field and induced electric field that is generated by the magnetic field around the transmitting power cable. The strength of the electromagnetic field created depends on cable type and technical solutions, shielding of the cable and distance from the cable, including if the cable has been buried. The effects of electromagnetic fields from submarine cables on marine fauna are not fully understood, although in general it can be concluded that number of species detect and respond to such fields. Possible negative
impact suggested is impairment of orientation and migratory behaviour of species, which rely on earth magnetic field for navigation.\textsuperscript{123}

Fourthly it is considered important to reduce thermal radiation into the marine environment due to loss of electrical energy as it is transmitted.\textsuperscript{124} Nevertheless the actual environmental impact of thermal radiation from submarine power cables is uncertain since scientific data is lacking.\textsuperscript{125} However by applying precautionary approach German authorities have issued a standard of maximum temperature rise of 2 K at 20 cm depth of sediment for a buried cable.\textsuperscript{126}

2.5.4 Potential impact on vulnerable habitats and species

Laying of submarine cables is among activities considered by the OSPAR Commission to be capable of having negative effect on vulnerable marine habitats and species.\textsuperscript{127} Among other activities are coastal defence measures, and sand and stone extraction. Examples of potential negative impact listed with relevance here are \textit{inter alia} changes in electromagnetic field, noise disturbance, substratum change and increased siltation.\textsuperscript{128}

Cold water coral reefs are among vulnerable deep-water ecosystems that the laying of submarine cables can adversely affect. They are known to provide important marine habitats and ecosystems, and efforts have been made to protect them from adverse impact of activities like using fishing gear that makes contact with the seabed and may damage the corals.\textsuperscript{129}

Protection of vulnerable habitats and species is part of the OSPAR Biological Diversity and Ecosystem Strategy. A list of species and habitats in the North-East Atlantic has been adopted by the OSPAR Commission for the purpose of assessing the need for protection, based on nominations by the parties to the OSPAR.\textsuperscript{130} Assessment has been made of the status and need of protection on the basis of the so called Texel-Faial criteria which is used to identify threatened or declining species.\textsuperscript{131} Main threats from human activities on

\begin{thebibliography}{9}
\bibitem{123} 2009 OSPAR Assessment, p. 10.
\bibitem{124} 2012 OSPAR guidelines, p. 12.
\bibitem{125} 2008 OSPAR background document, p. 25. The 2012 OSPAR guidelines conclude that knowledge gap is existing as regards the effect of increased temperature in seabed sediments and relevant field studies are completely lacking, see p. 16.
\bibitem{126} 2008 OSPAR background document, p. 25.
\bibitem{128} Ibid, Table 2. Examples of effects of human activities.
\bibitem{129} \textit{Submarine Cables and the Oceans – Connecting the World}, p. 36.
\bibitem{130} OSPAR Commission, “Case Reports for the OSPAR List of Threatened and/or Declining Species and Habitats”, 2008.
\bibitem{131} The Texel-Faial Criteria, section one.
\end{thebibliography}
individual species and habitats are identified with reference to a list of human activities potentially having negative effect, including the laying and operation of submarine cables.132

2.6 Suggested mitigating measures

The coastal state may have to take into consideration and act to ensure that the appropriate measures are taken in order to avoid unsustainable laying of cables that may damage vulnerable habitats and ecosystems that require protection without creating unjustified restrictions on cable laying. The international legal obligations to this end will be described in Chapters 3 and 4.

As mentioned in Chapter 2.4.3 environmental concerns may influence the cable laying process. The use of a specially designed, low-impact vibrating plough in the process of laying the cable is an example of a method used to reduce disturbance of wetlands in coastal areas. A case study of a project where this method was used showed full recovery of flora in the disturbed area within five years from conclusion of the work.133

The choice of cable type or cable laying method may have considerable impact on the cost-efficiency and potentially the viability of a cable project, especially in case of long distance transmitting power cables. The use of monopolar cable with a sea return, considered having more negative impact on the environment than bipolar cables due to EMF, can be taken as an example here; see Chapter 2.4.1. As mentioned above the impact of EMF on marine ecosystems and species is not fully understood. There is no clear indication of a serious or irreversible impact resulting from EMF related to submarine power cables which indicates that such requirements could be considered going beyond what is proportional and reasonable unless the burden for the cable laying project is reasonable and not making it economically unviable.

Reconciliation of the freedom to lay cables and protection of deep-water habitats and ecosystems can be ensured by providing for utilization of modern seabed mapping and navigation systems and modern cable-laying practices that can avoid cable routes through sensitive areas like seamounts, submarine canyons and hydrothermal vents.134 Also it has been suggested that creating cable protection zone has protective impact on marine habitats and may improve biodiversity although this has not been proven.135

132 Ibid, section four, para. 16 and Table 1: Examples of human activities.
133 Submarine Cables and the Oceans – Connecting the World, p. 35.
135 Ibid.
3. General principles and treaty obligations

The previous chapter outlines the importance of submarine cables for communication and energy transmission, and describes relevant provisions of the LOSC. This chapter intends to identify the obligations of coastal states relating to the protection of the marine environment, and in particular in relation to the laying and operation of submarine power cables within states jurisdiction. States have international legal obligations in relation to the possible effects that laying of submarine power cables can have on the environment and the natural resources of other states. These obligations are based on general principles of international law and, international and regional treaties. Rights and obligations according to EU law will be described in Chapter 4.

3.1. The no-harm principle

3.1.1 Basic concept and scope

According to accepted customary international law, states are obligated to ensure that activities conducted within their jurisdiction respect the environment of other states and areas beyond states jurisdiction by avoiding significant transboundary harm. The rule is often referred to as the no-harm principle.

The no-harm principle is reflected in Principle 21 of the 1972 Stockholm Declaration and in Principle 2 of the 1992 Rio Declaration. The wording of the two principles is almost identical. They emphasise the right of states to exploit their resources according to their environmental policies, and in the case of the Rio Declaration according to their developmental policies as well, and also their duty not to harm the environment of other states’ territory or beyond national territory when exercising their sovereign rights. Moreover Principle 19 of the Rio Declaration reflects the duties of states to notify and consult states that could be affected by significant transboundary harm resulting from

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138 Declaration of the UN Conference on Environment and Development, Report of the United Nations Conference on Environment and Development in Rio de Janeiro 3 – 14 June 1992, A/CONF.151/26 (Vol. I). Principle 2 reads as follows: States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.
activities within their jurisdiction, and those duties have been recognised as international law binding upon states.\textsuperscript{139}

The no harm rule in international law emerged in the famous Trail Smelter\textsuperscript{140} case where fumes from a factory located in Canada were held to pollute an agricultural area across the border in the US. An ad hoc arbitral tribunal had the task of adjudicating the case, on the basis of a treaty between the USA and Canada. By applying the principles of interstate relations within the US, which were held to be in accordance with international law, the tribunal found that

\ldots no State has the right to use or permit the use of territory in such a manner as to cause injury by fumes in or to the territory of another of the properties or persons therein, when the case is of serious consequences and the injury is established by clear and convincing evidence.\textsuperscript{141}

The duty of states to respect the rights of other states is reflected in several provisions of the LOSC\textsuperscript{142} and the parties have committed themselves to conserve and preserve the marine environment.\textsuperscript{143} The duties of states relating to the prevention of transboundary pollution are stipulated in Article 194(2) that reads as follows:

States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

The duty to avoid environmental damage to the marine environment irrespective of boundaries reflects the fact that the marine environment is generally without physical limits, so damage caused by a state exercising its sovereign rights can effect areas under the jurisdiction other states and areas beyond the jurisdiction of any state.

\textsuperscript{140} Trail Smelter arbitration, USA/Canada, 11 March 1941. Reports of International Arbitral Awards, VOLUME III p. 1965.
\textsuperscript{141} Ibid.
\textsuperscript{142} See LOSC, \textit{inter alia}, Arts. 56(2), 58(3) and 60(3).
\textsuperscript{143} LOSC. In its preamble the state parties recognise the desirability of establishing a legal order to promote conservation, protection and preservation of living resources of the oceans. Obligations to protect and preserve are in Arts. 117-118 (high seas), Article 145 (the Area), Articles 192-196 (protection of the marine environment) and Arts. 207-212 (duty to prevent, reduce and control pollution of the marine environment).
3.1.2 Transboundary harm
The concept of transboundary harm typically refers to situations where the harmful effects of an activity taking place within the territory of a state extend beyond its territory. The no-harm rule addresses the relation between the lawful exercise of sovereign rights and the duty to respect other interests.

In 2001 the International Law Commission (ILC) issued Draft articles on Prevention of Transboundary Harm from Hazardous Activities, with commentaries (2001 ILC Articles)\(^{144}\) that codify existing obligations of states in relation to environmental impact assessment, notification and consultation, prevention and control of activities that may cause transboundary harm.\(^{145}\) The 2001 ILC Articles apply to activities which are not prohibited by international law but can cause transboundary harm if they are carried out. Some preventive action can therefore be considered necessary in order to preclude or mitigate the threat posed by the activity.\(^{146}\)

Activities under the jurisdiction of a state but carried out outside its territory can also be held to cause transboundary harm, the primary example being the jurisdiction of the flag state over a ship flying its flag on the high seas.\(^{147}\) The same principle is relevant to the possible transboundary harm caused by submarine power cables that the coastal state lays, or allows the laying of subject to its national law, from its territory through and beyond its territorial sea. In such a case the coastal state is under a positive obligation to take measures that prevent or mitigate such harm caused by the cable to the marine environment.

3.1.3 Transboundary effects of submarine power cables
The laying and operation of submarine power cables can have transboundary effects beyond the jurisdiction or control of the coastal state. The issue of transboundary effects typically arises when a submarine cable crosses jurisdictional boundaries, such as when it enters an adjoining EEZ, CS or the territorial sea of another state and also when a cable has been laid in the area beyond the EEZ of a state and into ocean areas beyond jurisdiction of any state.

As pointed out in Chapter 2 The laying of submarine cables can cause harm to the marine environment and affect the rights of other states, firstly by damaging existing cables during the process of laying or making their maintenance more difficult; secondly by hindering the

\(^{145}\) See also Patricia Birnie, Alan Boyle and Catherine Redgewell: International Law and the Environment, p. 141.
use of anchoring sites and thereby having a negative effect on navigation; thirdly the laying and operation can possibly have an effect on the seabed flora and fauna; and finally the laying can possibly effect the exploitation of marine and seabed-based resources by affecting breeding grounds of fish stocks as well as causing danger of fishing gear being entangled with submarine cables.

### 3.1.4 Duties of the state of origin

The obligations of states in relation to transboundary harm have been formulated as follows:

1. States have a duty to prevent, reduce, and control transboundary pollution and environmental harm resulting from activities within their jurisdiction or control.
2. States also have a duty to cooperate in mitigating transboundary environmental risks and emergencies, though (sic) notification, consultation, negotiation, and in appropriate cases, environmental impact assessment.\(^{148}\)

The state of origin is however not in all cases prohibited from conducting activities that can cause transboundary harm if they are otherwise in accordance with international law.\(^{149}\)

The ICJ has ruled that according to international law states have certain obligations in relation to transboundary harm, namely to conduct assessment of potentially adverse transboundary impact.\(^{150}\) In 2015 in the ruling in the *Certain activities joined cases*, the ICJ confirms this and stipulates further obligations.\(^{151}\) In evaluating the need for an environmental impact assessment the court takes note of the size or scale of the project, its location and potential harmful consequences for the environment.\(^{152}\) The assessment must be undertaken prior to commencing the project in order to minimize the risk of significant transboundary harm.\(^{153}\)

In case the environmental impact assessment shows that there is a risk of transboundary harm the court states in its ruling that

\[\ldots\text{a State planning an activity that carries such a risk is required, in order to fulfil its obligation to exercise due diligence in preventing transboundary harm, to notify, and consult with, the potentially affected}\]

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\(^{148}\) Patricia Birnie, Alan Boyle and Catherine Redgewell: *International law and the Environment*, p. 137.

\(^{149}\) See also Patricia Birnie, Alan Boyle and Catherine Redgewell: *International Law and the Environment*, p. 142.

\(^{150}\) ICJ 2010 Pulp Mills, para. 204.

\(^{151}\) ICJ 2015 Joined cases of Certain activities carried out by Nicaragua in the border area (Costa Rica v. Nicaragua) and Construction of a road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), (Certain activities joined cases), 16 December 2015, para. 153.

\(^{152}\) Ibid, para. 155.

\(^{153}\) Ibid, para. 161.
State in good faith, where that is necessary to determine the appropriate measures to prevent or mitigate that risk.\(^{154}\)

The state of origin is the state which has jurisdiction or control where the activity potentially causing transboundary harm is planned or carried out.\(^{155}\) When a coastal state lays or allows the laying of submarine cables from its territory across the sea into the jurisdiction of another state it can be considered the state of origin. When it comes to electrical power cables it is more likely than not that the coastal state (state of origin) is directly involved in the process and all decision making.

The ruling of the ICJ in 2015 Certain Activities Joined Cases and 2010 Pulp Mills are in conformity with Article 3 of the 2001 ILC Articles which provides for the basic obligations of states to prevent or minimize significant transboundary harm and reads as follows:

The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof.\(^{156}\)

The ruling in 2015 ICJ Certain Activities Joined Cases is in line with the 2001 ILC Articles as regards the duty of the state of origin to show due diligence regarding the environmental impact of activities conducted under their jurisdiction and provides for similar procedural obligations as stipulated there.\(^{157}\)

### 3.1.5 Conclusions

The laying and operation of submarine cables from one state to another across ocean areas can cause transboundary harm to the marine environment. It is generally accepted under international law that states have the obligation to prevent significant transboundary harm from activities under their jurisdiction to the interests of other states and to the environment. By authorising the laying and operation of a submarine cable from its territory and across the seabed beyond its jurisdiction, the coastal state takes on international obligations to comply with these obligations which are to show due diligence in preventing such harm, to notify and assess potential risk and enter into consultations with potentially affected states.

The laying and operation of a single submarine cable on the seabed may not generally be considered to cause significant risk to the marine environment and natural resources.

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\(^{154}\) Ibid, para 168.


Nevertheless significant harmful effects cannot be ruled out, especially because of lack of scientific data, such as in sensitive locations. The coastal state must consider the potential of significant transboundary harm and take into account the size, location and probability of harmful consequences. The accumulated effects of a number of cables on the marine environment should be considered as well as accumulated effects from other activities.

The coastal state has the duty to perform an environmental impact assessment if there is a potential risk of significant harm to the marine environment or the rights of other states, such as navigation, exploitation of natural resources or existing cables and pipelines. If an assessment shows evidence of such a risk, the coastal state is obligated to notify and consult the affected State in question. However, in the case of submarine cables the potential harmful effects sometimes do not affect particular states but rather all states equally. Also harm to the marine environment within the EEZ of the coastal state typically does not affect other states so procedural obligations when such harm is a probability are not clear under general international law.

3.2 Precautionary Principle

3.2.1 Definition and meaning

One of the best known version of the precautionary principle is in Principle 15 of the Rio Declaration. It reads as follows:

In order to protect the environment precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.  

In spite of Principle 15 the exact meaning of the precautionary principle in international law is not clear even though it may held that it becomes relevant when there is scientific uncertainty in relation to environmental risks, if and how to act upon such a risk. Two different versions have been proposed. On the one hand a general and vague version that states should act carefully and be aware of potential future consequences of activities potentially having adverse impact on the environment. On the other hand there is a stricter approach that provides for ban or restrictions on activities that may be potentially harmful.
to the environment irrespective of if there is clear evidence that the activities will in fact cause harm to the environment.\(^{160}\)

The precautionary principle has implications in relation to protection of the marine environment and natural resources where lack of information and unreliable data is a problem. However as regards development projects like submarine cables, this does not necessarily mean that the burden of proof is reversed as regards the possibility of a harm as a consequence of the project.\(^{161}\)

Even though it is an important and emerging principle, there is no general consensus that the precautionary principle has gained status as customary international law, but it is definitely an important and well-known principle of international law.\(^{162}\)

### 3.2.2 Application in international judicial decisions

In two cases regarding development projects the ICJ has been confronted with the question of the implications of the precautionary principle.

In the 2010 Pulp Mills case regarding the construction and operation of pulp mills on the River Uruguay (Argentina v. Uruguay) the ICJ recognised that a precautionary approach might be appropriate when interpreting the international treaty obligations of the states parties to the case.\(^{163}\) In another ICJ case regarding shared use of a watercourse, the case Hungary v Slovakia,\(^{164}\) the Court did not recognise the precautionary principle.

In the Southern Bluefin Tuna case\(^{165}\) the ITLOS, tribunal that deals with conflicts according to the LOSC, applied precautionary approach by granting provisional measures to halt an experimental fishing program where there was scientific uncertainty in relation to the potential consequences of the program for the fish stock involved.\(^{166}\) The Land reclamation case\(^{167}\) is another example of the application of precautionary approach where there was

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161 See further ibid, where general views on the burden of proof are tackled.

162 See further Ulrich Beyerlin and Thilo Maraun: *International Environmental Law*, p. 55-56. See also Birnie, Boyle and Redgewell: *International law and the Environment*, p. 163-164. They claim that there is a consensus that the principle entails obligation of states not to use scientific uncertainty as a justification for not acting when there is enough evidence to establish possibility of a risk of serious harm.

163 The case dealt with interpretation of treaty provisions between Argentina and Uruguay regarding the use of River Uruguay. The dispute arose in relation to development consent of two pulp mills by Uruguay. Uruguay was held to have breached procedural but not substantive obligations. Regarding the latter the court noted the existence of precautionary action but held that it could not reverse burden of proof as regards facts to be established in the case. See further the ICJ 2010, Pulp Mills, particularly para. 164.


165 ITLOS *Southern Bluefin Tuna* (New Zealand v Japan; Australia v Japan), Cases No 3 and 4. Provisional measures, Order of 27 August 1999, ITLOS Reports 1999, p. 280.

166 Ibid, see para. 77, 79 and 80 as regards arguments relating to the precautionary approach.

167 ITLOS *Land Reclamation in and around the Straits of Johor* (Malaysia v. Singapore), Case nr. 12. Provisional Measures, Order of 8 October 2003, ITLOS Reports 2003, p. 10. See also ITLOS, Advisory opinion
absence of information about the possible adverse impact of land reclamation project on the environment and rights of Malaysia. The ITLOS similarly granted provisional measures.

Sands et al. view excluding the ITLOS there seems to be a certain reluctance by international courts to admit the emergence of the precautionary principle as part of binding international law although it can be held that the principle influences interpretation of international agreements resulting in increased protection of the environment in cases where there is lack of scientific certainty as to the possible harm to the environment.168

At the European level however there is no reluctance in applying the precautionary principle in judicial decisions of the European Court.169

3.2.3 Precautionary principle and treaty practice

The LOSC, negotiated during the 1970s and concluded in 1982, does not contain any direct indication of an emerging precautionary principle. However the LOSC stipulates the duties of member states to protect and preserve the marine environment. As regards management and conservation of the living resources within the EEZ and on the high seas a reference is made to best scientific knowledge.170 On the other hand some treaties regarding living resources of the marine environment, based on the LOSC principles, include positive provisions containing the precautionary principle. The 1995 Fishstocks Agreement171 stipulates the precautionary principle:

States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.172

The Food and Agricultural Organization of the United Nations (FAO) promotes the precautionary approach in its voluntary 1995 Code of Conduct for Responsible Fisheries:

States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence

170 LOSC, see Art. 61(2) for the EEZ and Art. 119 regarding the conservation of living resources of the high seas.
172 1995 Fishstocks agreement, Art. 6(1).
of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.\textsuperscript{173}

The OSPAR stipulates precautionary approach by requiring preventive measures to be taken when there are reasonable grounds for concerns in the absence of a scientific proof of connectivity between the polluting activity on the one hand and the potential effects on the other.\textsuperscript{174}

Other important examples to mention are the Convention on Biological Diversity\textsuperscript{175} (CBD) and its Cartagena Protocol\textsuperscript{176} and the United Nations Convention on Climate Change.\textsuperscript{177}

Finally the precautionary principle is a part of EU environmental policy as provided for in Article 191(2) of the TFEU.\textsuperscript{178} The precautionary principle is referred to in numerous secondary EU legislation regarding environmental protection\textsuperscript{179} which reflect the application of the precautionary principle in EU law. The EU Commission has issued Communication on the precautionary principle, including guidelines on the application of the principle in EU law.\textsuperscript{180}

### 3.2.4 Discussion and conclusion

There is a slow but a clear development towards an acceptance of the precautionary principle in international law both in treaty law and the practice of judicial bodies. As regards the North Atlantic Ocean the principle has been incorporated into the OSPAR as well as being part of EU law.

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\textsuperscript{174} OSPAR Art. 2.2(a).


\textsuperscript{176} The Cartagena protocol was adopted in Montreal on the 29 of January 2000 at an extraordinary meeting of the Conference of the Parties and entered into force on 11 September 2003, UNTS No 30619, Vol. 2226, p. 208. Preamble and Art. 1. See \textit{inter alia} Art. 10.6 and 11.8 which state that a lack of scientific certainty does not preclude states parties to take appropriate decisions in order to prevent or minimize potential adverse effects of import of living modified organisms.


\textsuperscript{178} Treaty on the functioning of the European Union. Consolidated version 2012/C.O.J. 326/01


\textsuperscript{180} Communication from the Commission on the precautionary principle COM(2000) I final, EUR-Lex-52000DC0001-EN.
In case there is a lack of field research on the potential effects of submarine cables on the marine environment the application of a precautionary approach could be seen as appropriate where there is lack of scientific evidence as regards the possible negative consequences of the laying of submarine cables. When there is an established possibility of an irreversible damage to marine living resources or to marine biodiversity as a result of cable laying, the duty to consider preventing or mitigating measures could be seen as a consequence of the application of the precautionary principle. However in the absence of specific binding treaty obligations it is not clear to what extent the coastal state is obligated act or refrain from action in relation to the laying and operation of submarine cables on the basis of the precautionary principle of general international law.

3.3 Duties of states according to part XII of the LOSC

According to Article 192 of the LOSC state parties to the LOSC have the obligation to protect and preserve the marine environment. However the exact obligations to this end stipulated in part XII of the LOSC are mainly confined to the prevention, reduction and control of pollution of the marine environment with two notable exception being in Article 194(5) (protection of species and habitats) and Article 206 (assessment of potential effects of activities), which will be described in chapters 3.5. and 3.6. This chapter therefore first and foremost deals with the obligations of states as regards pollution from the laying and operation of submarine power cables. Such pollution can primarily be from contamination, noise, heat emission and electromagnetic fields; see chapter 2 above. Obligations to prevent pollution from the cable-laying vessel will not be addressed specifically.

3.3.1 The basic obligations of states

The basic obligations of states in relation to marine pollution are stipulated as follows:

States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.
States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.\(^\text{181}\)

\(^{181}\) Ibid, Art. 194(1) and (2)
According to this firstly there exists clear obligation of states to prevent, reduce and control pollution from any source, including from submarine cables and pipelines, and secondly the no-harm principle of international law is stipulated in relation to transboundary pollution.

3.3.2 Definition and different sources of pollution

As mentioned above there is no doubt that pollution resulting from the laying and operation of submarine cables and pipelines falls under the provisions of the LOSC which deals with pollution from all sources. The definition of the source of pollution is necessary to decide which provisions of part XII apply.

Pollution of the marine environment, according to the LOSC, is defined as

….the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate use of the sea, impairment of quality for users of the sea water and reduction of amenities.\textsuperscript{182}

The definition thus includes both activities actually polluting and those considered likely to pollute the marine environment. Also it is important to notice that not only is damage to the environment considered as a consequence of pollution but also hindrance to marine activities such as fishing and other legitimate uses of the sea.

Article 194(3) a)-d) distinguishes between four different sources of pollution: Land-based sources, pollution from vessels, pollution resulting from exploration and exploitation of natural resources and pollution resulting from “other installations and devices operating in the marine environment.” However the provisions of section 5 of part XII of the LOSC, Articles 207-212 stipulate similar duties of states, with the exception of pollution from vessels which is not dealt with here, so the distinction made between different sources is not important here.

Submarine power cables could possibly be considered a land-based source when they are laid from land, beyond the shore and onto the seabed. Pipelines are mentioned specifically in this relation but the wording is not conclusive so cables are not excluded.\textsuperscript{183}

\textsuperscript{182} LOSC, Art. 1(4)
\textsuperscript{183} Ibid, Art. 207(1)
pollution from seabed activities subject to national jurisdiction when the power cable is serving offshore exploitation of natural resources of the EEZ and CS.\textsuperscript{184} The terms land-based and offshore pollution are defined in the 1992 OSPAR; see below in chapter 3.4. Any dumping in the process of laying or maintenance of a power cable would be considered under the specific provisions regarding dumping, Article 210 of the LOSC, not dealt with specifically here.

### 3.3.3 Duties of states in relation to marine pollution

The duties of coastal states in relation to the laying and operation of submarine power cables are basically as follows:

1) Adoption of laws, rules and regulations, standards and recommended practices to prevent, reduce and control pollution.\textsuperscript{185}

2) States shall take other necessary measures to prevent, reduce and control pollution.\textsuperscript{186}

3) States shall participate in setting global or regional rules, standards and recommended practices and endeavour to harmonize their policies at the appropriate global or regional level.\textsuperscript{187}

There is difference between land-based sources and seabed sources in that the laws, regulations and measures adopted by the coastal state regarding seabed sources may not be less effective than international rules, standards and recommended practices and procedures\textsuperscript{188} whereas no such reference is made as regards the land-based sources where there is an obligation to include measures designed to minimize to the fullest extent possible the most harmful and persistent types of pollution. In this context the MOX Plant case is worth noting where ITLOS identified the duty to cooperate in the prevention of marine pollution as a fundamental duty of states according to Part XII of the LOSC and generally under international law.\textsuperscript{189}

\textsuperscript{184} Ibid, Art. 208(1)
\textsuperscript{185} Ibid notes 61 and 62
\textsuperscript{186} Ibid, Art. 207(2) and 208(2)
\textsuperscript{187} Ibid, Art. 207(3) and (4) and Art. 208(4) and (5)
\textsuperscript{188} Ibid, Art. 208(3)
\textsuperscript{189} ITLOS \textit{MOX Plant}, (Ireland v United Kingdom), Case no. 10, Order of 3 December 2001, para. 82.
3.4 The OSPAR convention

3.4.1 General and scope

The LOSC provides that states shall, as appropriate, cooperate on a regional basis to protect and preserve the marine environment.\textsuperscript{190} The coastal states in the North-East Atlantic cooperate under the 1992 OSPAR convention, which supplemented and replaced an older regime that had been adopted in the 1970’s addressing the problem of pollution of the marine environment in the North-East Atlantic.\textsuperscript{191} It is evident from the preamble of the OSPAR that the contracting parties aimed to replace the 1972 Oslo Convention and 1974 Paris Convention with a new instrument that would adequately control the many sources of pollution threatening the marine environment and not sufficiently dealt with in previous conventions.\textsuperscript{192} The OSPAR is administered by a Commission made up of representatives of each of the contracting parties.\textsuperscript{193} It can adopt binding decisions and non-binding recommendations. Compliance control and assistance is to be provided by the Commission.\textsuperscript{194}

The geographical scope of the convention is the greater part of the North East Atlantic Ocean and part of the Arctic Ocean as specified in Article 1 (a)(i). Ocean areas that are particularly excluded from the scope are the Baltic Sea and all of the Mediterranean Sea and its dependent seas. The area covered by OSPAR is divided into five subareas: (I) Arctic area, (II) Greater North Sea, (III) Celtic Sea, (IV) Bay of Biscay and Iberian coast and (V) Wider Atlantic Ocean.

\textsuperscript{190} LOSC, Art. 197.
\textsuperscript{192} 1992 OSPAR Convention, Preamble, last statement.
\textsuperscript{193} Ibid, Art. 10(1).
\textsuperscript{194} Ibid, Art. 10(2) and Art. 13.
Contracting parties can be all states bordering the maritime area covered by the OSPAR, any state upstream connected to the area and regional economic integration organisations with at least one state falling under the previous categories.

OSPAR’s substantive scope is the pollution of the marine environment originating from all sources. However the focus is on pollution from land-based sources, dumping and incineration and offshore sources whereas other sources, such as pollution from ships, are dealt with under other treaties.

### 3.4.2 Pollution and the laying of submarine cables and pipelines

As has been indicated above the OSPAR deals with pollution of the marine environment from all sources. The terminology is set in its Article 1(d) where the term pollution is defined:

“Pollution” means the introduction by man, directly or indirectly, of substances or energy into the maritime area which results, or is likely to result, in hazards to human health, harm to living resources and marine ecosystems, damage to amenities or interference with other legitimate uses of the sea.

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196 Ibid., Art. 25.
197 Art. 3-7 and annexes I, II, III and IV. 1992 OSPAR Convention.
The definition is identical to the one used in the LOSC apart from the emphasis on the ecosystem approach in the OSPAR formulation; see for comparison chapter 3.3.2. Pollution can be either direct or indirect introduction of substances or energy. The introduction of contaminants already in place in the seabed as a result of seabed disturbance in the laying process such as dumped munitions could be considered pollution in this sense. Submarine power cables lose some of the transmitted electrical energy by emitting heat and electromagnetic energy into the marine environment\textsuperscript{199} which falls under the term pollution according to Article 1 of OSPAR. No doubt noise generated in relation to the laying of cables and pipelines falls within the terminology.

The term pollution is only applicable if some kind of connection is established between on the one hand the introduction of substances and energy and on the other hand the evident or likely harm to the marine living resources and ecosystems, damage to amenities or interference with other legitimate uses of the sea.\textsuperscript{200}

In order to define the duties of states under OSPAR it is necessary to define what kind of source of pollution submarine power cables might be. Specific action is required to prevent and eliminate pollution from the defined sources whereas in relation to other sources states bear a simple duty of cooperation.\textsuperscript{201} Submarine power cables could possibly be considered land-based source of pollution under OSPAR and thereby fall under Article 3 and Annex I of OSPAR when they are laid from the coast into the sea potentially introducing contaminants or energy into the marine environment:

"Land-based sources" means point and diffuse sources on land from which substances or energy reach the maritime area by water, through the air, or directly from the coast.\textsuperscript{202}

Offshore activities in the context of OSPAR only refers to exploration, appraisal and exploitation of oil and gas in the maritime area\textsuperscript{203}, so submarine power cables connecting such activities could be considered offshore sources of pollution falling under Article 5 and Annex III of OSPAR, but not cables connecting wind-farms or other offshore installations and structures intended for exploration of natural resources other than oil and gas. Otherwise submarine power cables would have to be considered as falling under other sources according to Article 7 of OSPAR.

\textsuperscript{199} See chapter 2.
\textsuperscript{200} OSPAR, Art. 1(d).
\textsuperscript{201} Ibid Art. 3-5 and 7, and Annexes I, II and III.
\textsuperscript{202} Ibid., Art. 1(e).
\textsuperscript{203} Ibid., Art. 1(j).
Lastly in the process of laying and maintenance of a submarine cable any dumping would fall under Article 4 and Annex II of OSPAR on pollution by dumping or incineration not dealt with specifically here. However it is not clear if disused cables left on the seabed for disposal could be considered dumping.

3.4.3 Obligations of the coastal state party to OSPAR

A state party to the convention has the general obligation to take the necessary measures against pollution in order to conserve marine ecosystems. To this end the state parties shall adopt joint or individual programs and measures and harmonise their policies and strategies.204

In the process of laying of submarine cables and pipelines and in its decision making and regulation the coastal state must take due account of programs and measures adopted by the OSPAR Commission in accordance with Articles 10 and 13 of the convention. The absence of such programs and measures does not however mean that no obligations are to be taken into account. The coastal state can also take more stringent measures than provided for.205

In case of trans-boundary pollution contracting parties shall reach an agreement on how to cooperate. They shall enter into consultation in order to reach an agreement which shall inter alia address issues like quality objectives and information gathering. A contracting party responsible for the laying of such cables and pipelines is obligated to inform other contracting parties of how the agreement is implemented by communication through the OSPAR Commission.206 Other procedural obligations, such as the duty to perform environmental impact assessment will be discussed below.

As mentioned above in relation to the precautionary principle the OSPAR convention provides that preventive measures are to be taken when there are reasonable grounds for concerns even if the causal link between the polluting activity on the one hand and the effects on the other hand has not been scientifically established, see Article 2(2)(a). This link with the precautionary principle is important for environmental protection of the seabed since the potential effects on it are not very well established by scientific evidence. The coastal state party to the convention is obligated to take a precautionary approach in relation to the laying and operation of submarine cables and pipelines.

204 Ibid., Art. 2(1).
205 Ibid., Art. 2(5).
206 Ibid., Art. 21.
3.4.4 Relevant programs and measures

3.4.4.1 Background information and assessments

Programs and measures adopted and implemented on the basis of OSPAR come in the form of decisions, recommendations and agreements. Reports and assessments are also made on specific issues and submarine cables have been addressed specifically. In 2008 a background document was issued on the impact of submarine cables on the marine environment and in 2009 a general assessment of the environmental impact of submarine cables and pipelines was issued on behalf of the OSPAR Commission. In 2010 the OSPAR Commission issued a Quality Status Report on the state of the marine environment in the OSPAR area.

3.4.4.2 OSPAR Guidelines

In 2012 an agreement was made within OSPAR on the adoption of Guidelines for Best Environmental Practice in Cable-Laying and Operation. The Guidelines are meant to give an overview over possible mitigating measures against the ecological impacts of the construction, operation and removal of underwater cables. Furthermore they point to gaps in knowledge and to the need for research in the field. The guidelines are to be taken into account by the parties to the convention both in future work within the convention as well as in the development of individual projects.

The guidelines define the best environmental practice to be followed when states allow and regulate the laying and operation of submarine cables. They involve firstly an environmental impact assessment examining alternative routes and methods of laying the cable, secondly reduction of impacts and risks by using best available techniques and thirdly they emphasise the importance of mitigating measures with the implementation of ecological compensation measures. An ecosystem approach is evident in the guidelines, which promote increased ecological awareness.

A description of required mitigating measures is found in chapter 5 of the Guidelines. They include measures regarding route selection, burial technique and depth, construction times and cable type in relation to the different environmental impacts such as disturbance of the seabed, contamination, noise, heat emission and electromagnetic fields. As regards

\(^{207}\) Background Document on potential problems associated with power cables other than those for oil and gas activities, OSPAR Commission, 2008. (2008 OSPAR background document).


\(^{209}\) See chapter 2.5.1.


\(^{211}\) See chapter 1 of the 2012 OSPAR Guidelines.

\(^{212}\) See chapter 4 of the 2012 OSPAR Guidelines.
the cumulative effects of many cables the importance of strategic planning is identified. Some of the issues that coastal states should address are further described in the following.  

a. Route selection. The selected cable route should be with the lowest environmental impact and highest resource efficiency. Formal approval procedures with integrated environmental impact assessment should be applied. Issues to be considered are ecologically important and sensitive areas, existing cables, offshore wind farms, shipping, dumping sites, natural resources and fisheries. Protected areas should be avoided, the shortest possible length of cable routes selected and bundling with existing cables and pipelines should be preferred if possible in order to reduce cumulative effects. If sensitive areas cannot be avoided construction times should be organised so as to minimize negative effect. Heavily contaminated seabed should be avoided if possible.

b. Cable type. The type of cables used has implications for the possible effects of heat emission and electromagnetic fields. The guidelines point out and recommend appropriate mitigating measures that can be applied for each type of cables without preference to one type over the other.

c. Burial depth and technique. For security reasons cables are usually buried under the seabed if possible. The Guidelines also prefer cable burial whenever possible in order to reduce impacts of heat and magnetic fields from the cable on the seabed environment. Blasting in rocky subsoil should be avoided according to the Guidelines. In order to avoid sediment displacement and damage to seabed habitats, particularly in intertidal and landfall areas the application of horizontal drilling is identified as an appropriate mitigating measure. In other cases cables are buried by jetting, ploughing or in a trench where the seabed is hard and in that case the trench should be backfilled after the cable is laid.

d. Construction time. Specifying the time of construction is considered important and effective measure to reduce the environmental impact. This holds especially near the coast in intertidal and landfall areas because certain times of the year can be sensitive for habitats of species that are sensitive to disturbances, such as resting grounds during bird migration and feeding and coastal breeding habitats. Also the spawning grounds of fish should be considered.

Chapter 6 of the guidelines provides for instructions on the minimum data to be collected in relation to the EIA performed and the selection of appropriate mitigation measures. Monitoring and public access to data is also provided for.

213 For further reference see 2012 OSPAR Guidelines, Chapter 5.
214 See chapter 2.
215 Ibid.
216 For further reference see 2012 OSPAR Guidelines, chapter 6.
3.4.4.3 Discussion

The OSPAR Guidelines have been criticized for being prepared without consultation with relevant stakeholders, such as the ICPC, with the result that they contain some misconceptions as regards the environmental impact of submarine cables and the proper cable-laying technique and routing. Among other things it is pointed out that bundling of cables is problematic due to increased risk of damage and pollution in relation to the laying and repair of cables etc. It is also pointed out that cable burial is not technically possible at present at more than 2000 m depth. If this criticism is well founded some improvements are clearly needed of the guidelines.

The guidelines have also been criticised as an example of excessive environmental regulation by coastal states impeding the laying of submarine cables beyond the territorial sea. The OSPAR Guidelines reflect a consensus between the coastal states parties on certain best environmental practice. This consensus is achieved under the framework of a regional cooperation established in order to fulfil the obligations of the state’s parties in relation to protection of the marine environment, which have been described in chapter 3.3 and will be further noted in chapter 3.5.3.1. By adopting common guidelines instead of taking unilateral action it can be held that the coastal states are obligated not to make more stringent requirements unilaterally. It may also be pointed out that the Guidelines are prepared in an attempt to fulfil the obligations according to the LOSC of the state’s parties to the OSPAR to cooperate with other states on a regional basis as regards issues that have transboundary impact in the marine environment of the North-East Atlantic Ocean.

3.5 Protection of biological diversity

3.5.1 General issues

There are treaty obligations in relation to biological diversity and the protection of species and habitats that must be considered in relation to the laying and operation of submarine power cables. Development projects like the laying and operation of submarine cables involve decisions that have effect on habitats and species in the coastal areas and intertidal

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219 Ibid.

220 See ibid, p. 208 where the 2012 OSPAR guidelines are described as one of the most striking examples of environmental regulation encroaching upon the freedom to lay cables.
and offshore seabed areas. In this chapter the most important treaty obligations will be discussed and analysed.

### 3.5.2 UN Convention on biological diversity (CBD)

#### 3.5.2.1 Definition and scope

The CBD is the principle convention protecting biodiversity and the majority of states are parties to the convention.\(^{221}\) Instead of providing for the protection of species or habitats the CBD is focused on biodiversity as a whole.\(^{222}\) Biodiversity is defined as variability among living organisms from all sources, including marine and other aquatic ecosystems, between species, among species and between ecosystems.\(^{223}\) The CBD therefore applies to the marine environment and coastal areas that may be affected by the laying of submarine power cables. However states are to take into account the rights and obligations of states under the LOSC when implementing CBD.\(^{224}\) According to customary international law on treaty interpretation when states are bound by two treaties and the one stipulates that its provisions shall be applied in conformity with the other, then that other treaty prevails in case of conflict.\(^{225}\)

As regards conservation of living resources within the EEZ the LOSC has specific provisions focussing on measures to secure sustainable exploitation of those resources within the EEZ.\(^{226}\) However no such obligation is stipulated in the provisions regarding the territorial sea, internal waters and coastal areas. The CBD applies geographically to coastal areas under national jurisdiction, within the territorial sea,\(^{227}\) and to activities beyond the territorial sea under the jurisdiction of the state involved. Obligations under the LOSC and the CBD overlap to some extent\(^{228}\) and the exact division between the treaties is beyond the scope of this thesis. It may be concluded that the work under the CBD supplements the protection of marine environment under the LOSC in relation to protection of marine biodiversity.\(^{229}\) The activity under the CBD regime relating to marine biodiversity

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\(^{222}\) Ibid.

\(^{223}\) CBD, Art. 2.

\(^{224}\) CBD, Art. 22(2).


\(^{226}\) LOSC, Art. 61, which provides for the duty of the coastal state to ensure that living marine resources are not overexploited. Art. 61 para. 4 obligates coastal states to take into account effects on dependant and associated species.

\(^{227}\) CBD, Art. 4 which states that in case of components of biological diversity the convention shall apply in areas within the limits of national jurisdiction.


\(^{229}\) Ibid.
supplements the LOSC to promote for protection of marine biodiversity\textsuperscript{230} and has been included into the work of OSPAR as will be discussed below. The importance of preserving the integrity of the LOSC on the other hand has been repeatedly recognised in United Nations General Assembly resolutions\textsuperscript{231}

\subsection*{3.5.2.2 Basic obligations}

The CBD introduces an ecosystem approach by identifying the variety of ecosystems to be protected. However the obligations of states to take action are limited, often with the wording “as far as possible and appropriate”.\textsuperscript{232} The primary objective of the CBD is in-situ conservation of biological diversity and a number of obligations are stipulated to that end.\textsuperscript{233} However as mentioned above regarding living marine resources the provisions of the LOSC concerning the rights and duties of states are applicable.

There is an obligation on states parties, as far as possible and appropriate, to integrate conservation of biological diversity into sectoral and cross-sectoral plans and projects.\textsuperscript{234} There is a similar obligation as regards the duty to perform impact assessment when activities are likely to have significant adverse effect on biological diversity.\textsuperscript{235} States parties have considerable discretion in fulfilling their obligations to take into consideration possible harmful effects on biological diversity from plans and projects. However states conduct in this regard must be in conformity with the CBD and general international law including other treaty obligations.

Another issue of interest as regards submarine cables is the duty to prevent or control introduction of non-local species capable of threatening local species, habitats and ecosystems,\textsuperscript{236} a threat which has been identified where submarine cables are laid on a soft surface of the seabed without burial thereby creating an artificial hard surface.\textsuperscript{237}

\textsuperscript{230} Decision II/10 of the Conference of the parties to the CBD (COP 2 Decision II/10): Conservation and sustainable use of marine and coastal biological diversity, Jakarta, 1995 (Jakarta mandate). See also Rüdiger Wolfrum and Nele Matz: „The Interplay of the United Nations Convention on the Law of the Sea and the Convention on Biological Diversity“, p. 479, where the CBD is held to potentially strengthen the protection of the marine environment under the LOSC.

\textsuperscript{231} See \textit{inter alia} GA resolution 64/71 Oceans and the Law of the Sea, A/RES/64/71, chapter I, para. 2, where the unified character of the LOSC and the importance of preserving its integrity is reaffirmed.

\textsuperscript{232} See \textit{inter alia} CBD, Art. 5 - 7.

\textsuperscript{233} Ibid., Art. 8.

\textsuperscript{234} Ibid., Art. 6.b.

\textsuperscript{235} Ibid., Art. 14. See further chapter 3.5 below.

\textsuperscript{236} Ibid. Art. 8 (b).

\textsuperscript{237} See chapter 2.
3.5.3 Marine protected areas (MPA’s)

3.5.3.1 Obligations of the coastal state

The establishment of protected coastal and marine areas is promoted in point 10 of the Aichi Biodiversity Targets for 2020 adopted by the COP to the CBD in 2010 in Nagoya, Japan.\(^{238}\) Following the Jakarta mandate\(^{239}\) the COP to the CBD has adopted decisions that encourage states to provide guidelines for developing marine and coastal protected areas.\(^{240}\)

The obligations of the coastal state to take measures in relation to prevention and control of pollution according to the LOSC are described in chapter 3.3. The LOSC also contributes to protection of biodiversity by laying the obligation on the coastal state to include those measures

\[\ldots\text{necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.}\]^\(^{241}\)

In the maritime area dealt with in this paper the coastal states cooperate under the OSPAR\(^{242}\) in relation to designation of MPAs. At the ministerial meeting of the OSPAR Commission in Sintra, Portugal on 22-23 July 1998, the Commission adopted Annex V and Appendix 3 to the OSPAR convention on the protection and conservation of the ecosystem and biological diversity of the maritime area.\(^{243}\) According to Annex V, the states make commitments to protect, conserve and if practicable restore marine areas adversely affected, and to cooperate in order to control human activities identified by the application of the criteria in Appendix 3 to Annex V.\(^{244}\) The criteria are the extent, intensity and duration of, actual and potential adverse effect on species, communities, habitats and ecological processes and the irreversibility or durability of these effects.\(^{245}\)

The OSPAR ministerial meeting in Bremen 2003 adopted Recommendation 2003/3 on a network of MPAs in the North-East Atlantic defining further requirements\(^{246}\), and

\(^{239}\) COP 2. Decision II/10.
\(^{240}\) See Inter alia Marine and Coastal Biodiversity, COP Decision VII/5, UNEP/CBD/COP/DEC/VII/5, 13 April 2004, p. 2-6.
\(^{241}\) LOSC, Art. 194(5)
\(^{242}\) See chapter 3.4.
\(^{243}\) Summary Record OSPAR 98/14/1-E, Annex 31.
\(^{244}\) Ibid., Art. 2.
\(^{245}\) Ibid, Appendix 3.
\(^{246}\) OSPAR Commission, Recommendation 2003/3 on a Network of Marine Protected Areas. Summary Record OSPAR 03/17/1-E, Annex 9, Ref. A-4.44a.
guidelines to be applied for the purpose of managing MPAs.\textsuperscript{247} According to the guidelines states may regulate certain human activities and their potential effects, including submarine cables, in order to achieve the objectives of the MPA designation.\textsuperscript{248} Options to be considered are regulation of the intensity of activities and the location and time of activities, such as banning activities during breeding seasons as well as best environmental practice and a total ban on all activities.\textsuperscript{249} The coastal state decides what regulatory measures it takes, taking into account the guidelines and objectives of the MPA and other international obligations.

3.5.3.2 MPAs in the OSPAR area

All the coastal states that are parties to the OSPAR have nominated MPA’s within their national jurisdiction. By the end of 2014 a total of 400 areas covering 23.59\% of territorial seas and 3.06\% of the EEZ of had been nominated.\textsuperscript{250} Of these the Celtic Seas and the Greater North Sea have considerable coverage which has implications for the laying of submarine power cables in this area.


\textsuperscript{248} Ibid, Art. 5.9 and Table 1 and 2.

\textsuperscript{249} Ibid, Art. 11.

3.5.3.3 Discussion

The work under the OSPAR described above lays obligations on the coastal states to designate MPAs. Coastal states must decide on the specific content of regulation imposed on cable laying activity in MPAs within the discretion accorded by international law, including the LOSC.

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The coastal state may have to consider regulating the route of the cable in order to protect vulnerable habitats and species in the cable laying route. However the coastal state does not have explicit jurisdiction under the LOSC to regulate the cable route beyond its territorial sea, unless in relation to cables that are under its jurisdiction; see chapter 2.3.2.3. As regards submarine power cables, they may under many circumstances be laid by transmission system operators of the coastal state and therefore subject to the coastal states’ jurisdiction. In other cases the coastal state may have to consider other measures than rerouting in order to mitigate negative impact. If no such measures sufficiently protect the site the possibility of a consensus on a cable route which has the least impact should be considered by the coastal state.

The coastal state has both the obligation to respect the right of all states to lay cables and obligations in relation to the protection of the marine environment. In case of a conflict between these obligations there are points to be made as regards the choices that the coastal state must make in order to fulfil its obligations. The right of all states to lay cable on the seabed is stipulated in the LOSC and considered customary international law and must therefore not be unduly impeded. This right is subject to the provisions of the LOSC, including the obligations of all states in relation to protection of the marine environment and the provisions of the OSPAR supplemented by the CBD as regards the territorial sea, which obligates the coastal state to regulate the laying of submarine power cables within MPAs in both the territorial sea and the EEZ. The LOSC does not however allow the coastal state to prohibit cable laying nor decide the basic route of the cable within a MPA unless the cable is laid under its jurisdiction.

3.5.4 The 1971 Ramsar Convention

The Ramsar Convention applies to coastal areas falling under its definition of wetlands, namely:

……..wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.

Submarine power cables are used to connect power grids and offshore wind farms to the power grid on land. At the landing site of the cable it crosses coastal areas that may be

252 Convention on wetlands of international importance especially as waterfowl habitat, adopted and opened for signature in Ramsar, Iran, on 2 February 1971, entered into force 21 December 1975, UNTS vol. 996, p. 246 (Ramsar Convention).

253 Ibid, Art. 1.
covered by the Ramsar Convention so the coastal state must take into account the obligations stipulated in the convention. Disturbance and the need for additional infrastructure for protection can be unavoidable consequences of the cable laying.254

The basic obligations of the coastal state relate to listing of those wetlands with international importance requiring protection.255 Coastal areas, marshes and other adjacent wetlands are complex ecosystems and especially important habitats for various species of waterfowl and the convention aims to protect and preserve those habitats.

Article 3 stipulates that member states shall formulate and implement their planning so as to promote the conservation and wise use of the listed wetlands. This applies when the coastal state permits development projects like the laying of cables across coastal areas including marine water up until 6 m deep at low tide.

The duties of the coastal state as regards plans and projects primarily evolve around the listed sites and therefore if a cable project crosses such a site the provisions of the convention become central and conservation of the site is to be promoted.256 The coastal state is also required to take the conservation of wetlands and waterfowl into consideration regardless of whether the respective site is listed or not.257

The duty to promote wise use of wetlands as far as possible indicates that conservation and rational use of the coastal areas can go hand in hand although the concept may be held to be rather unclear as to its exact meaning in relation to specific projects. The concept of wise use according to the Ramsar Convention has been defined as

……..the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development.258

Change in ecological character is

…….the human-induced adverse alteration of any ecosystem component, process, and/or ecosystem benefit/service.259

The limited impact of the landing of a submarine cable could be seen as justifiable in a listed site according to the Ramsar Convention although its exact location might have to be

254 See chapter 2.
255 Ibid. Art. 2(1).
256 Ibid. Art. 3(1).
257 Ibid. Art. 4(1).
259 Ibid, para. 19.
adjusted taking into consideration the sensitivity of the listed site and what is technically feasible. If the cable landing results in adverse alteration of the wetland ecosystem the laying of the cable can nevertheless be justified in the context of sustainable development if the project is considered to have important benefits to the society and its laying is in conformity with the principles of sustainable development and the convention.

3.6. Duty to perform environmental impact assessment (EIA/SEA)

3.6.1 General issues

As noted in chapter 3.1.5 in relation to the no-harm principle states have international obligations in relation to assessment of significant transboundary environmental impact of activities under their jurisdiction. It may not be concluded that such obligation exists also in relation to domestic or global environmental impact of activities according to customary international law. Nevertheless there is a broad acceptance that such an obligation exists, which is reflected in Principle 17 of the Rio Declaration:

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

However according to established EU law there is a duty to perform EIA concerning both domestic impact and transboundary impact in another member state, see chapter 4.3.3.

All the coastal states in the OSPAR area are parties to the 1991 ESPOO Convention on environmental impact assessment in a transboundary context (ESPOO Convention). ESPOO stipulates when and how the member states are obligated to perform an EIA in a transboundary context. All the coastal states except Iceland are parties to UNECE Protocol on Strategic Environmental Assessment complementing the Convention on Environmental Impact Assessment in a Transboundary Context (Kiev Protocol). The protocol provides for the general obligation to assess the impact of programs and plans.

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262 Ibid, page 230-231. See also Asdrid Epiney, „Environmental Impact Assessment“, p. 587-589, which contends that there is a wide consensus regarding an obligation to carry out an EIA when significant impact of activity is likely.
264 Adopted on 21 May 2003 by the Extraordinary Meeting of the Parties to the ESPOO convention in Kiev, Ukrain, entered into force on 11 July 2010. 38 state parties as of 7 April 2016. UNTS No. 34028. (SEA Protocol)
ESPOO, the SEA protocol and the relevant EU legislation stipulate that an EIA should be undertaken for projects, plans and programs if they are thought to have of significant impact on the environment. Moreover the LOSC stipulates an EIA obligation in relation to planned activities under jurisdiction or control of states.

The precautionary approach, discussed in Chapter 3.2, may promote the application of EIA in cases where there is lack of scientific data regarding potential environmental impact.

### 3.6.2 The ESPOO convention

The ESPOO convention defines EIA as follows:

“Environmental impact assessment” means a national procedure for evaluating the likely impact of a proposed activity on the environment;

ESPOO stipulates the duty of state parties to ensure that trans-national environmental impact assessment is carried out for projects listed in Appendix I of the Convention. Appendix I does not include electric power cables, though it does include large-dimension pipelines.\(^{265}\) Projects that are not listed in Appendix I are to be treated as listed if the respective parties to ESPOO agree to do so with reference to the general criteria for determination of significant adverse impact set forth in Appendix III to the Convention.\(^{266}\) These criteria are firstly when proposed activity is large for the type of the activity,\(^{267}\) secondly how it is located in relation to sensitive areas, such as wetlands designated under the Ramsar Convention, or when the characteristics of the proposed activity is such as to lead to significant effects on the population of that location, and thirdly if the effects of the proposed activities are particularly complex and potentially adverse, including serious effects on humans, valued species or organisms, or if the activities threaten the existing or potential use of an area or cause more pressure on the environment than it can sustainably tolerate.

Submarine power cable projects could possibly fall under the voluntary criteria of Article 2 in case when such a project gives rise to the application of one of the criteria included in Appendix III. This could be the case in coastal areas where there might be wetlands, as an example important habitats of birds falling under Ramsar Convention or in a sensitive marine area designated as a MPA. The size of the proposed activity in relation

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\(^{265}\) Art. 2(2) and Appendix I of the 1991 ESPOO Convention.  
\(^{266}\) Ibid. See further Art. 2(5).  
\(^{267}\) Appendix III, Art. 1(a)  
\(^{268}\) Ibid Art. 1(b).  
\(^{269}\) Ibid. Appendix III, Art. 1(b).
to other activities of same type could theoretically also be a relevant factor when proposed submarine power cables are laid over a very long distance, but is more likely if the project takes up a wider stretch of the seabed then usual, more than one cable system is laid parallel etc. resulting in more disturbance of the seabed and other potential negative effects.

The application of the voluntary criteria under Article 2 of ESPOO would have to be determined on a case by case basis. The coastal state is obligated to participate actively in consultations with potentially affected states on the need for an impact assessment. The coastal state is however not obligated to perform transboundary EIA in such cases.\textsuperscript{270}

### 3.6.3 Strategic environmental impact assessment (SEA)

The main difference between the EIA and SEA process is that the latter addresses environmental issues at early stages of the decision making process thus integrating environmental issues into policy decisions, plans and programs that form the basis of further decision making on individual projects and activities. SEA has an important role as regards submarine power cable projects since such projects have implications for policy issues, land-use planning and energy policy planning. The decision to lay interconnecting power cables extends the electricity transmission system of the state and connects it with other systems which has considerable impact both on the need for infrastructure and generation capacity which may in turn have significant effect on the environment.

The SEA Protocol is applicable to plans relating to energy.\textsuperscript{271} This includes plans and programs that are necessary for the laying of submarine power cables, which may include land-use development plans and electricity transmission operation plans and other plans that may form the basis for a development consent for the laying of a submarine power cable.\textsuperscript{272}

Whereas the SEA Protocol is attached to the ESPOO convention which is applicable in transboundary context, plans and programs do not have to be transboundary for the SEA obligation to exist. This understanding is based on the text of the SEA Protocol, i.e. Article 4 where no reference is made to the transboundary nature of the potential impact. Also reference may be made to Article 10 which deals specifically with the transboundary impact of a plan or a programme, provides for consultations etc. indicating that the provisions of the SEA Protocol otherwise apply to plans and programs irrespective of their transboundary nature.

\textsuperscript{270} Ibid. Art., 2(5).

\textsuperscript{271} SEA Protocol, Art. 4(2)

\textsuperscript{272} Ibid.
As stated above all the coastal states except Iceland are parties to the SEA Protocol. The Protocol has been incorporated into EU and EEA law as will be further described below in chapter 4.3.3.5, which further discusses the obligations of the coastal states, including that of Iceland.

3.6.4 The LOSC
The LOSC provides for an EIA obligation in its Article 206 that reads as follows:

When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practical, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in Article 205.

With reference to the precautionary approach it can be held that the possibility of negative impact of a proposed power cable under the jurisdiction or control of states should be considered and that impact assessment should be performed if significant consequences for the marine environment are not excluded on basis of scientific evidence. The OSPAR Commission has issued Guidelines on Best Environmental Practice in Cable Laying and Operation (OSPAR Guidelines)\(^\text{273}\) stipulate the minimum conditions for the implementation of EIA in relation to the laying and operation of submarine cables. The coastal states bordering the North-East Atlantic have therefore commitments as regards the application of an EIA procedure in relation to the laying of submarine cables according to recommended best practice.

It has been criticized that the OSPAR Guidelines may be contrary to the LOSC since they apply equally to areas under the jurisdiction of states and beyond national jurisdiction.\(^\text{274}\) In this connection it may be noted that Article 206 refers to all maritime areas and is subject to the general obligation to respect the rights of other states, including to the right to lay submarine cables. If justified and not excessively burdensome an EIA requirements may not be contrary to the right to lay cables. The coastal state may impose an EIA obligation on a cable project where the cable is under its jurisdiction, within the territorial sea, and also beyond the territorial sea when the cable laying entity is domestic, such as transmission system operator of the coastal state. However if the laying and operation

\(^{273}\) Agreement 2012-2, OSPAR 12/22/1, Annex 14. See chapter 3.4.4.2.
of a cable is under the jurisdiction of another state, such as if the cable is owned and operated by a third state entity, that third state and not the respective coastal state has the EIA obligations stipulated in Article 206 of the LOSC.\textsuperscript{275}

### 3.6.5 Concluding remarks

There is a wide acceptance in international law that EIA should be applied to activities that have significant impact on the environment. All the coastal states are parties to the ESPOO convention, requiring an EIA of projects having transboundary environmental impact, and all the states except Iceland and parties to the SEA protocol, which obligates them to perform an assessment of environmental impact of plans and programs, such as plans necessary for implementing submarine power cable projects.

The laying and operation of submarine power cables is not included in the list of projects, plans or programs considered to have significant adverse impact and thus to automatically require a transboundary EIA according to the ESPOO convention, so the presumption is that they are not considered to have an effect that requires transboundary EIA. States that claim that a cable project has a significant adverse effect on the environment can, according to the ESPOO, approach the responsible coastal state (state of origin), which is then obligated to enter into consultations as regards the potential need for an impact assessment. There is however no clear obligation on behalf of the coastal state to perform an assessment unless agreed upon by the respective parties.

Article 206 of the LOSC provides for an EIA when the proposed activity may have significant adverse impact on the marine environment. The inclusion of an EIA requirement for submarine cables under the OSPAR Guidelines reflects best practice recommended to the coastal states dealt with in this thesis.

EIA obligations according to EU and EEA law will be described in chapter 4.3.

### 3.7 Conclusions

International legal obligations of states to protect the marine environment are derived from general principles of international law and from international agreements.

States have obligation according to international law to show due diligence to prevent significant transboundary harm, and to notify and assess potential harm, and in such cases to consult the affected state. For transboundary submarine power cables this may be the case, \textit{inter alia} where the cable is laid in sensitive seabed areas.

\textsuperscript{275} Ibid, see footnote 88 where this possibility is mentioned.
The precautionary principle is widely recognised and is stipulated in MEAs, including the OSPAR convention. This has implications for the laying of submarine power cables since there is scientific uncertainty relating to the status of the marine environment, not least of all the status of the deep sea. Moreover there is uncertainty of the potential impact of human activities, such as the laying and operation of submarine cables, on the marine environment.

The LOSC stipulates a general obligation to protect and preserve the marine environment relevant for submarine cable projects. There is an obligation to prevent, reduce and control pollution, including contamination by harmful chemicals, emission of energy, such as EMF, heat and noise, which can result from the cable laying and operation. The cable laying causes disturbance of the seabed and in such cases the LOSC, supplemented by obligations according to the CBD, stipulates the obligation to protect vulnerable marine ecosystems, habitats and all forms of marine life.

States are required to cooperate in the protection of the marine environment and in the North-Atlantic Ocean the coastal states do so under the OSPAR convention. Issues relating to the laying and operation of submarine cables have been addressed by the OSPAR Commission, including BEP Guidelines on cable laying which have been criticised for being prepared without consulting the cable industry.

It is clear that the laying of a submarine power cable can have an impact on vulnerable habitats of species in the tidal and intertidal coastal areas at the landing sites where the coastal state must pay attention to international obligations to protect important sites for the species concerned. Also there is potential impact of submarine cables on biodiversity and vulnerable ecosystems on the seabed. There is an obligation according to the OSPAR and the CBD to nominate and manage MPAs which may entail conditions and even restrictions for cable laying.

There is a general consensus that projects that are likely to result in a significant impact on the environment of other states entail obligations under customary international law to perform EIA and the coastal states are parties to the ESPOO convention further stipulating these obligations. All the coastal states except Iceland have obligations according to the SEA Protocol to the ESPOO to assess environmental impact of plans and programs, which may be relevant in relation to electricity infrastructure like submarine power cables. There is also a wide acceptance of such obligations in general where there is likelihood that significant impact on the environment may occur. The LOSC provides for an EIA in relation to such activities and the OSPAR Guidelines on EIA for submarine cables further implement those obligations on a regional basis for the North-East Atlantic.
4. Obligations according to EU and EEA law

Most of the coastal states bordering the North-East Atlantic are Member States (MS) of the EU under the Treaty on European Union (TEU) and the Treaty on the functioning of the European Union (TFEU).\(^{276}\) Iceland and Norway along with Lichtenstein are members of the EEA agreement\(^ {277}\) with the EU. The purpose of this chapter is to describe the legal obligations of the coastal state under EU and EEA law that build upon and further elaborate international obligations. The view of Norway, concerning the non-applicability of the EEA agreement beyond the territorial sea will also be discussed.

4.1 General issues

4.1.1 EU policy areas

Submarine power cables, depending on the context, fall under several fields of EU law, including Environment (Title XX TFEU), Trans-European infrastructure (Title XVI TFEU) and Energy (Title XXI TFEU). Submarine power cables have a potential impact on the marine environment, have increasing importance for the development of Trans-European electricity infrastructures and relate to the distribution of energy, i.e. renewable energy from offshore wind and wave energy farms. For the purpose of this thesis it is the environmental impact and the obligations of coastal states concerning that impact that is central. In the relevant policy areas there is shared competence between the EU and the MS which allows the EU to act only in conformity with the principle of subsidiarity\(^ {278}\) and MS can regulate as far as there is no harmonised EU law on the subject. Infrastructure projects, like submarine cables, can have transboundary implications in several ways and therefore have the potential of requiring common action at EU level. This includes potential transboundary impact on the marine environment.

4.1.2 Participation of the EU in International Agreements

The EU is authorised to conclude international agreements in the field of environmental policy without prejudice to the rights of the member states.\(^ {279}\) As regards the environmental


\(^{278}\) Art. 5 para. 2 of the TFEU: „Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the „Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level“.

\(^{279}\) Art. 191(4) of TFEU. See also Jan H. Jans and Hans H.B. Vedder: „European Environmental Law“, p. 66.
policy where there is shared competence between MS and the EU, called mixed agreements, participation from both the EU and the MS, and cooperation, is the proper way to conclude and participate in international agreements.\(^{280}\) In mixed environmental agreements it depends on the respective agreement how voting rights are exercised. As regards the OSPAR convention, CBD and the LOSC to which the EU is a member it can vote at conferences of the parties to the extent that the member states do not exercise their voting rights.\(^{281}\)

International organisations like the EU may become parties to the LOSC if majority of its MS are members to the LOSC, and they specify in which matters falling under the LOSC the organisation has competence over and the nature and extent of that competence.\(^{282}\) The EU acceded to the LOSC with Council Decision 98/392/EC.\(^{283}\) In its declaration concerning competence, Part XII of the LOSC on protection of the marine environment, is included as a matter where the EU and the MS share competence.\(^{284}\) Provisions of the LOSC related to submarine cables and pipelines are not specifically mentioned in this context. Among listed EU acts referring to matters governed by LOSC are the EIA and Habitats directives.

### 4.1.3 EU law in the EEZ and CS

The EU treaties do not explicitly state if EU law applies beyond the territories of the MS.\(^{287}\) The general rule according to public international law is that a treaty is binding upon a state party in its entire territory unless otherwise stipulated.\(^{288}\) The CJEU has however consistently held that for some activities on the CS EU law can be applied as well as within the territory of a MS. When MS exercise sovereign rights, limited and functional, in relation to exploration and exploitation of natural resources in the CS, the court has ruled that EU law applies in the absence of clear provisions of the respective acts.\(^{289}\)

EU environmental acts are not only directed to protect the environment within the territories of the member states. In the CJEU Case C-6/04 Commission v UK it was common ground between the parties that the Habitats directive was applicable beyond the territorial

\(^{281}\) Art. 31(2) of the CBD.
\(^{282}\) Art. 2 of Annex IX to the LOSC.
\(^{283}\) OJ [1998] L 179/1.
\(^{284}\) Ibid, Annex II.
\(^{287}\) See TEU Art. 52(1) and Art. 355 of the TFEU. The wording of the provisions are not conclusive as regards the EEZ and the CS, neither including nor excluding application of EU law in those areas.
\(^{288}\) 1969 Vienna convention on the law of treaties, Art. 29.
The court found UK in breach by failing to fulfil its obligations to implement the directive beyond its territorial waters. There are many examples of EU environmental legislation addressing global issues and legislative acts explicitly applicable to protection of the marine environment beyond the territorial sea, such as relating to prevention of pollution resulting from accidents at sea and under the EU’s fisheries policy. The Marine strategy framework directive and the Marine Spatial Planning directive will be discussed below.

As mentioned above the EU is a party to the LOSC. In Case C-459/03, Commission vs. Ireland (MOX plant), the CJEU ruled on its exclusive jurisdiction in relation to cases concerning protection of the marine environment. The background of the case was the dispute between the UK and Ireland, regarding alleged breaches of obligations by the UK when authorising the MOX plant for reprocessing radioactive material, including an alleged breach of the obligation to assess the potential negative impact on the marine environment stipulated in Article 206 of the LOSC which Ireland referred to the ITLOS requesting preliminary ruling according to the LOSC. The Commission then filed a case against Ireland before the CJEU for alleged failure to fulfil its obligations under the Treaties raising three complaints, one of them being that Ireland had failed to respect the exclusive jurisdiction of the CJEU by referring the dispute to the ITLOS, whereas the Commission maintained that the dispute concerned application and interpretation of EU law. The CJEU found that the above mentioned Council Decision 98/392 transferred areas of shared competence in relation to protection of the marine environment in so far as the EU had regulated and made reference to the acts listed in Annex II to Council Decision 98/392 as examples, which includes the EIA and the Habitats directives. The list is not exhaustive and subsequent legislation relating to marine pollution and protection of the marine environment under the LOSC may therefore fall under EU competence. The court ruled with the Commission

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291 Ibid, para 121.
293 See inter alia Directive 2005/35, on ship source pollution and on the introduction of penalties for infringements, OJ 2005 L 255/11, Art. 3 provides for application of the directive in internal, waters, the territorial sea, international straits, in the EEZ and on the high seas.
294 See inter alia Council regulation 2372/2002, on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, OJ 2002 L 358/59.
297 Case C-459/03, Commission vs. Ireland, [2003] ECR-04635 (The MOX Plant case)
300 Ibid, para. 109.
stating, that the dispute fell under the court’s jurisdiction and not under the ITLOS’, holding Ireland in breach of its obligations.

4.2 Principles of EU environmental law

4.2.1 Overview

The principles governing action at the EU level in the field of environmental policy are enshrined in Article 191(2) of the TFEU stipulating:

Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. 301

The commitment to aim at a high level of protection of the environment is also found in Article 3(3) of the TEU and Article 37 of the Charter of Fundamental Rights of the European Union. 302 The reference to the general principles does not contain any substantive obligations on the coastal state since “a high level of protection” only states the general objective to be followed and according to Article 192 of the TFEU it is for the EU legislature to decide what action is to be taken. 303

The principle of integration is also found in the TFEU and is also relevant in this context:

Environmental protection requirements must be integrated into the definition and implementation of the Union’s policies and activities, in particular with a view to promoting sustainable development. 304

The Treaty provisions requiring EU environmental policy to be based on the principles of prevention and the precautionary principle can influence the interpretation of substantive obligations of the coastal state under EU law as stipulated in secondary legislation. 305 These principles will be briefly described in the following chapters.

301 Art. 191(2).
302 OJ 2010/C 83/02.
303 Case C-534/13 Fipa Group and Others ECLI:EU:C:2015:140, para. 39 and the caselaw referred to there.
304 Art. 11 of the TFEU.
305 See as regards the precautionary principles Cases C-6/04 Commission v. UK [2005] ECR I-9017, para. 54, and C-127/02 Waddenzee [2004] ECR I-7405, para. 58, where Art. 6(3) of the Habitats Directive is interpreted in the light of the precautionary principle, see further below.
4.2.2 Principle of prevention

The principle of prevention in EU law has its roots in the *No Harm* principle of public international law, included in Article 192(2) of TFEU, described in Chapter 3.1. It requires states to avoid causing environmental harm and requires preventive action to be taken against potential environmental harm.306

As mentioned above the principle is elaborated and developed in EU law through secondary legislation. Examples include the EIA307, Birds308, Habitats309 and the Marine Framework Strategy Directive’s310 all of which are relevant here, and are discussed below in Chapter 4.3. The preventive principle is reflected among other things in measures that require an authorisation for certain activities or that the potential impact of activities is assessed and that provide for public participation and access to information. Furthermore the Water Framework Directive311, applicable in coastal areas, aims at promoting and protecting water quality and preventing pollution, see chapter 4.3.1.1, and Directive 2004/35/EC, Environmental Liability directive312 which aims at preventing and remediying environmental harm.

The above mentioned directives apply both in domestic and transboundary contexts unlike the *No Harm* principle of public international law, which traditionally applies only in a transboundary context.313 Furthermore they reflect a broader scope, as the concept of significant harm is not necessarily applied but instead protection and preservation are the main objective.314 On the other hand the EIA Directive, which aims to assess the environmental impact so the necessary preventive measures may be taken, focuses on activities having significant effect on the environment.315

313 See Chapter 3.1.2.
314 See *inter alia* The Marine Strategy Framework Directive, Preamble, para. 3. See also Water Framework Directive, Preamble, para 19: „This Directive aims at maintaining and improving the aquatic environment in the Community“.
315 EIA Directive, see *inter alia* Preamble, para. 7, 8 and 9.
In the light of the above-mentioned treaty obligations and secondary legislation it is clear that EU environmental policy aims to prevent significant transboundary environmental harm. The exact duties of the MS as regards submarine power cables however are found in the relevant EU secondary legislation as interpreted by the CJEU.

4.2.3 Principle of precaution
Chapter 3 described the precautionary principle in international law and as noted in chapters 3.2.2 and 3.2.4 the principle is fairly well established in EU law, both in the TFEU and in the practice of the CJEU. What this entails specifically is reflected in secondary legislation and in the rulings of the CJEU. Moreover the EU Commission has issued guidelines on the application of the principle.316

The precautionary principle in EU law finds application as a tool to manage risk of harm to the environment when the available does not allow for a detailed risk assessment.317 It could become relevant when 1) potential negative effects of an activity, like the laying and operation of a submarine power cable, are identified, and 2) the risk in question cannot, because of insufficient or inconclusive data, be sufficiently determined on the basis of scientific evaluation.318 The Commission recommends among other things an evaluation, involving all interested parties, to determine if precautionary action should be taken in order to protect the environment.319 The Commission also recommends general principles of application of the precautionary principle including proportionality, non-discrimination, consistency, examination of the benefits and costs of action or lack of action and examination of scientific developments.320

CJEU’s case law reflects the impact of the precautionary principle on interpretation of secondary legislation. Case C-399/14321 can serve as an example, concerning a reference for a preliminary ruling on the construction of a road bridge potentially affecting protected sites according to the Habitats and the Birds directives. The project had undergone insufficient assessment in terms of the requirement of Article 6(3) and development consent been obtained before the site obtained a formal status as a protected site. The court was to answer the question if Article 6(2) of the directive required subsequent review of the implications of the project for the protected site. The court found that this obligation was not read from

319 Ibid, p. 16.
320 Ibid, p. 17.
321 Case C-399/14, Grüne Liga Sachsen and Others. ECLI:EU:C:2016:10.
the wording of the provision.\textsuperscript{322} The court cited previous case law\textsuperscript{323} and stated that the mere existence of a probability or risk of significant disturbance of a protected site was capable of constituting an infringement of Article 6(2) of the Habitats directive.\textsuperscript{324} The court is clearly applying the precautionary approach by not requiring a cause and effect relationship to be established. The application of precautionary approach in relation to the Habitats and the Birds directives is also \textit{inter alia} found in the \textit{Waddenzee}\textsuperscript{325} case.

4.3 EU’s secondary environmental legislation

4.3.1 Environmental policy in relation to the marine environment

4.3.1.1 Maritime spatial planning (MSP)

As described in chapter 2.2 the number of submarine power cables is expected to grow in near future which adds up to the large number of power and telecommunication cables already laid on the seabed. Together with other marine activities such as navigation, fishing and offshore energy generation this calls for integrated management in order to promote sustainable development and growth and protection of the marine environment. According to the Maritime Spatial Planning Directive\textsuperscript{326} (MSPD) the EU MS are obligated to implement Maritime Spatial Planning (MSP) for all marine areas where it exercises jurisdiction.\textsuperscript{327} This is done in order to promote sustainable development and growth by considering economic, social and environmental aspects and the ecosystem approach in different maritime related sectors, including offshore energy.\textsuperscript{328}

According to the MSPD, MSP is a

process by which the relevant Member State’s authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives;\textsuperscript{329}

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\textsuperscript{322} Ibid, para. 35.
\textsuperscript{324} Case C-399/14, \textit{Grüne Liga Sachsen and Others}, para. 42.
\textsuperscript{325} Case C-127/02, \textit{Waddenzee}, paras. 44, 57, 58 and 61.
\textsuperscript{327} MSPD, Art. 4(1). The geographical scope is defined with reference to Art. 4 of the MSFD, see chapter 4.3.1.2 below.
\textsuperscript{328} MSPD, Art. 5(1) and (2).
\textsuperscript{329} MSPD, Art. 3, point (3).
MS have competence, in line with the principle of subsidiarity, to take the appropriate policy decisions that form basis for the MSP, and decide the content and structure of the plan or plans involved.\textsuperscript{330}

When preparing a MSP MS shall identify existing and future activities and uses.\textsuperscript{331} Activities that may be included in the MSP are listed for reference only and include submarine cable and pipeline routes.\textsuperscript{332} This must be interpreted in accordance with the LOSC, which only allows coastal states to determine the route of pipelines and not cables in the EEZ beyond the territorial sea.\textsuperscript{333} In this connection it is important to note that consultation with the relevant stakeholders and authorities along with potential third states, and at the regional level is an important part of the process.\textsuperscript{334} This is vital prior to deciding on the cable routes in order to coordinate cable routes with other seabed use and environmental protection.

The implications of the MSP process for submarine power cables depends on the MS implementation at the national level. Also it is important how the MS will cooperate in relation to the implementation at regional level, such as under the OSPAR.

\textit{4.3.1.2 Thematic strategy for marine environmental protection}

Conservation and sustainable use of nature and biodiversity in the coastal and marine ecosystems, including the seabed, was one of the priority areas promoted in the Sixth Environmental Action Program 2002-2012.\textsuperscript{335} The priority actions to be taken included making and adopting a thematic strategy for the protection and conservation of the marine environment and promotion and protection of marine areas including with the Natura 2000 network of protected areas.\textsuperscript{336} The adoption of the Marine Strategic Framework Directive (MSFD) in 2008\textsuperscript{337} created a comprehensive legal framework for the promotion of an ecosystem based management of the marine environment at the EU level.\textsuperscript{338}

\begin{footnotes}
\textsuperscript{330} MSPD, Art. 4 (3) and 5(3).
\textsuperscript{331} MSPD, Art. 8(1).
\textsuperscript{332} MSPD, Art. 8 (2).
\textsuperscript{333} See Chapter 2.3.2.4.
\textsuperscript{334} MSPD, Art. 6 (2)(d), (f) and (g). See Art. 9 (1), 11 and 12.
\textsuperscript{336} Ibid, Art. 6(2)g). See 4.3.2 below.
\textsuperscript{337} MSFD, Art. 13(4).
\textsuperscript{338} MSFD, See \textit{inter alia} Preamble, para. 8, and Art. 1(3).
\end{footnotes}
The MSFD reflects common objectives and principles relating to marine environmental protection in EU law. It is intended to contribute to the fulfilment of international obligations, including the LOSC, the OSPAR and the CBD.\(^{339}\)

The MSFD is applicable in marine waters, and on the seabed where the MS exercise jurisdictional rights.\(^{340}\) This includes the territorial sea, the EEZ and the seabed of the CS.\(^{341}\) In internal waters, that is waters on the landward side of the baseline from which the territorial sea is measured and up to one nautical mile out on the seaward side of the baseline the MSFD is only applicable to environmental aspects that have not been dealt with under the Water Framework Directive\(^{342}\) or other EU legislation, which will not be further described here.

The main obligations of the MS according to the MSFD are to develop marine strategies, in cooperation with other states sharing the marine region, which includes assessment of current status and definition of good environmental status to be achieved. MS shall develop programmes of measures to this end and establish environmental targets and monitoring programmes for the marine environment.\(^{343}\)

Member states are required to identify measures necessary to achieve or maintain good environmental status and integrate them into the programme of measures.\(^{344}\) This includes obligations to establish coherent and representative networks of marine protected areas (MPAs), including protected areas under the Habitats and Birds directives.\(^{345}\) The implications for submarine power cables will be further addressed and discussed in chapter 4.3.2.

### 4.3.1.3 Prevention of pollution

The IED Directive\(^ {346}\) which provides for integrated pollution prevention and control does not specifically apply to submarine power cables as they are not listed in Annex I to the directive. The Dangerous Substances Directive (DSD)\(^ {347}\) applies to discharges of certain chemicals listed in Annexes I and II to the directive that are considered harmful to the marine environment.

\(^{339}\) Ibid, Preamble, paras. 17, 18 and 19.

\(^{340}\) Ibid, Art. 3(1).


\(^{342}\) See Art. 2(7), where the term coastal waters is defined.

\(^{343}\) MSFD, Art. 5(1) and (2).

\(^{344}\) Ibid, Art. 13(1) and (2).

\(^{345}\) Ibid, Art. 13(4). See further Chapter 4.3.2.


environment. In cases involving discharges of such chemicals laying of submarine cables in internal waters and the territorial sea, the coastal state is required to take appropriate measures to eliminate discharges of certain chemicals\textsuperscript{348} and provide for authorisation of all discharges liable to contain listed chemicals\textsuperscript{349}. Pollution is defined in the directive as including discharge of energy\textsuperscript{350}. Energy discharge could be relevant regarding submarine power cables, which may discharge heat and electromagnetic energy. However since the substantive provisions of the directive only contain obligations in relation to discharge of certain dangerous substances it is not relevant in relation to potential discharge of heat and electromagnetic energy.

As regards prevention of pollution in the EEZ, EU law does not provide for measures laying direct obligations on the MS in relation to the laying and operation of submarine power cables. The above mentioned provisions of the DSD applicable in internal waters and the territorial sea might have implications in relation to the laying of submarine power cables through contaminated seabed areas since the laying process may stir up harmful substances buried in the seabed\textsuperscript{351} when the cable is buried under the seafloor.

Potential heat and electromagnetic emission from submarine power cables falls under the definition of pollution under the MSFD.\textsuperscript{352} The same holds for environmental noise relating to the cable laying process. One of the indicators for the identification of good environmental status is that the introduction of energy into the marine environment does not have an adverse effect on the environment.\textsuperscript{353}

4.3.2 Marine Protected Areas (MPAs): Implications for submarine power cables

4.3.2.1 Definition

The Seventh Environment Action Programme\textsuperscript{354} defines the objective to achieve good environmental status in all marine waters of the Union by 2020.\textsuperscript{355} One of the priority areas of the programme is to protect, preserve and enhance the Union’s natural capital, which includes biodiversity and habitat protection.\textsuperscript{356} The completion of the Natura 2000 network of protected areas in the marine environment is considered necessary in order to ensure

\textsuperscript{348} Ibid, Art. 3.
\textsuperscript{349} Ibid, Art. 4.
\textsuperscript{350} Ibid, Art. 2 e).
\textsuperscript{351} See Chapter 2.
\textsuperscript{352} MSFD, Art. 3(8).
\textsuperscript{353} Ibid, Annex I, para. 11.
\textsuperscript{355} Ibid, Preamble para. 14.
\textsuperscript{356} Ibid, Art. 2(1)a).
required protection.\textsuperscript{357} It is therefore clear that EU environmental policy is promoting the nomination of MPAs, which can have effect on cable laying projects.

Marine protected areas can be classified in three different categories;\textsuperscript{358} first there are marine Natura 2000 sites which are designated under the Habitats and Birds directives; second, there are MPAs nominated by states in relation to regional sea conventions, such as the OSPAR; and third, there are individual national MPAs. The OSPAR-nominated areas are to large extent geographically the same as the Natura 2000 sites.\textsuperscript{359}

\subsection*{4.3.2.2 Natura 2000 sites in the marine environment}

The MSFD integrates Natura 2000 protected areas according to the Habitats and Birds Directive’s\textsuperscript{360} with designated protected areas under regional seas conventions in order to ensure coordination.\textsuperscript{361} The designation of MPAs can have implications for the laying of submarine power cables since protection of the sites may require restrictions on activities like the laying of submarine cables. The Habitats Directive provides for the protection of habitats and species. The aim of the directive is

\ldots to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Members States to which the Treaty applies.\textsuperscript{362}

The Birds Directive similarly applies to habitats but exclusively of birds and the protection of wild bird species including nests and eggs.

The text of the Habitats directive implies that the directive applies only within the territorial jurisdiction of the states involved and does not refer to the EEZ or CS. This was the position of member states but is contested by the Commission.\textsuperscript{363} The text of the directive and the focus of its content is in general more land-based then maritime.\textsuperscript{364} However in the case C-6/04 Commission v UK it was common ground between the parties that the habitats

\begin{itemize}
\item \textsuperscript{357} Ibid, Annex, para. 28.
\item \textsuperscript{359} See map in Chapter 3.4.2.3 showing MPA’s in the OSPAR area and compare with the natura 2000 map in Annex.
\item \textsuperscript{361} MSFD, Preamble, para. 13. Art. 13(4).
\item \textsuperscript{362} Habitats directive, Art. 2.
\item \textsuperscript{363} Commission guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives, May 2007, p. 18.
\item \textsuperscript{364} See \textit{inter alia} Habitats directive, Art. 1, where there are number of references to „territory“. See point a) where natural habitats are defined without any reference to marine habitats, only terrestrial and aquatic.
\end{itemize}
directive also is applicable on the EEZ and the CS to the extent that the member state exercises sovereign rights. Consequently the court found the UK to have failed to fulfil its obligations according to the directive as regards implementation of the whole of the directive beyond its territorial waters. EU institutions have regarded the Habitats directive as applicable beyond territorial waters however state practice has been held to be inconsistent. Nevertheless generally the MS included in this thesis have designated protected sites beyond their territorial sea. Iceland and Norway, not MS, have nominated protected areas under the OSPAR beyond the territorial sea; see further Chapter 3.5.3.2.

4.3.2.3 Designation of marine protected areas
The Habitats directive lists types of marine and coastal areas which require protection by the states concerned. Those include among others open sea and tidal areas, such as sandbanks slightly covered with sea water, estuaries, reefs, bays and marine columns in shallow water made by leaking gases, salt marshes and salt meadows and sea dunes.

Both the Habitats and Birds directive’s provide for an obligation of the member states to protect habitats of listed species and to provide for a list of sites of community importance which the Commission is to adopt following certain procedures. The listed areas, all referred to as Natura 2000 areas, have until recently not focused on marine habitats. As of December 2013 EU member states had listed 2,960 areas with more than 5% marine areas compared to 26,410 sites with less than 5% marine areas.

4.3.2.4 Protection under the Habitats and Birds directives
Member States is to introduce special protective plans or to integrate into other development plans such protective measures which can be statutory, administrative or contractual. Any significant deterioration is to be avoided and the MS has the obligation to take appropriate steps for that purpose. When there is a probability or a risk of a plan or a project having

365 Case C-6/04 Commission v UK, para.117.
368 Habitats directive, Annex 1 “Natural habitat types of community interest whose conservation requires the designation of special areas of conservation.”
369 Ibid.
370 Art. 3 and 4 of the Habitats directive and art. 3 and 4 of the Birds directive.
372 Art. 6(1) of the Habitats directive.
373 Ibid art. 6(2).
significant effect on the site an appropriate assessment of its effect is to be performed.\textsuperscript{374} Such risk would be held to exist if it cannot be excluded on the basis of objective information.\textsuperscript{375} The assessment must take into account the cumulative effects of other plans and projects and is to be based on best scientific knowledge in the field and to identify and evaluate the effect on the conservation objectives of the site in question.\textsuperscript{376} If there is simultaneously an obligation to perform an assessment according to the Habitats directive and an assessment according to the EIA directive (see chapter 4.3.3) the MS shall provide for a joint or a coordinated procedure.\textsuperscript{377}

If an assessment shows significant negative effects on the protected area, the coastal state is to ensure that the relevant authority is only allowed to permit the project if it does not affect the overall integrity of the area under evaluation. The criterion “significant effect” is fulfilled if a plan or a project is likely to undermine the conservation objectives of the site.\textsuperscript{378} A precautionary approach is to be applied since the coastal state’s competent authority must refuse to grant authorisation if it cannot be excluded that the submarine power cable may adversely affect the integrity of the site.\textsuperscript{379} Accumulative impact of other plans or projects must also be taken into account when assessment is made.\textsuperscript{380} The above-mentioned obligations are subject to derogations according to Article 6(4) relating to imperative reasons of overriding public interest that may have relevance for submarine power cables; see chapter 4.3.2.5.

The MS authorities must take the necessary measures to undertake obligations according to Article 6(3) irrespective of if the provisions of the directive have been transposed into its national law.\textsuperscript{381}

The Birds Directive provides that MS shall classify suitable land and sea areas where the directive applies as Special Protected Area (SPA) for the conservation of species listed in Annex I of the directive, and regulates occurring migratory species not listed in Annex I, paying particular attention to wetlands in this respect.\textsuperscript{382} MS must take appropriate steps to avoid significant pollution or deterioration of habitats or disturbances affecting the birds within the protected areas.\textsuperscript{383}

\textsuperscript{374} Ibid art. 6(3).
\textsuperscript{375} Jan H. Jans and Hans H.B. Vedder, p. 46-47. Case C-127/02, Waddenzee, para. 44 and Case law cited above in 4.2.3.
\textsuperscript{376} Case C-127/02, Waddenzee, para 54.
\textsuperscript{377} EIA directive, Art. 2(3), as amended by directive 2014/52, Art. 1(2).
\textsuperscript{378} C-127/02 Waddenzee, para. 49.
\textsuperscript{379} C-127/02 Waddenzee, para. 59.
\textsuperscript{380} Ibid, para. 61. This is evident from the wording of the Habitats directive, Art. 6(3).
\textsuperscript{381} Ibid, para. 65, Case C-72/95 Kraaijeveld and Others [1996] ECR I-5403, para. 55.
\textsuperscript{382} Art. 4(1) and (2).
\textsuperscript{383} Art. 4(4).
4.3.2.5 Derogations on the grounds of imperative reasons of overriding public interests

As mentioned above, in case of important public interests, derogations may apply to a plan or a project. The interests can be of economic and social nature. Submarine power cables are important infrastructure which can promote energy security as well as affordability and sustainable energy consumption. If a submarine power cable project is important for interconnecting energy grids or is important for supply of renewable energy from offshore energy farms the derogation may consequently apply. If a cable project falls within the criteria of a PCI according to the TEN-E Regulation defining priority energy transmission infrastructure at the EU level the derogation of Article 6(4) is explicitly applicable.

Article 6(4) of the Habitats directive provides that the MS shall in case of derogation preserve the overall coherence of Natura 2000 by compensatory measures and inform the Commission of those. Moreover for priority natural habitats and species the derogation may only be granted after an opinion from the Commission has been obtained and consulted.

4.3.3 Environmental impact assessment

4.3.3.1 General issues

EU environmental policy promotes the full and effective use and implementation of assessment of the environmental impact of activities.

EU law includes obligations to perform Strategic Environmental Impact Assessment (SEA), assessing the environmental impact of certain plans and programmes. There is a duty to perform an EIA before a development consent is given for projects having significant effect on the environment. The EIA obligations are stipulated in Directive 85/337 on the assessment of the effects of certain public and private projects (EIA directive) which is codified in Directive 2011/92 EU. As mentioned in chapter 4.3.2.4 the Habitats directive

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384 Habitats directive, Art. 6(4).
385 See Chapter 2.2.1.
386 Regulation 347/2013 on guidelines for trans-European energy infrastructure, (TEN-E Regulation), Art. 7(8).
387 Seventh Environmental Program, para. 85. Effective implementation of EIA and SEA is seen as effective tool in relation to reaching priority objective seven, that is to improve environmental integration and policy coherence.
provides for a duty to assess impact on habitats. This duty is also stipulated in other directives.\textsuperscript{390}

The EIA directive has been amended by Directive 2014/52/EU which has entered into force, although MS have until 16 May 2017 to transpose the amendments into their legal systems. One aim of the amendments is to reduce complexity and increase efficiency by among other things stipulating that member states can apply the same procedure for impact assessment according to different EU legislation.\textsuperscript{391} Furthermore there are provisions on criteria and determination of projects falling under Annex II that may require an EIA.\textsuperscript{392}

\subsection*{4.3.3.2 The SEA directive relating to plans and programs}

As noted in chapter 4.3.1.1, MS are required to prepare plans that organise maritime activity in areas where they exercise jurisdiction (MSP), including submarine cables and pipelines. Furthermore a proposed submarine power cable project would be included in the ten-year network development plan that MS are required under EU law to have prepared by national TSO’s.\textsuperscript{393} These plans along with national land-use plans which may have to be prepared in relation to submarine power cables can have significant impact on the environment.

According to the SEA directive, certain plans and programmes that are a basis for development consent according to the EIA directive are to be subjected to Strategic Environmental Impact Assessment (SEA), including those prepared for energy and telecommunications\textsuperscript{394}, which includes the ten-year network development plan. If a MSP has a significant impact on the environment an assessment under the SEA directive is required.\textsuperscript{395} SEA is mandatory in all cases where a plan potentially has a significant impact on the environment.

The main objective of the SEA process is to integrate environmental considerations into the preparation of projects and activities already in the planning process so that they may influence decision making at the earliest stage possible.

Since a proposed submarine power cable project usually involves planning both in connection with land-use and energy infrastructure development SEA requirements therefore are relevant for submarine power cable projects. The EIA process for projects according to the EIA directive will be described shortly below and reference may be made.

\textsuperscript{390} See inter alia Water framework directive.
\textsuperscript{391} Ibid, preamble para. 37 and Art. 2.3.
\textsuperscript{392} Ibid, Art. 4.3-4.6.
\textsuperscript{394} EIA directive, Art. 3(1).
\textsuperscript{395} MSPD, Preamble, para. 23.
to the EIA process in relation to the SEA process as well, including the process in transboundary context, and the differences between the procedures will not be addressed further here.

4.3.3.3 EIA obligations in relation to projects and activities

4.3.3.3.1 General

The EIA directive provides that projects likely to have a significant effect on the environment by virtue of *inter alia* their nature, size or location shall be subjected to a development consent preceded by an impact assessment in accordance with the directive. Projects requiring an EIA are listed in Annexes I and II to the directive. Projects listed in Annex I to the directive are subject to mandatory impact assessment whereas projects listed in Annex II to the directive are subject to impact assessment when the competent MS authority, on a case-by-case basis or with reference to thresholds or criteria set by the MS, finds this appropriate with reference to criteria set out in Annex III relating to the characteristics of the project, its location and its potential impact. Activities having transboundary impact are addressed specifically in Article 7 of the directive; see chapter 4.3.3.3.5.

In some cases it may be held that projects can have both negative and positive impact on the environment. Possible indirect positive effect of submarine power cables may be increasing the share of renewable energy in total energy consumption. The potential beneficial environmental effects cannot exclude a project from the scope of the EIA directive. Therefore the need for an EIA must be assessed irrespective of the potentially positive impact of a project, though its positive impact may however be relevant in the EIA process and the final decision-making process.

4.3.3.3.2 Requirement for an EIA in relation to submarine power cables

Construction of overhead electrical power lines with a voltage of 220 kV or more and at least 15 km long is a project listed in Annex I of the EIA directive requiring mandatory EIA. Construction of other types of electrical lines such as submarine electrical power cables is not mentioned specifically. However it is an established case law of the European Court that the scope of the EIA directive is very wide and the mere fact that a project is not listed in the

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396 EIA directive, Art. 2(1).
397 Ibid, Art. 4(1).
398 Ibid, Art. 4(2) and (3).
400 EIA directive, Annex I, 20.
Annexes does not mean that the project automatically falls outside the scope of the directive. This must therefore be evaluated in each case taking into account the impact of the projects involved on the environment.

Two cases of the CJEU in relation to electricity infrastructure will be mentioned here in this connection. On the one hand there is the case C-205/08, Kärnten, where at issue was the construction of a transboundary overhead electrical power line which in total was over 15 km of length and therefore fell under the criteria of Annex I. However only a part of the line that was less than 15 km long was within the territory of the state party to the case. The court held nevertheless that the project should be subjected to mandatory EIA in that state according to Annex I and pointed out that MS cannot exclude a project from the application of the directive simply by referring to the fact that the project was not expressly included into Annex I. On the other hand in the case C-300/13 Consejería Infraestructuras the court ruled that the extension of an electric substation for transforming electrical voltage (400 kV) could not as such be considered within the scope of Annex I requiring mandatory EIA. However the court made it clear that the project could be included if it was to be considered part of the construction of an overhead electrical cable in accordance with the criteria set out in Annex I and asserted that the objective of the directive could not be circumvented by splitting up projects.

Annex II of the EIA directive provides that transmission of electricity by overhead cables is to be screened to determine if the potential impact is such that there is a need for an EIA. In the above-mentioned Case C-300/13 Consejería Infraestructuras regarding extension of an electrical substation, the court held that the project could not be considered transmission of electricity by overhead cables according to Annex II. The court added that there was no evidence that the EU legislator intended a special regime for transmission of electricity separate from the construction of the lines and nothing in the objectives of the directive could lead to the conclusion that Annex II referred to other infrastructure than overhead lines. However as in the case of Annex I the court held that extension of an electrical substation for transforming voltage should fall under Annex II when it is to be considered included in the same project as the construction of overhead cables.

Considering the above-cited case law, the laying and operation of a submarine power cable may at least in some cases be subjected to an EIA according to EU law depending on

401 Case C-142/07, Ecologistas, para. 28, and the case law cited there.
402 Case C-300/13, Consejería Infraestructuras, ECLI:EU:C:2014:188.
403 Ibid, para. 21.
404 Ibid, para. 24 and 25.
405 Ibid, para. 28.
the evaluation of the environmental impact in each case. This is due to the fact that the CJEU emphasises a wide scope of the EIA directive and that the fact that submarine power cables are not explicitly mentioned in the Annexes to the directive is not conclusive. The ruling in the case C-300/13 however indicates that projects falling under Annex I, point 20, or Annex II, point 3 b) must at least have to be considered part of the construction of overhead electrical cables to fall under EIA requirements. That could be quite relevant in many cases since the laying and operation of a new submarine power cable presumably requires increased capacity of the transmission system at the landing of the cable.

4.3.3.3 Screening of projects
Since submarine power cables are not subject to mandatory assessment but cannot be excluded altogether from EIA obligations it must be determined if such obligations exist in a process which is called screening. This applies also for the sea defence work that may be necessary in relation to the landing.406

According to Article 4.3 of the EIA directive, as amended by Article 1(6) of Directive 2014/52, MS are allowed to set criteria for the screening process. The criteria must not exclude all projects of certain type or size unless they could be regarded beforehand as not having significant effect on the environment407. Recent case law indicates that specific evaluation must be carried out for any given project to determine on the basis of criteria in Annex III if an EIA should be required.408 The provisions of Article 4.3 of the EIA directive to be implemented before 16 May 2017 however give member states discretion to exclude projects from an EIA on the basis of defined criteria without a case-by-case evaluation, provided that significant impact may be excluded beforehand.

Submarine cables could be excluded from the EIA in the screening process in the absence of significant environmental impact, such as when the distance is short, there is no contact with vulnerable species and protected habitats and no impact with other seabed use, such as existing cables and fisheries. Bearing in mind the limited scientific data and applying the precautionary approach according to EU law, the result may be an obligation to perform an EIA when significant impact cannot be excluded. Cable laying in a MPA and in seabed where vulnerable habitats and species are potentially located is also likely to bring with it an EIA obligation.

406 Annex II, 10(k). Annex III contains reference to wetlands and coastal locations as relevant in relation to determination of the need for an EIA.
408 See inter alia Case C-141/14 Commission vs. Bulgaria, ECLI:EU:C:2016:8, para. 94, Case C-531/13, Marktgemeinde Straßwalchen and Others, ECLI:EU:C:2015:79, para. 42.
4.3.3.4 The EIA process for submarine power cables

The EIA process according to the directive is defined as including preparation of an assessment of the environmental impact, consultation phase, a report describing the environmental factors prepared by the developer and an examination of the report by a competent authority, and a reasoned conclusion by the competent authority and integration of the conclusion into the development consent.\(^{409}\)

One of the purposes of the EIA is to facilitate an informed decision-making on activities that may have a significant adverse impact on the environment. Therefore it is important to provide all necessary information relating to the project and its impact on the environment which is done by scoping. Scoping is vital in order to focus on the factors that are relevant without missing any important issues that must be addressed. The coastal state must offer guidance to the cable laying entity following necessary consultation on what kinds and extent of information must be gathered and evaluated in the EIA process.\(^{410}\)

The EIA report is usually prepared by the developer which has the responsibility to ensure that it is prepared by competent experts.\(^{411}\) The cable laying entity is to be required at least to provide a description of the project concerning the site, the required data necessary to identify and assess the main effects of the project on the environment, the design and size of the project, information on measures to mitigate significant adverse effects, information on the main alternatives studied, and an indication of the main reasons for its choice and a non-technical summary of this information.\(^{412}\)

The consultation process includes relevant authorities and the public. MS must ensure that the relevant authorities with environmental responsibilities have access to the consultation process both as regards the information supplied by the developer and on the request for development consent.\(^{413}\) MS have detailed obligations regarding public participation stipulated in Article 6(2)-(6) including access to information, taking into account Directive 2003/4/EC\(^{414}\) on public access to environmental information, information about the relevant authorities and where to access information, how to participate, time-frames etc.

The CJEU has established that when in deciding whether a project falls under an obligation to perform an EIA under EU law not only the impact of the construction phase

\(^{409}\) Ibid, Art. 1(2)(g), amended by Art. 1(1) of Directive 2014/52/EU.
\(^{410}\) This duty is provided for in the EIA directive, Art. 5 (2), as ammended by Directive 52/2014, Art. 1 (5).
\(^{411}\) EIA directive, Art. 5(3) a) as ammended by Directive 52/2014, Art. 1(5).
\(^{412}\) Ibid, Art. 5(3).
\(^{413}\) Ibid, Art. 6(1).
but also the impact of the ongoing operation of the project must be taken into account when assessing if a project is likely to have significant impact on the environment.\textsuperscript{415} In case of submarine power cables the environmental impact of the operation phase must also be taken into account, including the potential impact of electromagnetic fields, possible heat emission and potential disturbances of the seabed relating to maintenance.\textsuperscript{416}

4.3.3.3.5 Transboundary EIA

The previous chapter discusses if there is a general requirement for an EIA in relation to laying and operation of submarine power cables irrespective of whether the cable interconnects states. As mentioned in Chapter 3.6, there are obligations according to public international law and the ESPOO convention in relation to transboundary environmental impact assessment. Article 7 of the EIA directive implements such obligations into EU law as mentioned in Chapter 4.3.3.3. The wording of Article 7(1) is as follows:

Where a Member State is aware that a project is likely to have significant effects on the environment in another Member State or where a Member State likely to be significantly affected so requests, the Member State in whose territory the project is intended to be carried out shall send to the affected Member State as soon as possible and no later than when informing its own public, inter alia:
(a) a description of the project, together with any available information on its possible transboundary impact;
(b) information on the nature of the decision which may be taken.

The Member State in whose territory the project is intended to be carried out shall give the other Member State a reasonable time in which to indicate whether it wishes to participate in the environmental decision-making procedures referred to in Article 2(2), and may include the information referred to in paragraph 2 of this Article.

The obligation to perform an EIA when significant transboundary impact may be involved is stipulated without reference to the listing of projects under the directive. In such cases the state of origin has obligations to notify the affected state of the proposed project. The member state of origin is to give the affected state reasonable opportunity to participate in the EIA process, including access to information for the public of the affected state, and to deliver an opinion on the proposed project before development consent is given.\textsuperscript{417} This means that in a transboundary cable project there is a duty to give the relevant authorities in states of origin and affected states the chance to express an opinion on the project.\textsuperscript{418}

\textsuperscript{415} Case C-142/07, Ecologistas, [2008] ECRI-06097, para. 39 and cited caselaw.
\textsuperscript{416} See chapter 2.5.
\textsuperscript{417} Ibid., Art. 7(2), (3) and (5).
\textsuperscript{418} Ibid, Art. 6(1).
A consultation is to take place between the state of origin and the affected state, which can be conducted by an appropriate joint body, on the potential transboundary impact and measures to deal with them. The detailed arrangement is to be decided by the states concerned with the aim to enable effective participation of the public concerned in the affected state.

4.3.3.3.6 Transboundary submarine power cables

In the case of an interconnecting submarine power cable the coastal states involved on both ends of the cable are in fact both states of origin and affected states. In such cases the states are likely to be involved in the process at an earlier stage and to have started consultations regarding the project before the EIA procedure and development consent is approached. Therefore notification may not be necessary and both states would be treated as states of origin in that sense and in relation to the consultation process, which would have to be modified and accommodated to this situation. However this cannot be seen as changing the basic EIA obligations according to the directive.

Third states may be affected if a submarine power cable crosses their maritime boundaries and in such cases the coastal states at both ends of the cable (states of origin) have the obligation to notify the affected state or states involved. In case of the cable entering the territorial sea of a third state, that state would have to consent to such a cable route and would therefore become a state of origin as well. Entering the EEZ of a third state does not require consent, so that state would become the affected state that must be accorded rights according to the ESPOO and EIA directive respectively.

The question can be raised if the involvement of the OSPAR Commission might also be considered since the laying and operation of submarine power cables may have a potential impact on MPAs and raise concerns relating to the pollution of the marine environment, such as generation of EMF. Neither the ESPOO nor the EIA directive specifically provide for the participation of organisations as representing third states potentially affected. Since the OSPAR represents collective interests relating to marine environmental protection this possibility may at least be considered in each case.

4.3.3.3.7 Permitting requirements

As mentioned above the EIA directive requires that an EIA is performed before certain projects are authorised and thereby presupposes that there must be a permitting requirement

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420 Ibid.
in place to ensure that the fulfilment of the EIA obligations is monitored. The permitting process is decided in national law, see chapter 5 where the example of Iceland will be given. The TEN-E Regulation however has relevance for submarine power cable projects that fall under the PCI criteria and harmonise certain requirements that EU MS must take into account.

In order to streamline the permitting process for important infrastructure, states are to designate one competent authority that is responsible for the permitting process for PCI projects and which the cable-laying entity can exclusively correspond with in relation to the permitting process and which coordinates submission of documents and information.\(^{421}\)

The time limits for the conclusion of a permitting process for a PCI project is three years and six months, with possible six- to nine-month extension, and constitutes a pre-application procedure, including any assessment procedure, and the permit granting procedure. These time limits may be shortened by the MS.\(^{422}\) The time limits are however subject to other international obligations and notably to the relevant administrative and judicial procedures that may be applicable for those contesting the proposed project.

The provisions of the TEN-E Regulation for streamlining the permit process are intended to simplify and make more efficient national processes relating to projects such as submarine power cables which fall under the PCI criteria. It remains to be seen how well the coordination of different authorities and permit processes will be implemented in each MS.

### 4.4 The Agreement on the European Economic Area\(^{423}\)

#### 4.4.1 General

Two coastal states in the North Atlantic, Iceland and Norway, are parties to the Agreement on the European Economic Area (EEA) between the EU and some of the EFTA states.\(^{424}\) The objective of the EEA is to strengthen economic relations by creating homogenous economic area among the contracting parties.\(^{425}\) This is done by creating a common inner market extending the EU inner market to the EFTA state parties to the EEA. Environmental issues fall partly under this agreement, which requires closer cooperation in relation to them. Obligations in relation to environmental protection are found in Part V of the agreement, \(^{421}\) TEN-E Regulation, Art. 8(1) and (2) (b).  
^{422}\) See further ibid, Art. 10(1)-(3).  
^{424}\) Currently in addition to Iceland and Norway, only Lichtenstein is a party to the EEA agreement. The EFTA state Switzerland did not ratify the agreement. Austria, Finland and Sweden previous EFTA states left the EFTA pillar and joined the European Community (now EU).  
^{425}\) EEA agreement, Art. 1(1)
which includes matters referred to as horizontal issues relevant for the four freedoms (free flow of goods, persons, services and capital). Moreover the agreement provides for increasing cooperation in certain fields of community action, including in the field of environmental issues. Thus the Sixth Community Environment Action Programme has been incorporated into the agreement.\(^{426}\)

The EFTA states are required to transpose EU legislation that falls under the agreement into their legal systems as appropriate. The EEA Joint Committee decides unanimously which relevant EU acts are to be incorporated into the EEA agreement, with equal representation by the EU on the one hand and the EFTA member states on the other hand.\(^{427}\) The EU acts falling under the agreement are added to the agreement in Annexes; where acts relating to environmental policy are found in Annex XX.\(^{428}\)

The objective of homogeneity is reached \textit{inter alia} by providing for an obligation to interpret EU law in conformity with any ruling of the CJEU made prior to the date of signature of the EEA agreement.\(^{429}\) Where later rulings are concerned it has been held that the EFTA Court has followed the dynamic approach of the European Court.\(^{430}\) Therefore concerning relevant legislation that has been incorporated into the EEA agreement even though the EFTA Court has not ruled on the issue, the case-law cited above may be consulted.

The purpose of this chapter is to determine to what extent EEA law has implications for the duties of Iceland and Norway as coastal states in relation to submarine power cables. Obligations according to EU law to protect the environment are reflected in EU secondary environmental acts that have been described above. The relevant acts taken up in Annex XX of the EEA agreement will be noted and the difference between the obligations of the EFTA and EU states analysed. First, however, the question of applicability of EEA law beyond territorial waters will be addressed.

\textbf{4.4.2 Applicability beyond territorial waters}

Protocol 1 to the EEA agreement on horizontal adaptations provides that when an EU act refers to the territory of the Community (now Union) or of the common market, this is to be

\(^{426}\) Ibid, Art. 78 and Art. 3(7)d) of Protocol 31. The Seventh Environmental Action Program has not been incorporated into the EEA agreement (24 April 2016).

\(^{427}\) Ibid Art. 102, 92 and 93.

\(^{428}\) Ibid, Art. 74.

\(^{429}\) Ibid, Art. 6.

\(^{430}\) Ölafur Ísberg Hannesson: „Giving effect to EEA law – The role of the Icelandic National Courts and the EFTA Court in the European judicial dialog“, p. 209 and caselaw cited in footnote 145. According to Art. 105(2) and (3) the EEA Joint Committee shall keep under constant surveillance the case law of the CJEU and the EFTA court and react appropriately if there is a difference between the rulings of the two courts.
understood to apply to the territories of the Contracting Parties as stipulated in Article 126 of the EEA agreement\textsuperscript{431}, and reads as follows:

The Agreement shall apply to the territories\textsuperscript{432} to which the Treaty establishing the European Economic Community is applied and under the conditions laid down in that Treaty, and to the territories of Iceland, the Principality of Liechtenstein and the Kingdom of Norway.

The reference to territories in the text has been used to argue that the EEA agreement is only applicable to ‘territories’ in the sense of land, internal waters and territorial seas but not to the CS.\textsuperscript{433} Norway has taken the position that the geographical scope of the EEA does not include the EEZ and the CS.\textsuperscript{434} The wording of the provision supports this interpretation. On the other hand the principle of homogeneity between EU law and EEA law might point to a more flexible view with different results depending on the issue in question.\textsuperscript{435}

The coastal state has sovereign rights over the CS which are derived from the territorial sovereignty over land. The CS is according to international law a natural prolongation of the coastal states’ territory which does not need to be claimed as such up to 200 nautical miles from baselines.\textsuperscript{436} Only the part of the outer shelf beyond 200 nautical miles need to be claimed by the coastal state.\textsuperscript{437}

Both Iceland and Norway have claimed an EEZ where they exercise sovereign rights according to the LOSC which are functional in relation to exploration and exploitation of natural resources and protection of the marine environment.

It must be noted in this context that EU secondary legislation with application beyond the territorial sea has been taken up into the EEA agreement without any restrictions of the territorial scope.\textsuperscript{438}

The EFTA court has not ruled on the issue, but bearing in mind the objective of homogeneity it is not unlikely possibility that the court would treat similar issues in

\textsuperscript{431} Art. 8.
\textsuperscript{432} Italics added.
\textsuperscript{433} Finn Arnesen: “Regulerer EØS avtalen den norske states utnyttelse av petroleumsforekomster?”, p. 439.
\textsuperscript{435} See 4.1.3 above regarding applicability of EU law beyond the Territorial sea.
\textsuperscript{436} ICJ 1969 North Sea Continental Shelf, ICJ Report 3, para 19: „the rights of the coastal State in respect of the area of continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist ipso facto and ab initio, by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources. In short, there is here an inherent right.“
\textsuperscript{437} LOSC, art. 76(1).
accordance with the CJEU, which has applied EU law beyond the territorial sea. For more on this see Chapter 4.1.3 above, where it is concluded that EU law is applied to the EEZ and CS to the extent that the coastal state exercises sovereign rights. The coastal state has jurisdiction in relation to submarine power cables that serve the purpose of exploring and exploiting natural resources. However, in relation to interconnecting power cables, it does not in general exercise jurisdiction beyond the territorial sea. Nevertheless as the coastal state does have jurisdiction in relation to the protection of the marine environment in the EEZ, the question of relevance of acts relating to protection of the marine environment to the EEA not the least depends on the substantive content of the acts involved than the geographical scope of the agreement.

4.4.3 Protection of the marine environment under the EEA agreement

The EEA agreement includes the objective to preserve, protect and improve the quality of the environment. The principles governing EEA environmental policy are similar to the EU’s, stipulated as follows:439

Action by the Contracting Parties relating to the environment shall be based on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source, and that the polluter should pay. Environmental protection requirements shall be a component of the Contracting Parties’ other policies.440

There is no indication in the wording of the EEA agreement that protection of the marine environment is excluded from the provisions of the EEA agreement relating to the environment. The Sixth Community Environment Action Programme, which was incorporated into the agreement, introduced thematic strategy in relation to marine environmental protection.441 However there is a disagreement between the EU and the EFTA side of the EEA agreement on the relevance of the Marine Strategy Framework Directive (MSFD) for the EEA agreement. The EU side contends that the directive is relevant, since it forms an important part of the EU’s legislation and effects the homogeneity of the internal market, whereas the EFTA side argues that the directive falls outside the scope of the agreement.442 In 2011 the Norwegian government decided against the inclusion of the

439 See Chapter 4.2.1.
440 EEA Agreement, Art. 73(1)a).
441 See 4.3.1.1.
MSFD, since its application was considered largely outside the geographical scope of the EEA agreement.\textsuperscript{443}

The issue is still under discussion and has not been resolved\textsuperscript{444} by the EEA Joint Committee. Consequently the directive has not been incorporated into the EEA agreement and therefore not transposed into the legislation of the EFTA states. However in practice Norway claims that it fulfils the requirements on the development and implementation of marine strategies according to the MSFD.\textsuperscript{445} When Norway decided not to incorporate the MSFD into the EEA commitments were made to strengthen the close cooperation with the EU on management of the marine environment.\textsuperscript{446}

4.4.4 Relevant acts incorporated into the EEA agreement
As outlined in Chapter 4.4.1, EU legislative acts concerning environmental policy are formally incorporated into the EEA agreement by amendments to Annex XX to the EEA. The following acts mentioned above are part of the EEA:

1) The EIA Directive.\textsuperscript{447} When the provisions of the Directive make reference to EU legislation they only apply to the extent they have been incorporated into the EEA agreement.


3) The SEA Directive.\textsuperscript{449} Article 3(2)(b) does not apply and reference to the Habitats and Birds directives in point d of Annex I is deleted.

A number of other acts relating to environmental protection have been incorporated into the agreement.\textsuperscript{450}

Important acts relevant for this thesis have not been incorporated into the EEA.

\textsuperscript{443} The EEA Agreement and Norway’s other agreements with the EU, p. 13.
\textsuperscript{444} Annual report of the EEA Joint Committee 2014. The functioning of the EEA agreement, paras. 17 and 18, and Annex I, p. 6, para. 41.
\textsuperscript{445} The EEA Agreement and Norway’s other agreements with the EU, p.14.
\textsuperscript{446} Ibid, p. 43.
\textsuperscript{447} EEA Agreement, Annex XX, point 1a.\{4\} and \{5\}
\textsuperscript{448} Ibid, point 4.
\textsuperscript{449} Ibid, point 1g.\{26\}
First, the nature conservation measures, the Habitats and Birds directives, have not been incorporated. Since these directives may impose obligations on economic actors in relation to permitting requirements etc. it may be argued that the directives at least partly have EEA relevance, and they are noted among acts not yet incorporated.\textsuperscript{451}

Second, the MSFD has not been incorporated as pointed out above. Iceland and Norway are therefore not obligated to transpose those directives into their legal systems.

Third, the MSPD does not have EEA relevance, even though it may have indirect consequences for economic actors, since spatial planning is not one of the horizontal issues relevant for the four freedoms according to Annex XX to the EEA agreement. The MSPD has therefore not been made part of the EEA agreement.

Norway and Iceland have nevertheless designated marine protected areas; see Chapter 3.5.3.2. Some of the obligations are the same for the EFTA and the EU states, such as the obligations under the EIA and SEA directives.

4.4.5 Discussion
The EEA agreement has the objective to create a homogenous economic area. Provisions on the protection of the marine environment are included in the agreement and the EFTA states cooperate with the EU on environmental matters. However the EFTA states claim that the geographical scope of the agreement excludes the EEZ and the CS so as a result the MSFD has not been incorporated into the agreement.

There are several arguments against this position, as noted above. The EFTA states have undertaken to respect the principles underpinning EU environmental policy, excluding only protection of the marine environment under the Common Fisheries Policy. Protection of the marine environment is applicable to the EU MS in relation to the EEZ and the CS, so the position of the EFTA states may compromise the homogeneity of the EEA agreement. Furthermore EU acts that are relevant beyond the territorial sea have been incorporated into the EEA.

EIA obligations are part of the EEA without excluding the EEZ and the CS specifically. In the case of a submarine power cable laid from the territorial sea to the EEZ, the application of different rules for the same project within and beyond the boundary of 12 nautical miles would seem controversial, and in practice this is avoided, see the case of Iceland that will be discussed in Chapter 5. Also it may be noted that both Iceland and Norway have designated MPAs beyond the territorial sea in the EEZ and cooperate with the EU MS in the OSPAR

\textsuperscript{451} EEA Joint Committee: Annual report of the EEA Joint Committee 2014 The functioning of the EEA agreement, 14. October 2015, Ref. 14-134792, Annex I, p. 6, para. 42, status at the end of 2014.
Commission in relation to protection of the marine environment. Nevertheless the legal obligations of these states differ from the EU MS until the relevant EU acts are incorporated into the EEA.

4.5 Conclusions

EU environmental law is based on principles that aim at a high level of protection and policies that promote protection of the marine environment. These obligations are implemented through secondary legislation which is interpreted by the CJEU. The precautionary approach is stipulated by the relevant legislation and applied by the CJEU, promoting a high level of protection. The legal obligations of the EU MS relevant to this thesis are mainly the following:

First, according to EU law the MS are required to delineate the route of proposed submarine power cables on the seabed as a part of marine spatial planning in order to promote the sustainable development and use of the marine environment. This obligation must be interpreted in accordance with the LOSC, which only gives the coastal state express jurisdiction to decide the course of submarine pipelines and not cables beyond the territorial sea; see Chapter 2.3.2.4 for further discussion. Obligations to consult with third states and stakeholders are stipulated, which are important in this context.

Second, there is an obligation to implement a marine strategy to protect the marine environment and promote ecosystem management of human activity, among other things by developing a network of MPAs protecting vulnerable habitats and species.

Third, EU law provides for special protection of vulnerable habitats and species, *inter alia* in its Natura 2000 program. When a proposed cable-laying project potentially undermines the conservation status of protected sites, an assessment must be made, and if it shows that the project has a negative impact on the integrity of the site the project may only be authorised if it can be justified on grounds of public interests, which however is the always the case when a project is defined as a PCI for electricity transmission; see Chapter 2.2.3.

Fourth, obligations to prevent pollution from certain dangerous substances are stipulated, which may apply in situations where such substances are introduced into the marine environment in the process when a cable is buried in contaminated seabed.

Fifth, there are obligations to require SEA of certain plans and programmes, which may be required in relation to electricity infrastructure such as submarine power cables.

Sixth, Member States are required to provide for an EIA before projects are authorised that may cause significant impact on the marine environment. Submarine power cables
require a mandatory EIA if they are to be considered a part of a project, including the construction of high voltage overhead power lines. In other cases the project must be subjected to a screening process at the national level to determine if it may potentially have a significant impact on the environment, and if so an EIA is required.

The legal obligation of the EFTA coastal states differ from those of the EU MS, since marine spatial planning is not part of the EEA. Furthermore nature conservation acts have not been incorporated into the EEA. In addition the relevant EU acts relating to marine environmental protection have not been incorporated into the EEA based on the view of the EFTA states that the geographical scope of the EEA does not extend to the EEZ and CS. Therefore the EFTA states are not obligated to transpose these acts into their national legal systems. This may have the effect of undermining the homogeneity of the EEA in this field and lead to inconsistency in the application of EIA obligations, which have been incorporated into the agreement. Chapter 5 will take a closer look at the situation at national level in the case of the EFTA state Iceland.

5. Implementation at the national level: The example of Iceland

The purpose of this chapter is to describe what measures a coastal state may apply when fulfilling its obligations according to international law and EU/EEA law. The example of Iceland, an EEA state, is taken to demonstrate this.

5.1 General introduction

As noted in Chapter 2.2.1 submarine power cables are an important infrastructure serving public interests in relation to the secure supply of energy. The laying of such infrastructure may affect electricity generation and transmission capacity in the coastal state. Chapter 2.3.3 described how the coastal state can fully regulate cables under its jurisdiction, such as cables laid in the territorial sea as well as the landing of the cable on its territory. The coastal state may regulate the laying of cables in the EEZ and CS when it exercises sovereign rights and duties, such as in relation to the protection of the marine environment.

Chapter 3 and 4 concluded that there are obligations in relation to protection of the marine environment which require permitting and assessment procedures implemented by the coastal state in relation to the laying and operation of submarine power cables. In the above light the most important requirements relating to environmental protection in Iceland will be described below.
5.2 Planning requirements

5.2.1 Introduction

The realization of a major submarine power cable project, such as a cable connecting Iceland with the UK, would require planning at different levels. Spatial planning would be required at the cable landing in the coastal area according to the Spatial Planning Act No. 123/2010 (SP Act). A general strategy policy plan (SPP) for Marine Spatial Planning has recently been established in Icelandic law, see further below, in spite that the MSPD has not been transposed into the EEA as noted above.

Other plans of potential relevance, described briefly in next chapters, are the Conservation and Energy Utilisation Plan\(^{452}\) and the Electricity Network Development Plan.\(^{453}\)

5.2.2 Strategic Policy Planning (SPP)

SPP is a long-term planning policy applicable to the whole territory of Iceland and, unlike spatial planning, in marine areas in the territorial sea and the EEZ.\(^{454}\) It includes policy in relation to land use and energy generation among other things. The Minister of the Environment is responsible for the SPP. The SPP is not as such binding for local planning authorities and does not have the same status as spatial plans.\(^{455}\)

The first SPP was adopted with Parliamentary Resolution no. 19/145 on 16 March 2016. It contains policy for the ocean and coastal areas of Iceland. The policy is based on the ecosystem approach and the objective of reaching and maintaining Good Environmental Status, promotion of biological diversity and the sustainable use of natural resources.\(^{456}\) Reconciling the exploitation and conservation of the marine environment is a policy objective to be pursued.\(^{457}\)

As a policy plan the SPP does not have direct implications for submarine power cable projects. Nevertheless its marine policy emphasises the obligations described in chapters 3 and 4 in relation to protection of the marine environment that Icelandic authorities must take into account at both the municipal and the state level.

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\(^{452}\) Act no. 48/2011 on Conservation and Energy Utilisation Plan (CEU act).
\(^{453}\) Electricity Act No 65/2003, Art. 9a.
\(^{454}\) SP Act, Art. 10(2) and (3).
\(^{455}\) Aðalheiður Jóhannsdóttir:"Breytingar á fyrirkomulagi skipulagsmála á miðhálendi Íslands", p. 23.
\(^{456}\) Parliamentary resolution no. 19/145, Art. 4.1.
\(^{457}\) Ibid, Art. 4.2.
5.2.3 Spatial Planning

The SP Act stipulates spatial planning obligations within the administrative boundaries of municipalities. In respect of the marine environment, these boundaries extend from the land into the sea until 115 m from the watermark at low tide.\(^{458}\) Spatial planning therefore has relevance in the tidal and intertidal areas at the cable landing.

There are three categories of spatial planning: the regional plan, the master plan and the zoning plan. The plans are required to conform to one another, and a hierarchy is established whereby the zoning plans must conform to the master plan and the master plan has to conform to the regional plan.\(^{459}\)

The regional plan extends over two or more municipalities\(^{460}\) and is usually not directly relevant for the cable landing, although it may be indirectly relevant if new power lines or other infrastructure must be built in other municipalities.

The master plan is a land-use plan for the municipality as a whole, which the zoning plans are based on.\(^{461}\) The route of an electricity transmission cable and its safety and maintenance zone, a strip of land on each side of the infrastructure necessary for safety and maintenance, must be defined in the master plan.\(^{462}\)

A zoning plan describes the location of the landing and the extent of the necessary infrastructure etc.\(^{463}\) The zoning plan defines the size and extent of the electricity infrastructure\(^{464}\), which for submarine power cable would refer to the extent of the safety and maintenance zone required at the landing.

5.2.4 Other plans of relevance

Two other plans that may be relevant are connected with energy policy and environmental protection policy.

First a Conservation and Energy Utilisation Plan. The purpose of the plan is to identify and evaluate which energy generation options are to be utilized and which ones should be protected against utilization.\(^{465}\) The plan may therefore restrict the possibilities for building

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\(^{458}\) SP Act, Art. 12, para. 1. The administrative boundaries towards the sea are equivalent to boundaries of properties located in the municipality, see the Municipality Act No 138/2011, Art. 4, para. 1. According to Icelandic law they are measured 115 m to the sea from the low watermark.

\(^{459}\) SP Act, Art. 12(7).

\(^{460}\) SP Act, Art. 21.

\(^{461}\) SP Act, Art. 28 paras. 1 and 2.

\(^{462}\) Regulation on Spatial Planning No 90/2013, Art. 4.3.1, point m).

\(^{463}\) SP Act, Art. 37 para. 1.

\(^{464}\) Regulation on Spatial Planning No 90/2013, Art. 5.3.2.1, point b).

\(^{465}\) CEU act, Art. 3.
an economically viable interconnecting submarine cable by limiting the potential energy supply.

Second the TSO in Iceland, Landsnet, is committed to issuing a Ten-Year Network Development Plan showing the future infrastructure and a Three-Year Network Development Plan accounting for the infrastructure already in place or planned.\textsuperscript{466}

The draft development plan for 2015-2024 published on Landsnet homepage\textsuperscript{467} contained no proposed submarine power cables in the development period. However the draft does take into account different scenarios relating to future infrastructure development, and identifies the additional infrastructure that would be needed for a proposed 1000 MW interconnecting submarine cable would be connected to the grid.\textsuperscript{468} The development plan was approved by the Energy Agency on 25 April 2016.\textsuperscript{469}

5.3 Permit requirements

5.3.1 Introduction

Permitting requirements are subject to coastal state legislation which must be in conformity with both public international law and EU law. In this chapter the permits required from competent authorities according to Icelandic law will be described. The example of Iceland as a coastal state will be described briefly, which includes development and construction permits at the landing, special permitting requirements for the laying of a submarine power cable in the marine environment, environmental permits, and electricity permits.

5.3.2 Landing Permits

The SP Act applies to projects relating to the laying of high voltage electricity cables. According to Articles 13(1) of the SP Act and 5(1) of regulation 772/2012, a construction permit must be obtained from the local municipality for all significant infrastructure projects that have impact on the environment, which may include electricity transmission infrastructure. Such a permit must be obtained for the landing of a submarine power cable and the laying of such cable to a point 115 m out from the low watermark. This also holds for underground or overhead lines connecting the cable on land to the national grid, any infrastructure that might be needed such as a converter for switching between AC and DC electricity currents, which is usually necessary, and any substation that might need to be built.

\textsuperscript{466} Electricity Act no. 65/2003, Art. 9a(2).
\textsuperscript{467} Kerfisætlu 2015-2024 DRÖG. Landsnet, Júlí 2015.
\textsuperscript{468} Ibid, Chapter 2.3.
\textsuperscript{469} http://os.is/gogn/Frettir/Kerfisaaetlun-Landsnets-Akvordun-25-april-2016.pdf.
in order to connect the cable to the national electricity grid.\textsuperscript{470} Power lines in general, including submarine power cables, are exempted from the building permit requirement under the Building Act. No 160/2010, Article 9 (1). However infrastructure in relation to such cables may be subjected to a building permit requirement under the Building Act.

Further environmental permits may be required depending on the landing site’s vulnerability, such as in wetlands and protected nature reserves, see further Chapter 5.3.4. The issuing of a permit may be conditional upon EIA requirements; see further Chapter 5.4. Furthermore, the operation of a substation may possibly require operating permit from the local environmental authority.\textsuperscript{471}

### 5.3.3 Permit to lay cable in maritime areas

According to Article 10(5) of the Lighthouse Act No 132/1999, a permission from the Icelandic Transport Authority is required for the delineation of submarine cables and pipelines in Icelandic waters. This is stipulated for the purpose of securing the ability of seafarers to navigate, in order to prevent the positioning of such cables and pipelines on important shipping lanes and ensure that necessary information is available to seafarers, including on sea maps and through notifications, and to ensure that all signals are in place where considered necessary by the competent authority.

The Lighthouse Act is applicable in the EEZ as well as within the territorial sea. However it is not clear from the wording of Article 10 if the permitting requirement regarding the delineation of submarine cables is applicable beyond the territorial sea. That would go against the LOSC\textsuperscript{472}, which only allows the coastal state to regulate the delineation of submarine pipelines and not cables within the EEZ, unless they are laid in relation to exploitation and exploration of the EEZ or the CS or in relation to marine scientific research.

Within the territorial sea the delineation of a submarine power cable is subject to the consent of the Transport Authority which shall consult stakeholders before giving consent. According to the before mentioned provisions the authority may subject consent to conditions necessary in order to secure navigation, such as to avoiding important shipping lanes and anchoring sites.

\textsuperscript{470} See further Chapter 2.4.
\textsuperscript{471} Regulation No 785/1999 on operating permits for polluting activity, Appendix 2, point 9.1.c.
\textsuperscript{472} See Chapter 2.3.2.4.
5.3.4 Environmental permits

The laying of submarine cable requires a permit from the Environment Agency (EA) subject to Act no 33/2004 on prevention of marine and coastal pollution (MCP Act), Article 9 (2). The act is applicable in all ocean areas where Iceland exercises jurisdiction in relation to prevention of marine pollution.

According to Article 6 (2) (p) of the MCP Act, the minister can issue regulations relating to the laying of submarine cables, pipelines and other structures on the seabed. No such regulation has been issued to this date. The substantive content of such regulations must be within the scope of Act No 33/2004 which relates to the protection of the marine and coastal environment from pollution.

The provisions of the Nature Conservation Act no 60/2013 (NC Act) are applicable both in the territory and in the EEZ, including on the seabed. Provisions relating to nature reserves and conservation of sites may as appropriate apply in the marine environment.

According to the NC Act wetlands, which includes salt marshes and mudflats in the tidal or intertidal area of the coast, enjoy special protection and must not be deteriorated unless necessary. In some cases wetlands may be listed under the Ramsar Convention; see Chapter 3.5.4. Currently one coastal area in Iceland is a listed site, Grunnafljörður (Leirárvogar), located in the South-Western part of Iceland.

In case there is protected wetland at the landing site, the local municipal authority must consult the EA and the local conservation committee before issuing a construction permit. If it decides to issue such a permit against the advice given the local municipal authority must state specific reasons for allowing the landing.

Lava from eruptions dated after last ice age enjoy special protection in line with the protection of wetlands. In case there are protected lava formations at the landing the same procedure must be followed as described above in relation to wetlands.

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473 Art. 51 of the Act provides that provisions relating to conservation and protection of nature reserves apply as appropriate to marine protected areas.
474 Nature conservation Act No. 60/2013, (NCA Act), Art. 4(1).
475 Art. 51 of the Act provides that provisions relating to conservation and protection of nature reserves apply as appropriate to marine protected areas.
476 NCA Act, Art. 61(1) (a) and (3). See Art. 2 on the objectives of protection which include protection of biological diversity.
478 NCA Act, Art. 61(3).
479 NCA Act, Art. 61(5).
480 NCA Act, Art. 61(2) (a). See Art. 3 b) on the objectives of protection which at preserving formations, which are unique nationally or globally.
481 NCA Act, Art. 61(3).
The NC Act provides for measures protecting species, ecosystems and types of ecosystems in the marine environment.\textsuperscript{482} Seven such areas have been designated of the south coast of Iceland. Five cold water coral areas are protected by prohibiting the use of bottom-contact fishing gear.\textsuperscript{483} The area of Eldey, a rock on the Reykjanes ridge, is protected under the NC Act and regulation 119/1974. Finally, Surtsey, a volcanic island and its subsea surroundings, is a protected site under the NC Act and the Announcement no 50/2006 of the Minister of the Environment. Infrastructure within the protected site of Surtsey requires permission from the Environment Agency and the Local Municipal Council.

If a project has effect on protected nature reserves at the landing site, such as protected habitats, the EA, the Institute of Natural History (INH) and the local nature conservation committee must be consulted prior to the approval of a construction or building permit.\textsuperscript{484} The EA must also be consulted in case of projects outside of nature reserves if they may have an adverse effect on the conservation status of the sites in question.\textsuperscript{485}

Projects that go against the conservation objectives of a nature reserve and harm the conservation status of the site in question are only allowed on the basis of a specific permit of derogation from conservation.\textsuperscript{486} A derogation must be obtained from the Minister of the Environment after consultation with the Environment Agency, the Icelandic Institute of Natural History and the local nature conservation committee.\textsuperscript{487} The derogation can only be obtained when certain conditions are met, which are further described in Chapter 5.4 below.

### 5.3.5 Permits in relation to natural resources

Icelandic law does not stipulate permit requirements in relation to the laying of submarine power cables in order to protect natural resources and their exploration and exploitation in the territorial sea, the EEZ and on the CS. However marine scientific research in these marine areas requires a permit from Icelandic authorities.\textsuperscript{488} Also it is likely that the Marine Research Institute would be consulted on the possible negative impact on fish stocks before a permit is issued.

The wording of the relevant provision of Icelandic law\textsuperscript{489} that requires permission distinguishes between research for purely scientific purposes and research for other purposes

\begin{itemize}
\item \textsuperscript{482} Art. 56(1).
\item \textsuperscript{483} Regulation 1140/2005 on conservation of coral areas along the south coast.
\item \textsuperscript{484} Ibid, Art. 57(2).
\item \textsuperscript{485} Ibid, Art. 54.
\item \textsuperscript{486} Art. 38(3).
\item \textsuperscript{487} Art. 41(1).
\item \textsuperscript{488} The Territorial sea and Exclusive economic zone act. No 41/1979, Art. 9(1).
\item \textsuperscript{489} Ibid, (2).
\end{itemize}

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such as the laying of a submarine cable. However the provision must be interpreted in accordance with international obligations, especially in conformity with the LOSC, which the provision is based on. Nevertheless the context and wording of the relevant provisions cannot be understood as excluding submarine cable surveying from the permitting requirement. Therefore Icelandic law may be interpreted as requiring permission of the Icelandic authorities for research done for the purposes of the laying of a submarine power cable in Icelandic waters including the EEZ. Such permission is in general to be granted when it is undertaken for peaceful purposes, i.e. in order to increase knowledge of the marine environment. The Icelandic authorities may deny research permits relating to the exploitation of natural resources and installation and structures, and when such research entails drilling and the use of explosive and substances harmful to the environment. Given the close relation between the legislative act and the LOSC, such permission would generally be granted for the purposes of enabling a submarine power cable to be laid if all requirements are fulfilled. It may be questioned to what extent the Icelandic authorities are entitled to stipulate environmental conditions in this context; this will be treated below.

Application for a permit must be submitted 6 months in advance including information on the purpose and objective of the research, the exact location and research methods involved. The Icelandic authorities are required to respond to the application within 4 months after receipt.

5.3.6 Electricity permits
The TSO in Iceland, Landsnet hf., has an exclusive right and responsibility to conduct the transmission of electricity in Iceland, including building transmission infrastructure. The transmission system comprises the necessary infrastructure, power lines including submarine cables and other infrastructure necessary to transmit electricity from power generating stations to big users, like aluminium smelters and other energy intensive operations, and to distribution system operators that feed electricity to the grid connecting to the general electricity consumer.

Submarine power cables interconnecting states or transmitting electricity from wind farms or other electricity generating operations are a part of the transmission system that provides big users and the distribution system operators with electricity from generators.

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490 Ibid, (2).
491 Ibid, Art. 10(1).
492 Ibid, (2).
493 Electricity Act. No 65/2003, Art. 8(1) and 9(1).
494 Electricity Act No. 65/2003, Art. 3 point 6.
The National energy authority (NEA) must be notified of all new transmission infrastructure and such infrastructure requires permission of the NEA as long as it is not included in the transmission system plan approved by the NEA. Further conditions that may be stipulated, which would put some obligations on the transmission system operator responsible for a submarine cable, will not be addressed here.

In the case of small local cables that are part of the distribution system, the NEA is responsible for issuing permits to build power lines with a voltage of 66 kV or above. The authority can issue permits conditionally, including conditions relating to environmental protection and land use. These cables will not be covered here nor issues relating to obtaining rights to the land and resources to build the necessary infrastructure or other conditions that may be laid on the builder and operator of a submarine power cable in relation to the electricity act.

5.4 EIA and SEA procedures

5.4.1 Outline

As described in Chapters 3 and 4, the laying of submarine power cables entails both SEA and EIA obligations in case of potential significant environmental impact on the marine environment under the jurisdiction of the coastal state and in a transboundary context.

Legislation on SEA and EIA procedures has been implemented into Icelandic law in accordance with the relevant EU directives and can therefore be used as an example of how coastal states may fulfil their obligations. The geographical scope of an EIA according to Icelandic law extends to the territorial sea and the EEZ.

As noted in Chapter 4.3.3.1 there are some similarities between the SEA and EIA procedures, the absence of the screening in the SEA process being notable exception, however the SEA procedure will not be particularly described below.

5.4.2 Obligations to perform SEA

A SEA procedure is mandatory for spatial plans, which are relevant for projects falling within the scope of the EIA act. This includes spatial plans relating to submarine power cables. Also this includes the Conservation and Energy Utilisation Plan and the Network Development Plan, which may have relevance for such projects; see further Chapters 5.2.3

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495 Ibid, Art. 9(2) and Art. 9a.
497 EIA Act, Art. 2 and Regulation on EIA No 660/2015 (EIA Regulation), Art. 2.
498 SEA Act, Art. 3(1).
and 5.2.4. SPP on the other hand is to be subjected to SEA if the Minister for the Environment so decides.\footnote{SP Act, Art. 11(3)}

When a plan is considered likely to have a significant impact on the environment of another state, that state is to be notified, informed and consulted on the proposed plan within a reasonable time. The impact assessment report is to be submitted to the affected state for consultation.\footnote{SEA Act, Art. 8. See also Parliamentary Resolution No 19/145 on Strategic Policy Planning, Art. 4.2.2, which commands notification of activities having impact beyond the EEZ in conformity with the SEA Act.}

### 5.4.3 Obligations to perform EIA

According to Act No 106/2000 on Environmental Impact Assessment (EIA Act), Appendix 1, Article 3.08, submarine power cables with a voltage of 132kV or more and 20 km or longer are subject to mandatory EIA. Since 12 nautical miles equals 22.2 km all cables laid from land beyond the territorial sea require an EIA. All submarine power cables 10 km or longer, and all cables laid in protected areas are to be subjected to an assessment if they could potentially have a significant impact on the environment, which is to be determined by the Icelandic National Planning Agency (INPA) in a screening process; see Chapter 5.4.4.1.\footnote{EIA Act, Appendix 1, Art. 10.21.}

### 5.4.4 The EIA procedure

This chapter describes the main outlines of the EIA process according to the EIA Act. Issues relating to public participation and access to justice will not be addressed specifically.

#### 5.4.4.1 Screening

Screening is a process that is required to determine if submarine power cables 10-20 km in length and all cables in protected areas require an EIA.\footnote{Ibid.} The screening process aims to determine if the project may have a significant impact on the environment and is relevant for power cables laid across bays and fjords, or to connect energy farms in the territorial sea.

The developer notifies the INPA about the project, and the INPA is to decide within 4 weeks from receiving all the necessary information if the project is to be subjected to an EIA.\footnote{EIA Regulation, Art. 10(2), and Art 12.} In the screening process the INPA consults permitting authorities, the developer and
others as appropriate, before a decision is made.\textsuperscript{504} INPA’s decision is to be announced in the public media\textsuperscript{505} and is binding for the developer.

5.4.4.2 Scoping

As early as possible in the preparation stage of a project, the developer is required to submit to the INPA a proposal defining the scope of the assessment, including a description of the project and location, possible alternatives, how the project can accommodate existing planning decisions, and what factors relating to the project and the environmental impact will be addressed.\textsuperscript{506} The public is to be notified of the proposal.

In the case of transboundary projects the INPA is required to send potentially affected other states all the available information as soon as possible when the public is notified of the scoping process.\textsuperscript{507}

Within four weeks from receiving the proposal from the developer, the INPA accepts or denies the proposal made by the developer after having consulted with the relevant parties. The INPA can stipulate changes or additions to the proposal, which then become part of the formal scoping document.\textsuperscript{508} The decision of the INPA is binding upon the developer and others involved and can be appealed to an administrative complaints board for review by the developer only.\textsuperscript{509}

5.4.4.3 Preparation of the EIA report

The developer is responsible for preparing the EIA report. First the developer is obligated to prepare a preliminary report based on and in conformity with the approved scoping document.\textsuperscript{510} The preliminary report is to describe the project, the information that the assessment is based on and the impact of the proposed project on relevant environmental factors and their interplay. It must state the conclusions of the assessment, including an assessment of the environmental impact of alternative solutions. A clear short description of the report and its conclusions are to be submitted as well.\textsuperscript{511}

The developer submits the preliminary report to the INPA, which decides within two weeks of its receipt if it fulfils all requirements and can be used as a basis for the assessment

\textsuperscript{502} EIA Act, Art. 3(6), and EIA Regulation Art. 12(2).
\textsuperscript{503} EIA Regulation, Art. 12(6).
\textsuperscript{504} EIA act, Art. 8(1). The detailed requirements are in the EIA Regulation, Art. 15.
\textsuperscript{505} Art. 19(1), EIA Act. See also Parliamentary Resolution no 19/145, Art. 4.2.2.
\textsuperscript{506} Ibid, (2) EIA Act. See also Parliamentary Resolution no 19/145, Art. 4.2.2.
\textsuperscript{507} Ibid, Art. 14(3).
\textsuperscript{508} Ibid, Art. 9(1).
\textsuperscript{509} Ibid, Art. 9(2).
procedure. If not the INPA may reject the preliminary report and will instruct the developer on the necessary improvements to the report.\textsuperscript{512} This decision may be appealed by the developer to an administrative complaint board.\textsuperscript{513} If the preliminary report fulfills the requirements, the INPA issues public notice and the public participation, dissemination and consultation phase of the assessment process commences. In the case of transboundary EIA the preliminary report is to be submitted to the affected state when it is made available to the public in Iceland.\textsuperscript{514}

\textit{5.4.4.4 Examination and decision}

The EIA process is concluded by the developer by submitting the final report to the INPA for examination.\textsuperscript{515} The INPA evaluates whether the final report is in conformity with the preliminary report; if not, the public is to be notified.\textsuperscript{516} Otherwise the INPA shall conclude the EIA process with a reasoned opinion within four weeks from receiving the report.\textsuperscript{517}

The reasoned opinion of the INPA must also state whether the final report fulfills the requirements and the environmental impact is sufficiently described, which has consequences since the project permit is given on condition of the EIA obligations being fulfilled.\textsuperscript{518} Also the INPA may express its opinion in relation to potential mitigating measures and other conditions that INPA finds it necessary to impose on the project.\textsuperscript{519}

The appropriate permitting authority decides if the project is permitted after consulting the EIA report and the opinion of the INPA.\textsuperscript{520} The opinion of the INPA is not binding on the permitting authority, which however must state its reasoning for a decision contrary to that opinion, which may be reviewed at a later stage, in a process which will not be described here.

\textsuperscript{512} Ibid, Art. 10(1).
\textsuperscript{513} Ibid, Art. 14(3).
\textsuperscript{514} Ibid, Art. 19(1).
\textsuperscript{515} Ibid, Art. 25.
\textsuperscript{516} Ibid Act, Art. 26(3).
\textsuperscript{517} Ibid Act, Art. 26(1).
\textsuperscript{518} Ibid Act, Art. 13(1).
\textsuperscript{519} Ibid, Art. 11(2).
\textsuperscript{520} Ibid, Art. 13(2).
5.5 Environmental protection

5.5.1 Protective measures

There is a general obligation according to Icelandic law not to cause pollution or other harm to the marine environment. The regulating actions of the authorities must be based on specific legislative acts and in conformity with international obligations.

The NC Act provides that when a development project like a submarine cable is prepared and when it affects a protected ecosystem the competent Icelandic authorities must show extra caution in ensuring that conservation objectives are not compromised before taking any decisions as regards such a project.

In the case of a proposed submarine power cable crossing through a nature reserve derogation must be obtained; see Chapter 5.3.4. Derogation from the conservation measures can be granted if either of two conditions are meet. Firstly derogation may be granted if it does not go significantly contrary to the objective of the conservation measure and has a minimum adverse impact on the conservation status or the nature reserve in question. Secondly derogation may be granted when security reasons or overriding community interests demand it. According to the preparatory documents on the law proposal for the NC Act the first condition must take into account the type of the protected area and the nature of the derogation proposed. The second condition can justify derogation even though the consequences may be significant. That however may only be the case in extreme situations.

5.5.2 Measures to mitigate potential environmental harm

According to the NC Act decisions, concerning the nature, must be based as much as reasonably possible on scientific evidence relating to the conservation status of species, ecosystems and types of ecosystems and must take such factors into account. According to the preparatory documents for the NC Act this obligation is broad in scope and is applicable in the EIA process. Furthermore, decisions relating to nature conservation are to be based on the precautionary principle, meaning that in case there is risk of serious or

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521 The Territorial sea and Exclusive economic zone act. no. 41/1979, Art. 8, para. 1. MCA, Art. 1(1), Act No 7/1998 on Hygiene and Pollution Control, Art. 1.
522 Ibid, (2).
523 NC Act, Art. 57(2).
524 Ibid, Art. 41, para. 1 a) and b).
525 Frumvarp til laga um náttúruvernd, þingskjal 537, 429. mál.
526 NC Act nr. 60/2013, ,Art. 8 para 1.
527 Frumvarp til laga um náttúruvernd, þingskjal 537, 429. mál.
irreversible harm to the environment, the lack of scientific knowledge is not to be used as a reason not to take cost-effective measures to avoid or mitigate such consequences.\textsuperscript{528}

Derogation must be obtained for the cable to pass through nature reserves, which only is granted on the condition that the project does not adversely impact the conservation status of the site unless overriding security or community interests demand it. The derogation may be made conditional if necessary on measures to reduce the negative impact on the conservation status of the site.\textsuperscript{529} These conditions may be related to the above-mentioned factors, as an example rerouting the cable to bypass particularly sensitive areas, burial or use of certain burial technique to reduce impact of disturbance of the seabed, the use of a certain material to protect the cable or an adjustment of the construction time, for example so as not to disturb important breeding or nesting grounds of protected species and habitats.

6. Conclusions

Submarine Power Cables are important infrastructure, supporting future development and liberalisation of electricity markets, including the EU’s. As such they can contribute to energy security, more affordable energy and greener energy consumption as was outlined in Chapter 2.2. Development in the EU is already on track, with a number of proposed cable projects in the North-East Atlantic as was demonstrated in Chapter 2.2.3.

As outlined in Chapter 2.3 submarine cables have a special status in international law according to which all states have the right to lay cables on the seabed beyond the territorial sea, within the EEZ of other states. As drawn forward in Chapter 2.3.2 the coastal states decide if a submarine power cable is allowed to land on their territory and enter its waters within 12 nautical miles from baselines, and may regulate such cables including the cable route. Within the EEZ and on the CS the coastal state has jurisdiction in relation to protection of the marine environment. When exercising its jurisdiction, the coastal state must carefully balance the interests relating to cables on the seabed and the rights and duties of the coastal state in relation to marine resources and the protection of the marine environment.

As described in Chapter 2.5 the environmental impact of the laying of submarine power cables is limited in space and to some extent also in time and in many cases the environment can completely recover from it. The impact such as disturbance of the seabed, potential pollution and noise is mostly limited to the cable trench, a stretch on the seabed, and limited to the laying time and few years after until the seabed has recovered. In some cases

\textsuperscript{528} Ibid.
\textsuperscript{529} Ibid.
vulnerable ecosystems may be harmed or destroyed, such as cold water coral formations, which might never recover or take long time to do so. In the operational stage, the potential environmental impact relates to the maintenance of the cable, which may disturb the environment in similar ways to the laying process. Moreover operational cable unavoidably emits EMF and heat which may have a negative impact on certain species and seabed habitats though this is not fully understood and researched.

As drawn forward in Chapter 2.5.1, while the impact of a single cable is limited in many cases the amplified impact due to growing number of cables on the seabed and the accumulated impact of other seabed activities may cause concern. Accordingly, as shown in Chapters 3.5.3 and 4.3.2, area based management is promoted on a regional basis, taking into account all activities, including submarine power cables, in order to accommodate different uses of the sea with good environmental standards to attain sustainable use and proper protection of the marine ecosystems.

As has been demonstrated in Chapters 3 and 4, the coastal states in the North-East Atlantic have obligations according to international law, many of which are further elaborated in EU law, to protect and preserve the marine environment. As introduced in Chapter 1.3, analysing and describing these obligations in relation to submarine power cables was the main objective of this thesis. The obligations of the EU states and to some extent the EFTA states can be summered up as following:

1) Coastal states are obligated to protect and preserve the marine environment and cooperate with other states to this end. This includes pollution prevention and protection of ecosystems, habitats and species.
2) International law requires due diligence in preventing significant transboundary harm, and requires notifying and consulting the affected state, such as when a cable is laid in sensitive areas.
3) Precautionary approach is to be applied in relation to potential environmental impact.
4) Spatial management and strategic programmes of measures are to be applied in relation to the marine environment, including special protection of sensitive areas.
5) Environmental impact assessment is to be performed when there is potential significant impact on the environment, including transboundary impact, taking into account the operating phase. EIA is recommended as best practice in the region in relation to submarine power cables.
6) Submarine power cables that are important for the development of the electricity network in the EU may justify derogations in protected areas and are entitled to efficient permitting and environmental impact assessment procedures.

As demonstrated in Chapter 4.4, the obligations of the EFTA states, Iceland and Norway, may not be fully identical to the obligations of the EU states in relation to protection of the marine environment beyond the territorial sea. This is due to different view on the geographical scope of the EEA. Furthermore, the EU nature conservation acts are not part of the EEA agreement. As discussed in Chapter 4.4.5, EIA requirements are a part of the EEA agreement.

As shown in Chapter 5.4, in the case of Iceland, according to national law major submarine power cable projects, such as an interconnecting cable to the UK, would be subject to an EIA. Moreover, as demonstrated in Chapter 5.3.4, the Icelandic nature conservation legislation is applicable in the EEZ and the CS as well as in the territories and the territorial sea. This implies protection for the marine environment in line with EU law.

All the coastal states in the North-Atlantic, EU and EFTA states, have the obligations according to the LOSC to protect the marine environment, and cooperate on a regional basis to fulfil those obligations. The transboundary nature of interconnecting submarine cables calls for coordinated approach by the states involved, resulting in homogeneous legal obligations in relation to the protection of the marine environment.
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*About Submarine Power Cables*, International Cable Protection Committee (ICPC), accessed through the “Information button” on the ICPC webpage at [http://www.iscpc.org/](http://www.iscpc.org/)


**Websites**

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