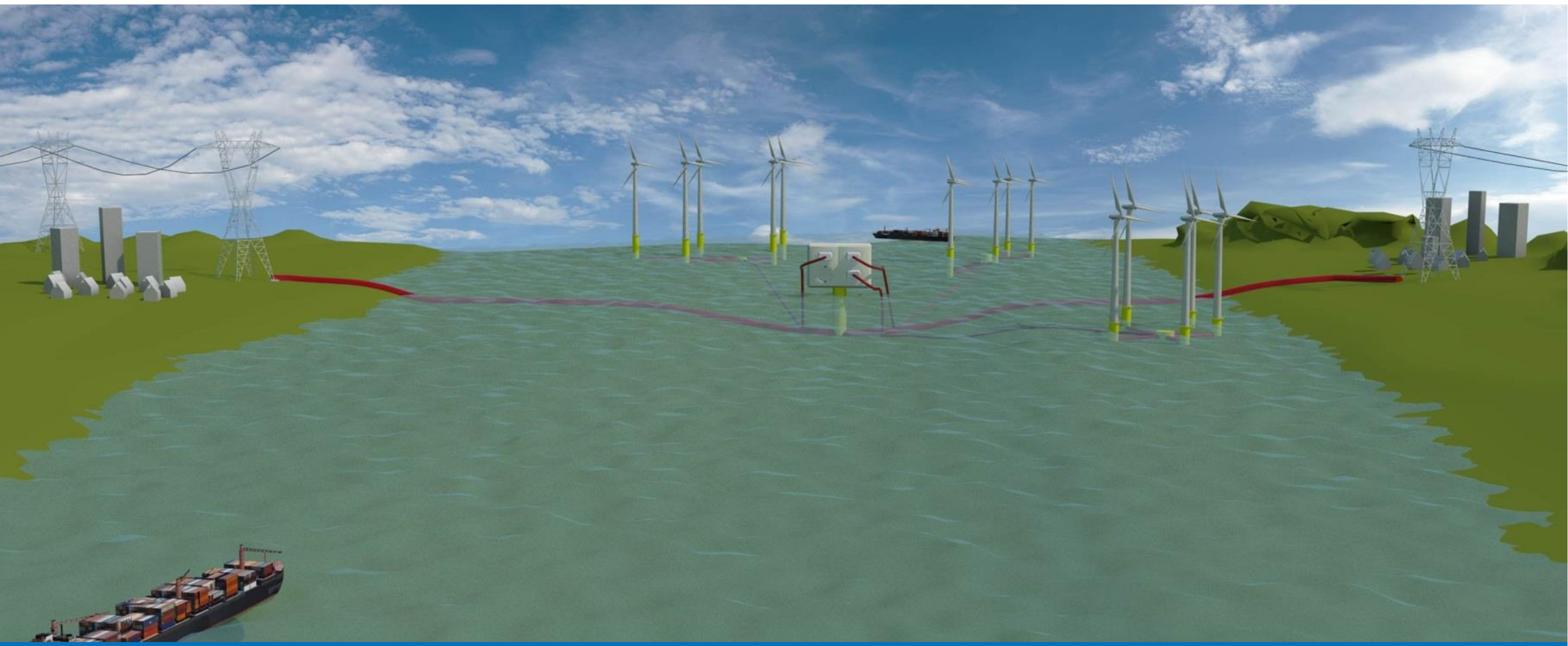

Synergies at Sea - Feasibility of a combined infrastructure for offshore wind and interconnection

Appendix C: Legal analysis and consequences for investment decisions

Authors: Nuon/Vattenfall (leading Subproject 1), ECN, Delft University of Technology, University of Groningen, Royal HaskoningDHV and DC Offshore Energy

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Synergies at Sea is a consortium that investigates the feasibility of an innovative electricity infrastructure on the North Sea. The consortium examines technical solutions, changes to international legislation and regulations and new financing models. The consortium consists of Nuon/Vattenfall, ECN, RoyalHaskoningDHV, Groningen Centre of Energy Law of the University of Groningen, Delft University of Technology, DC Offshore Energy and Energy Solutions, and is coordinated by Grontmij.

Contents

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1 Introduction

The TKI-WoZ 'Synergies at Sea' Project (hereinafter: SaS Project) seeks to increase energy efficiency and reduce the cost of offshore wind energy by improving the use and capabilities of offshore electricity infrastructure. This includes the development of cross-border integrated offshore electricity infrastructure. Cross-border integrated offshore electricity infrastructure stands for electricity infrastructure that can be used in multiple ways. The infrastructure would allow electricity generated at an offshore wind farm in the maritime zone of one country to be transported to the shore of that country as well as to the shore of a neighboring State, and allow for electricity trade between the two countries. Currently, offshore wind farms are connected only to the shore of the State in whose maritime area the generation occurs, and the interconnection of the electricity systems of two countries (which allows electricity trade between the countries), is pursued separately from the connection of offshore wind farms to shore.

This report examines the current legal framework governing both offshore wind energy development in the United Kingdom (hereinafter: UK)and the Netherlands and interconnection between the two countries, and assesses the legal feasibility of cross-border integrated offshore electricity infrastructure with regard to six hypothetical scenarios involving the UK and the Netherlands.

This report looks at the realization of the envisaged infrastructure from an investor perspective. There are three different investor perspectives: the Transmission System Operator (hereinafter: TSO) as an investor, the government as an investor and the private investor. The report focusses on the TSO investor perspective as well as the private investor perspective. The government investor perspective whereby a state enterprise like EBN[1] will invest in the offshore infrastructure is excluded from this research. Under the TSO investor perspective it is assumed that the TSO of the State will invest in the offshore transmission infrastructure. Under the private investor perspective, the infrastructure will be constructed by a private investor. It should be noted that a private investor could well be a subsidiary of a TSO holding cooperation.

In this report we will answer the following research questions:

> *What is the existing legal framework concerning offshore wind energy development and interconnection?*

And:

> *How does this framework facilitate or obstruct the realization of cross-border integrated offshore electrical infrastructure?*

This main research question can be divided in to a number of sub-questions:

1. What is the current legal framework at the level of the European Union legislation?
2. What is the current legal framework in terms of Dutch legislation?
3. What is the current legal regime in terms of British legislation?

[1] Energie Beheer Nederland.

4. What are the legal obstacles, for a TSO or a private investor (like the wind farm owner), preventing the realization of cross-border integrated offshore electrical infrastructure?

5. What are possible solutions to remove such legal obstacles as identified?

The report consists of five parts. In part two, an overview is provided of the current level of offshore wind energy development in the Dutch territorial sea and Exclusive Economic Zone (hereinafter: EEZ) and the UK territorial sea and Renewable Energy Zone (hereinafter: REZ) and interconnection to date between the two countries. In part three, the current legal framework governing offshore wind energy development in the Dutch EEZ, the UK REZ, and interconnection between the two countries is described. The legal framework consists of rules of public international law, legislation of the European Union (hereinafter: EU) and national legislation of both the UK and the Netherlands. In part four, the application of the current legal framework to cross-border offshore integrated infrastructure, with reference to the six scenarios that have been selected, is examined. The examination focuses on identifying in what way the existing legal framework presents difficulties for the development of integrated offshore electricity infrastructure which consist of one or two offshore wind farms which are connector to an interconnector. The report ends in part five with summarizing the findings and formulating our recommendations.

2 The Present State and Organization of Activities

2.1 Introduction

The construction of an offshore wind farm presents challenges that are not faced in an onshore setting.[2] Different techniques and materials are used to construct the installations that have to survive the harsh conditions on the sea. In general, the major challenges are the turbine-design and the foundation of the structure. Because of the specific aspects regarding turbine –design, some manufactures are specializing themselves in designing turbines for offshore wind farms.[3] Among the specific aspects there are the demand for high reliability of the equipment, the need of resistance to corrosion and the ability to withstand high wind speeds. Regarding the foundations, it should be noted that designers are more or less bound by the depth of the sea and conditions of the sea (bed). In shallow waters the use of a concrete gravity foundation could be considered, in deeper waters one could use spar buoys to create a floating turbine.

The individual turbines are connected to each other with inter array cable which make up the collection grid. This collection is operated at a low voltage level of around 35 kV.[4] This collection grid connects the wind turbines to an offshore transformer station, at which the voltage level is increased to high voltage so that the electricity may be transmitted to the shore. The transmission cable to the shore is operated on altering current, and is sometimes referred to as the export cable. In the case of a wind farm which is located farther up in the EEZ, it will be likely that direct current will be utilized for the transmission to the shore. In this case, there will be an addition to the lay out with the inclusion of an offshore AC/DC convertor station as well an onshore convertor station. Finally, it should be noted that in some instances an offshore transformer is not required as the export cable is operated in medium voltage instead of high voltage. In that case, the transformer is located onshore.

The two major components of an offshore wind farm are the turbines and the cables that connect the turbines to each other and the onshore grid. These components are also treated differently in a legal sense, because different permits are required and the components may be subjected to different legal regimes.

2.2 Offshore wind energy development in the UK

The development of offshore wind energy in the UK and Dutch maritime zones is currently national in scope.[5]This means that each country approaches the activity in its respective maritime areas on its own without assistance from, or collaboration with the other State or any other State for that matter. The development of offshore wind energy in both countries, aims to contribute towards achieving their EU 2020 renewable energy targets.[6]

In the UK, offshore wind energy development can be broken down into two parts: (i) the development of the offshore wind farms and (ii) the development of the offshore electricity infrastructure for transporting the electricity from the offshore wind farms to shore. UK wind

[2] P.A. Lynn, 'Onshore and Offshore Wind Energy', p. 161-162.
[3] J.F. Manwell, J.G. McGowan & A.L. Rogers, 'Wind energy explained', p. 406-407.
[4] P.A. Lynn, 'Onshore and Offshore Wind Energy', p. 173.
[5] See § 3.1 below for the further definition of these maritime zones.
[6] See § 3.2.7. below.

farms consist of the turbines and the collection grid which connect the wind turbines to each other and to export cables or offshore substations, as the case may be. Offshore electricity infrastructure consists of the offshore substations; export cables running from the collection grid or offshore substations to shore; and onshore components comprising land cables and onshore substations, excluding those forming part of the onshore grid. This division between offshore wind farm and offshore electrical infrastructure is based on the UK "offshore transmission" licensing requirement and the definition of "transmission system", "high voltage line" and "relevant offshore line" under the UK Electricity Act 1989, discussed further under 3.3.1.2 below.

The UK currently has some twenty one offshore wind farms in operation or under construction.[7] Of these, twenty are located in the UK territorial sea and only the Greater Gabbard offshore wind farm is located in the UK REZ.[8] A further 30 more are under development across both the territorial sea and the REZ.[9]In July 2013, the UK had more turbines in operation than the rest of the world: more than 1000 turbines with a combined capacity of about 3.6 GW.[10]

Since 2000, the UK Crown Estate (see further 3.3.1.1 below on the role of the Crown Estate) have held five rounds of offshore wind energy 'leasing', which have increased in scale and technical complexity as the offshore wind energy industry has developed. The Crown Estate launched its most recent offshore wind program, called 'Round 3', at the end of 2009. Prior to this round 3, individual offshore wind farm sites were identified by offshore wind developers, and these sites were then awarded to them for development. For Round 3, a different approach was adopted. The Crown Estate selected nine sizeable areas called 'zones' that are likely to be suitable for wind farm development. Five of these zones are in the North Sea sector of the UK REZ. The zones were then offered to developers to investigate in more detail, that is, to search for potential sites for wind farm(s) and then to design and construct the wind farm(s) once all other authorizations have been granted. It is expected that some of the Round 3 zones are large enough to have several wind farms within them, while others will contain just one wind farm.

Finally, it should be noted that all of the wind farm to shore connections are based on altering current. At this time, there are no DC connection examples for the single existing offshore wind farm in the UK REZ.[11]

2.3 Offshore wind energy development in the Netherlands

At present, the Netherlands have two offshore wind farms in operation: the Egmond aan Zee offshore wind farm and the Princess Amalia offshore wind farm. The former is located in the Dutch territorial sea and the latter is located in the Dutch EEZ. The two existing wind farms are known as the 'first-round parks'. In April 2008, subsequent to the construction of those wind farms, a moratorium was placed on further offshore wind energy development until a more detailed legislative and policy framework is developed and put in place.[12] The decision of April 2008, however, contained a transitional provision, which allowed for wind farm applications that were already filed to be decided according to the prevailing practice.

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[7]http://www.thecrownestate.co.uk/energy-and-infrastructure/offshore-wind-energy/ (last accessed 26June 2013).
[8]*Ibid.*
[9]*Ibid.*
[10] HM Government, 'Offshore Wind Industrial Strategy – Business and Government Action', p. 7.
[11]*Ibid.*
[12] Stcrt. 2008, 67.

Accordingly, in 2009, construction permits were granted for twelve new offshore wind farms all in the Dutch EEZ, constituting the second round of offshore wind energy development for the Netherlands. Of these twelve permits, the construction of two wind farms (Gemini[13] and Eneco Luchterduinen) is expected to start in the summer of 2014.[14]

The Netherlands have not instituted any special licensing regime under the Dutch Electricity Act 1998[15] (hereinafter: Electricity Act '98) for offshore electricity production and the construction of infrastructure used for transporting electricity generated by offshore wind turbines to shore, like the UK. The developer of an offshore wind farms is required to apply for several permits which are based on environmental law. However, it remains necessary to break down offshore wind energy development into two parts, being generation and transmission, since the Dutch Electricity Act '98 defines the two terms: "generating station" and "national grid". Under Dutch law, the export or landing cable to the shore is treated as part of the generating station. This is different from the UK where the offshore transmission cable is treated as a grid.

In the case of the Egmond aan Zee offshore wind farm, this wind farm is connected to the Dutch shore by multiple AC export cables without the use of an offshore substation, while in the case of the Princess Amalia wind farm this is connected by an AC export cable with use of an offshore substation in light of its further distance from the shore. In the case of both wind farms onshore components complete the wind farm electrical infrastructure. That is, export cable make landfall and are connected to land cables that in turn connect to onshore transformer stations. In the case of the Princess Amalia wind farm, the onshore transformer station is considered as part of the onshore or national grid.[16]However, in the case of the Egmond aan Zee wind farm the onshore transformer station is treated as part of the offshore wind farm electricity infrastructure.[17] Thus, it could be the case that the onshore component of the electricity infrastructure for bringing electricity generated in the Dutch EEZ to shore could include onshore substations in addition to land cables.

2.4 Interconnection

In addition to submarine cables connecting offshore wind farms to shore, submarine cables are also used for interconnecting the power systems of two countries. Since 2011, interconnection between the Netherlands and the UK has been achieved with the commissioning of the BritNed cable.[18] This is a subsea interconnector operated on direct current. The Netherlands is also connected to the electricity grid of Norway via the NorNed interconnector, and the UK is connected to the French electricity system via the IFA interconnector. Further subsea interconnection between the Netherlands and Denmark (the COBRA cable) is currently being considered,[19] as well as new interconnections between the UK and Belgium (the Nemo Link),[20] the UK and Norway (the NSN Interconnector and Northconnect),[21] and the UK and France (the ElecLink).[22]

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[13] Consisting of the Buitengaats and ZeeEnergie projects.
[14]http://www.typhoonoffshore.eu/html/index.php?page_id=78; http://projecten.eneco.nl/eneco-luchterduinen/projectgegevens/planning/ (last accessed 11 July 2014).
[15] Stb. 1998, 427.
[16] http://www.4coffshore.com/windfarms/prinses-amaliawindpark-netherlands-nl01.html (last accessed July 11 2014).
[17] NoordzeeWind CV, 'Rapportage proces vergunningverlening Offshore Windpark Egmond aan Zee', p. 50.
[18] See http://www.britned.com/BritNed/About%20Us/Construction (last accessed July 11 2014).
[19]http://www.tennet.eu/nl/en/grid-projects/international-projects/cobracable.html(last accessed July 11 2014).
[20]http://www.nationalgrid.com/uk/Interconnectors/Belgium/(last accessed July 11 2014).
[21] See http://www.nationalgrid.com/uk/Interconnectors/Norway/ and http://www.statnett.no/en/Projects/Cable-

While DC technology has had no application in the connection of UK and Dutch offshore wind farms to date, this technology has been used for interconnecting the two countries and in the case of numerous interconnections in the North Sea.[23]For example, the BritNed interconnector consists of an offshore and an onshore component. The offshore component consists of two 250 km long subsea DC cables, which are bundled together and span the North Sea between the two countries, making landfall on both shores. Onshore the subsea cables connect with buried land cables (7 km in length in the Netherlands and 2 km in the UK). These land cables comprise the onshore component along with two converter stations, one at each end.[24]

to-the-UK/ on the NSN Interconnector, and http://www.northconnect.no/ on NorthConnect(last accessed July 11 2014).

[22]http://www.eleclink.co.uk/(last accessed July 11 2014).

[23] Besides the existing interconnectors mentioned above, other existing interconnectors in the North Sea include Skagerrak 1, 2, and 3 between Denmark and Norway. See: http://www.statnett.no/en/Projects/Skagerrak-4/. There are also planned interconnections or interconnectors in construction between other countries in the North Sea: NordLink between Germany and Norway, and Skagerrak 4 between Norway and Denmark. See: http://www.tennet.eu/nl/en/grid-projects/international-projects/nordlink.html on Nord Link, and http://www.statnett.no/en/Projects/Skagerrak-4/ on Skagerrak 4(last accessed July 11 2014).

[24] While the typical setup for submarine interconnection consists of a subsea cable, buried onshore cables and converter stations, as the proposed Nemo Link interconnector shows, there can be other design possibility. The Nemo Link interconnector will consist of subsea and buried onshore cables connected to a converter station and an electricity substation in each country: http://www.nemo-link.com/the-project/overview/ (last accessed July 11 2014).

3 Legal framework

3.1 3.1. Public International law

The relevant piece of international law is the 1982 United Nations Convention on the Law of the Sea (hereafter 'the UNCLOS'). UNCLOS supplements the Geneva Conventions on the Law of the Sea of 1958, which is the foundation of the international law of the sea. It should be noted that for example the United States of America has not signed UNCLOS, but it is party to the Geneva Conventions. This is the reason why the Geneva Conventions on the Law of the Sea of 1958 are still relevant today.

These treaties regulate the use of ocean space and resources, including the extent to which coastal states have the exclusive right to use ocean space and resources. From hereinafter the focus will be on UNCLOS as both the UK and the Netherlands are part to this treaty. UNCLOS contains the rules on how the seas and oceans are to be divided into several maritime zones and sets out the rights and jurisdiction in these maritime zones of the adjacent coastal State as well as the rights and jurisdiction of other(non-coastal) States. A maritime zone is an area of the sea determined by the distance from the coast. Two maritime zones are relevant to note for this study: the territorial sea addressed in Part II of the UNCLOS, and the EEZ addressed in Part V of the UNCLOS. While offshore wind energy development has occurred to date mostly in the former maritime zone, cross-border integrated offshore electricity infrastructure concerns the connection of offshore wind generation in the EEZ, which is expected to increase in the near future.

The territorial sea extends no more than 12 nautical miles (approximately 22 kilometers) from the coast (Art. 3 UNCLOS). According to the UNCLOS, in the territorial sea the adjacent coastal State exercises sovereignty in the same way it does over its land territory (Art. 2 UNCLOS). Thus, except for the right of innocent passage of foreign ships codified in Article 17 of the UNCLOS, only the adjacent coastal State may use or authorize and regulate the use of the territorial sea and its resources. This includes both the exploration and exploitation of wind resources and the laying of submarine cables in the territorial sea. In principle, all laws applying to the territory of the coastal State also apply to the territorial sea.

The EEZ extends no more than 200 nautical miles (approximately 372 kilometers) from the coast (Art. 57 UNCLOS), and the precise shape is determined by the continental shelf (Art. 76 UNCLOS). In the EEZ, the adjacent coastal State has certain "sovereign rights" (Art. 56 UNCLOS). In order to enjoy the sovereign rights in the EEZ recognized under UNCLOS, a coastal State must first proclaim an EEZ, which both the Netherlands and the UK have done. In 1999, the Netherlands declared an EEZ in which all the rights conferred on the coastal State under UNCLOS is exercisable by the Netherlands. In the case of the UK, it can be noted, no single EEZ declaration was made. Rather, the UK declared at different times the exercise of different rights it could claim under the UNCLOS in an EEZ. Thus, in 2004, it declared a REZ in which it claimed exercise of rights pursuant to UNCLOS on wind energy exploration and exploitation in the EEZ.[25]

[25] Once paragraph 4 of Part 1 of Schedule 4 of the UK Marine and Coastal Access Act, 2009 comes into force, the reference to REZ in the 2004 UK Energy Act will become a reference to the EEZ designated under the UK Marine and Coastal Access Act, 2009 (see section 41(3)).

The sovereign rights of the coastal State in the EEZ include the right to regulate activities connected with the economic exploitation of the zone, which covers the exploration and exploitation of wind resources. The sovereign nature of the rights of the coastal State in the EEZ means that only the coastal State may explore and exploit or authorize and regulate the exploration and exploitation of wind resources in the EEZ, and the construction of installations.

In the EEZ, *all* States (coastal and non-coastal alike) enjoy freedom of the seas (*ius communicationes*) in the EEZ, including the right to lay submarine cables (Art. 58(1) and 79 UNCLOS). This right of all States to lay cables, it has to be noted, relatesto transit cables and not to cables linked to offshore energy generation or interconnections that enter the territorial sea of the coastal state. Paragraph 4 of Article 79 notes that the jurisdiction of the coastal State over cables constructed or used in connection with the exploration and exploitation of its EEZ or the operations of installations and structures is unaffected by the right of all States to lay cables in the EEZ. Paragraph 4 furthermore provides that the right of all States to lay cables in the EEZ does not affect the right of the coastal State to establish conditions for cables entering its land territory or territorial sea. Thus, it must also be noted that the laying of the territorial sea portion of an interconnector requires the separate consent of the coastal State.

It follows from the above that as the UK and the Netherlands both have made use of their rights under the UNCLOS with regard to wind energy exploration and exploitation and the right to construct installations, both have established national legal frameworks to govern these activities. The review of the national legal frameworks will happen shortly. First, however, it is necessary to provide an overview of relevant EU legislation that influences the national legal frameworks. As both members of the EU, the UK and the Netherlands are obligated to implement EU legislation.

3.2 EU legislation

EU legislation on (i) the internal electricity market and (ii) the promotion of the use of energy from renewable sources are relevant to consider for offshore wind energy development in the Dutch EEZ and the UK REZ and for interconnection between the two countries. An overview of EU legislation on these two matters is provided in this section, but first a comment must be made as the application of EU law to the offshore area.

3.2.1 The application of EU legislation at sea

The first matter that needs to be considered in regard to this issue is whether the EU is competent to legislate in the field of energy. The EU has a complex division of competences in respect of matters pursuant to the Treaty on the European Union (hereinafter: the TEU) and the Treaty on the Functioning of the European Union (hereinafter: the TFEU). The EU needs to be made competent in respect of a matter so that it may take action, including the adaption of legislation (Art. 5 TEU). The EU has together with the Member States a shared competence in the field of energy (Art. 4(2)(i) TFEU). According to Article 194, EU policy on energy shall promote energy from renewable sources (Art. 194 (1)(c) TFEU) and interconnection of energy networks (Art. 194 (1)(d) TFEU), in the context of the need to protect and preserve the environment and the establishment and functioning of the internal market.

The second matter to be considered is the geographical reach of EU legislation. The application of EU legislation to offshore activities depends on the extent of the powers of its

Member States offshore. Since EU Member States exercise sovereignty over their territorial sea, it means that regarding the territorial sea, EU legislation can be made to apply to this area expressly or by implication based on the subject-matter and aims of the legislation. With regard to the EEZ, the situation is more complex. As discussed earlier, coastal states have only sovereign rights in the EEZ. Therefore, EU legislation can apply to this area, either expressly or by implication, only to the extent Member States have powers in the EEZ under the UNCLOS.[26]

3.2.2 The internal electricity market

The core of the European Union project is the internal market (Articles 4 (2)(a) and 26 TFEU). The EU internal market provides for the free movement of goods, persons, services and capital within the boundaries of the EU. Despite its intangible character, electricity is considered to be a good.[27] As regards an EU internal market in electricity, the EU aims to establish a liberalized and competitive internal market for electricity, i.e. an internal market in which consumers, suppliers and producers are free to negotiate the buying and selling of electricity. As the supply of electricity is network bound and electricity networks are considered natural monopolies, the internal market also entails non-discriminatory access to electricity networks.

The first step towards establishing the EU internal electricity market was the adaption in 1996 of the first electricity directive on common rules for the internal electricity market (Directive 96/92/EC).[28] By 2001 it was recognized that further efforts were necessary for effective integration of the different national electricity markets of the Member States. This resulted in the adoption in 2003 of the second electricity directive (Directive 2003/54/EC)[29] in 2003. Also adopted at this time was a regulation concerning conditions for access to the network for cross-border exchanges in electricity (Regulation (EC) No 1228/2003)[30], which established rules for the operations of interconnectors. While these 2003 instruments contributed to the development of the EU internal market, still further efforts to create an effective and functioning internal electricity market were considered necessary. Accordingly, in 2009 Directive 2009/72/EC[31] on common rules for the internal market in electricity (hereinafter ‘the Electricity Directive’) and Regulation (EC) No 714/2009[32] on cross-border exchanges in electricity (hereinafter ‘the Electricity Regulation’) were adopted. The Electricity Directive and the Electricity Regulation are in force and the 2003 directive and regulation stand repealed. Like their predecessors, the Electricity Directive addresses the activity of electricity generation and both the Electricity Directive and the Electricity Regulation address network activities.

3.2.3 Electricity generation

The Electricity Directive defines ‘generation’ in Article 2(1) simply as “the production of electricity”. This can reasonably be construed as including electricity produced by offshore wind farms. The provisions of the Electricity Directive on generation seek to facilitate competition in electricity generation while ensuring security of supply and respecting

[26] Case C-6/04 *Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland(Habitats)* (2005) E.C.R. I-9017, § 115.
[27] Case C-393/92 *Almelo v energiebedrijf IJsselmij* (1994) ECR I-1477, § 28.
[28] OJ L 27, 30-01-1997.
[29] OJ L 176, 15-07-2003
[30] OJ L 176, 15-07-2003.
[31] OJ L 211, 14-08-2009.
[32] OJ L 211, 14-08-2009.

environmental protection. According to Article 7(1) of the Electricity Directive, for the construction of new generating capacity each Member State of the European Union must adopt a permitting procedure, and the conditions for the grant a permit for the construction of new generating capacity must be objective, transparent and non-discriminatory. Thus, the conditions must relate only to the matters set out in Article 7(2). It should be noted that Article 7(2) of the Electricity Directive is wider in scope than the earlier provision of Directive 2003/54/EC (Art. 6). Article 7(2) of the Electricity Directive states that the permitting procedure should take into account the contribution that the new generating capacity can contribute to the goal of generating 20% of the energy from renewable sources (sub-paragraph (j)) and the reduction of emissions of greenhouse gasses (sub-paragraph (k)).

In addition to the requirement on Member States to put in place an authorization procedure for new generating capacity, they are also required to provide for the possibility of launching tenders for new capacity, to be held in accordance with published criteria and only where necessary (Art. 8). That is, where the generating capacity being built on the basis of the authorization procedure is insufficient to ensure security of supply or insufficient to achieve environmental objectives as well as the objective of promoting infant technologies. In effect, where the tendering procedure is implemented, determination of new capacity will always be made by the Member State and not by the market.

3.2.4 Types of Networks

The electricity system can be explained in lay terms as the delivery system for electricity from generation sources to customers. However, the law distinguishes a variety of different networks within this system. The major parts of this system are the transmission and distribution (sub) systems as well as interconnectors and direct lines. These different parts are referred to as the networks and their operations as network activities. The following paragraphs will discuss the provisions of the Electricity Directive and Electricity Regulation regarding transmission, interconnection and direct lines. When discussing the provisions of the Electricity Directive and the Electricity Regulation, we shall look whether the legal definitions comply with the practical application of the network.

3.2.4.1 Transmission

The definition of transmission in Article 2(4) of the Electricity Directive of 2009 is:

> The transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but not including supply (Art. 2(3) Electricity Directive 2003).

This definition makes it clear that transmission does not include supply activities. The European legislator has made distinction between high and extra high-voltage without giving the criterion which distinguishes the two. It is left to the Member States to define for themselves to formulate a distinction between the two.
In other words, the European legislator has created a useable definition for transmission. However, it left to the Member States to define the precise borderline between transmission activities on a high- or an extra-voltage system, and distribution activities on lower voltage levels. Furthermore, it should be noted that some offshore wind farms are connected to the shore through a medium voltage altering current connection.[33] Using a grammatical interpretation of the provision of the Electricity Directive would mean that these transports of electricity would fall outside of the scope of transmission.

[33] Three random examples: Vindeby (Danmark), Burbo Bank (UK) and Egmond aan Zee (Netherlands).

3.2.4.2 Interconnections

The word interconnector has been mentioned in relation to the definition of interconnected system. The exact definition of what is an interconnector is remains vague. The interconnector that has been mentioned above serves the purpose of connecting distribution and transmission systems, so that they may function as in interconnected system. The other type interconnector, the one that connects the electrical system of two states, shall be the object of study in this paragraph. The definition of the interconnector was rather vague in the Electricity Directive of 1996:

> Equipment used to link electricity systems (Art. 2(10)).

This open definition was also included in the Electricity Directive of 2003 and 2009. The question of what is the interconnector is thus nearly impossible to answer. Any piece of equipment, being a cable or single connecting point, could be considered to an interconnector. This legal uncertainty needed to be addressed in order to expedite the creation of the European electricity market. It was recognized in 2000 that for the electricity market integration to be a success, more interconnector capacity and better use of this capacity was required. Especially the different structures of tariff-setting needed to be addressed.[34]
In order to regulate cross-border electricity flows and tariff-setting on interconnectors, it was required to formulate a more precise definition for the interconnector. This lead to the following definition as laid down in Article 2(1):

> 'Interconnector' means a transmission line which crosses or spans the border between Member States and which connects the national transmission systems of the Member States.

This definition, which is also included in the Electricity Regulation of 2009, clearly uses a technical approach. An interconnector consists of a point to point connection that connects the transmission systems of two Member States.

3.2.4.3 Special purpose grids

Over time, a number of different special purpose grids have been identified. This was required because the normal configuration of generation, transmission, distribution and consumer is not always suitable. We shall discuss these special purpose grids with the aim to see whether the interconnecting link could be classified as a special purpose grid.

The first and most prominent of these forms of special purpose infrastructure is the direct line.[35] In the first directive of 1996 the definition of a direct line was rather wide. Any electricity line complementary to the interconnected system was considered to be a direct line. The use of the word complementary expresses that a direct line was something, only to be used when the normal configuration would not suffice. In 1996 the only form of special purpose infrastructure was the direct line. In the Electricity Directive of 2003 and 2009, the following more substantial definition was given:

> 'Direct line' means either an electricity line linking an isolated generation site with an isolated customer or an electricity line linking an electricity producer and an electricity supply undertaking to supply directly their own premises, subsidiaries and eligible customers.

[34] M.M. Roggenkamp e.a., 'Energy Law in Europe', p. 356-357.
[35] Art. 2(12) Directive 96/92/EC; art. 2(15) Directive 2003/54/EC; 2(15) Directive 2009/72/EC.

This definition uses predominantly the technical approach. Required are an isolated producer and an isolated customer. This customer does not necessarily need to be a non-household consumer (Art. 33(1)(1c) Electricity Directive). Nonetheless, the possibility to construct a direct line between a producer and one or more customers is open when the parties have been denied third party access (hereinafter: TPA) to the national grid by the grid operator(s).[36]

The second form of special purpose infrastructure is the so called smart grid. At first glance, the interconnecting link that connects two offshore wind farms to each resembles nothing like a smart grid. However, as we shall discuss later on with regard to the definition of the interconnecting link, the smart grid proved also difficult to define.

A smart grid is basically an electricity network that can integrate in a cost efficient manner the behaviour and actions of all users connected to it.[37] This includes producers and consumers whereby consumers can be producers as well. In academic jargon these consumers are called 'prosumers'.[38] The precise definition has been unclear, even when smart grids were in development for some time.[39] This has changed when the European legislator gave the following definition on smart grids in Article 2(7) of Regulation (EU) 347/2013:

> 'smart grid' means an electricity network that can integrate in a cost efficient manner the behaviour and actions of all users connected to it, including generators, consumers and those that both generate and consume, in order to ensure an economically efficient and sustainable power system with low losses and high levels of quality, security of supply and safety.

This definition clearly uses a functional approach. The only technical part is that which requires a network, and that requirement is formulated wide. It remains to a large extent an open definition. At this point in time is not possible to define smart grids entirely because smart grid technology is still developing.

A similar process might occur with other new types of electricity networks, such as the interconnecting link. There is of course the question who should take the initiative; should the legislator formulate an open definition to start with, or should the industry start developing new network concepts and let the legislator come up with definition afterwards.

Finally, it should be noted that the legislator could look for inspiration in other fields of law. In the gas and oil sector for example there are upstream pipelines (Art. 2(1) Gas Directive).[40] These pipelines are not part of any transmission network and can be used to connect two offshore production sites to each other. This resembles the interconnecting link between two offshore wind farms.

3.2.5 Regulating networks

3.2.5.1 Third Party Access

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[36] http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=P-2013-006173&language=EN.
[37] Art. 2(7) Regulation (EU) 347/2013.
[38] M.L. Stoffers en S.J.W.H. Reintjes, 'Jubileumcongres 'Energie en energierecht de komende 10 jaar - de rol van techniek en recht'', *NTE* 2013/1.
[39] H.H.B. Vedder, 'De regulering van smart grids – naar slimmere, functionelere of vooral complexere regelgeving?', *NTE* 2011/1.
[40] OJ L211, 14-08-2009.

The Electricity Directive provides for regulated TPA to transmission and distribution grids (Art. 32 Electricity Directive). TPA is the considered the basis of a competitive electricity market in the literature and by the ECJ.[41] The essence of TPA is that TSOs are required to grant access to their systems to all parties on non-discriminatory terms, which translates into a legally enforceable right of (potential) system users. An important element of regulated TPA is that tariffs, which TSOs can charge for the use of their systems, are calculated beforehand by the national regulatory authorities. This system of ex ante tariff-setting separates regulated TPA from the other form of TPA, the so called negotiated TPA. Negotiated TPA is applied for granting access to upstream pipelines in the natural gas industry (Art. 34 Directive 2009/73/EC).[42]

In the Netherlands this task is performed by the Autoriteit Consument en Markt (hereinafter: ACM). In the UK this task is performed by the Gas and Electricity Markets Authority (‘hereinafter: GEMA) through its Office of Gas and Electricity Markets (hereinafter: Ofgem). The tariff that a regulator sets for a TSO is binding. The TSO has to cover its expenses with the regulated income, thus giving him an incentive to perform as efficient as possible. This also means that if the TSO wants to invest in the transmission grid, the costs of such investment have to be earned back through the tariffs. In this regard, if the tariff margins are small then there will be little or no incentive for the TSO to invest in the transmission system. If a TSO desires a larger margin to be able to make the investment, it can make a request to the regulatory authority. We shall discuss the investment instruments below (§ 3.3.2.7).

3.2.5.2 Unbundling

In order to create a competitive electricity market, it is required that parties should have non-discriminatory access to the networks. To ensure that all network users have non-discriminatory access to the networks, the Electricity Directive provides for further guarantees for the independence of the network operator over the previous Directives.[43] That is, the Electricity Directive like its predecessor of 2003 provides for unbundling of commercial activities, like generation and supply, from network activities (Art. 9 Electricity Directive). The unbundling of activities avoids conflicts of interest on the part of TSOs, ensuring that they take their decisions in an independent, transparent and non-discrimination manner with regard to all system users. This is in respect of not only the day-to-day operations of the system but also in respect of strategic investment decisions.[44]

Article 9(1)(b) of the Electricity Directive provides that the same person cannot directly or indirectly exercise ‘control’ over generation or supply activities and at the same time directly or indirectly exercise ‘control’ or exercise ‘any right’ over a TSO or transmission system; equally, the same person cannot directly or indirectly exercise ‘control’ over a TSO or a transmission system and at the same time directly or indirectly exercise ‘control’ or exercise ‘any right’ over generation or supply. Article 9(1)(c) and (d) provide for two additional requirements. Under subparagraph (c), the same person is not entitled to appoint members of the supervisory board, the administrative board or bodies legally representing the undertaking of a TSO or a transmission system and directly or indirectly exercise ‘control’ or exercise ‘any right’ over generation or supply activities. Subparagraph (d) prohibits the same person

[41] A. Johnston & G. Block, ‘EU Energy Law’, p. 73; Case C-439/06 citiworks AG v Flughafen Leipzich/Halle GmbH (citiworks), (2008) ECR 2008 I-3913 § 44.
[42] M.M. Roggenkamp e.a., ‘Energy Law in Europe’, p. 1308-1309.
[43] Recital 10 Electricity Directive.
[44] European Commission Staff Working Document, ‘Ownership Unbundling The Commission’s Practice in Assessing the Presence of a Conflict of Interest including in case of Financial Investors’, SWD (2013) 177 final.

from being a member of the supervisory board, administrative board or bodies legally representing the undertaking of a TSO or transmission system and those in respect of a generator or supplier.[45] Pursuant to Article 10(2) of the Electricity Directive, an undertaking must be certified in accordance with the provisions of the Electricity Directive and the Electricity Regulation as having complied with the requirements of article 9(1) in order to be designated a TSO and, according to article 10(4), the continued compliance with the requirements is to be monitored.

3.2.6 Interconnections and exemptions

3.2.6.1 Interconnection

The Electricity Regulation sets out rules regarding interconnectors in order to facilitate cross-border exchanges of electricity. These rules relate to congestion management and the use of tariffs. Interconnectors are also subject to the transmission rules on TPA and unbundling in the Electricity Directive.

To allocate the capacity on a congested interconnector, the operator must organize an auction. An action is a market based method to allocate capacity on an interconnector, because the party that is willing to pay the most for the capacity will acquire it. An auction can be held in two different ways. There is the implicit auction that takes place when electricity is bought at an electricity exchange like the APX. The buyer buys the commodity, in this case the electricity, and at the same time buys implicitly capacity to transport the electricity. This means that only step needs to be taken. In the case of explicit auctions, this is different. In that case the buyer buys only the capacity. The electricity needs to be bought separately. Explicit auctions are organized by the operator of the interconnector i.e. the two TSOs that are connected by the interconnector.

The different ‘products’ that are offered in an auction are defined by time. There is a difference between long, medium and short term. There are no exact definitions on what is considered to be long or medium term auctioning. Sometimes the auctioning of capacity for a year is considered long and sometimes it is considered medium term. Short term is usually considered to be day ahead spot markets and intraday market.

The European legislation regulates the way in which the revenues of these auctions are to be used. Article 16 of the Electricity Regulation states these revenues have to be used for guaranteeing that the allocated capacity will be available or for investing in existing and new capacity. European legislation gives the opportunity to be exempted from the obligation (Art. 17 Electricity Regulation).

3.2.6.2 Exemption

According to Article 17(1) of the Electricity Regulation, there is the possibility to exempt, upon request to the national regulatory authorities, an interconnector from the rules in the Electricity Regulation and Electricity Directive. An exemption does not necessarily have to

[45] Article 2 paragraph 34 of the Electricity Directive defines ‘control’ as “rights, contracts or any other means which, either separately or in combination and having regard to the considerations of fact or law involved, confer the possibility of exercising decisive influence on an undertaking”; and article 9 paragraph 2 explains that ‘any right’ includes, particularly, the exercise of voting rights and the power to appoint members of the supervisory board, the administrative board, or bodies legally representing the undertaking, or the holding of a majority share. Referring to both ‘control’ and any right’ seems unnecessary. ‘Exercising decisive influence’, which is the essence of control, seems to already include what are meant by ‘any rights’.

cover all obligations but may be limited to a particular rule or rules. Furthermore, the exemption may be limited to a certain share of the overall capacity of the interconnector.

Interconnectors which are eligible to request exemption are ‘new direct current interconnectors’ (Art. 17(1) Electricity Regulation). Article 2(2)(g) defines ‘new interconnector’ as “an interconnector not completed by 4 August 2003”. According to Article 17(2) of the Electricity Regulation, alternating current interconnectors may request an exemption only exceptionally, “where the costs and risks of the investment in question are particularly high when compared with the costs and risks normally incurred when connecting two neighboring national transmission systems by an alternating current interconnector”. According to Article 17(3), exemption request may also be made in respect of significant increases of capacity in existing interconnectors. Exemptions are expected to be granted only exceptionally,[46] with regulators able and encouraged to provide incentives for new investments within the framework of their regulated system.[47] Those interconnectors which are not exempted are expected to be built by the TSOs and the costs adequately compensated for by regulated tariffs.[48]

According to Article 17(4) of the Electricity Regulation, exemptions are to be granted on a case-by-case basis, and Article 17(1) sets out the six criteria for the award of an exemption, to be applied in light of all the particular facts and circumstances of a case.[49] The burden of proof to show that the necessary conditions are met lies with the applicant. That is, the applicant must supply all the necessary data for the national regulatory authority (and EU Commission) to assess whether an interconnector qualify for an exemption. Compliance with all the criteria is required so a trade-off is not possible; however, conditions may be imposed on a grant of exemption to make the project compatible with the criteria.[50] The EU Commission has issued a non-exhaustive interpretive note regarding the assessment of the criteria for an award of exemption based on practical experience, which is summarized below.

The first criterion, that the investment must enhance competition in electricity supply, means that the project must create benefit for consumers. Investment in interconnectors is likely to entail positive effects on competition through increased capacity. Thus, if in the absence of the exemption, the project did not go ahead or would be on a smaller scale, an exemption triggering the investment would usually generate positive effects on competition. However, the grant of an exemption could also counter such effect in the case where the exemption relates to access to the interconnector and the capacity is held by or benefits suppliers with a significant degree of market power. As a minimum, therefore, the exempted investment must provide significantly increased opportunities for non-dominant competitors to enter the market(s) concerned or to expand their market position.

[46] T. van der Vijver in Roggenkamp (et al.), ‘Energy networks and the law’, p. 351-352; see also European Commission, ‘European Commission staff working document on Article 22 of Directive 2003/55/EC concerning common rules for the internal market in natural gas and Article 7 of Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity’, SEC(2009)642 final.
[47] *Ibid.* See also: Directorate-general Energy and Transport, ‘Exemptions from certain provisions of the third party access regime’.
[48] European Commission, ‘European Commission staff working document on Article 22 of Directive 2003/55/EC concerning common rules for the internal market in natural gas and Article 7 of Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity’, SEC(2009)642 final, p. 5
[49] *Ibid,* p. 8.
[50] *Ibid.*p. 6.

The second criterion is that the level of risk attached to the investment is such that it would not take place unless an exemption is granted. This criterion concerns two main risks: the risk of non-use of the investment and the risk of changes in revenues in the future. In determining whether this condition is met, the possibility of employing risk mitigating measures must be assessed, such as the testing of market demand and the involvement of other parties. Furthermore, consideration should be given to whether, all other things being equal, there is a greater likelihood of a monopoly position i.e. the project would enjoy an unchallenged position in relation to the service it provides. This would lower the riskiness of the investment and thus reduce the need for an exemption.

The third and fourth criteria relate, respectively, to the legal separation between the owner of the interconnector and the operators of the systems that are connected by it, and to the levying of charges on users of the interconnector. These two criteria are relatively straightforward, aimed at ensuring sufficient ring-fencing of the activities of the exempted interconnector from the activities of transmission system operators. The fifth criterion relates to 'new interconnectors' already existing at the time of the adoption of the Electricity Regulation. It effectively rules out any exemption being applied to existing interconnectors, requiring that no part of the capital or operating costs of an interconnector has been recovered from charges made for the use of the transmission systems linked by the interconnector since the implementation of Directive 96/92/EC.

The sixth and final criterion is that the exemption must not be to the detriment of competition or effective functioning of the internal market in electricity, or to the efficient functioning of the regulated systems which the interconnector links. This condition has similarity with the first in that an objective is defending a competitive market; however, a different approach is adopted here. The focus is on the possible negative effects of the exemption itself as opposed to the competitive effect of the investment, which is more difficult to evaluate. The effective functioning of the market may be a concern, for example, where an exemption hinders the overall optimization of the energy networks. The effective functioning of the regulated system to which the interconnector is linked may be a concern, for example, where the construction of the interconnector would require the expansion or reinforcement of the system(s) to be connected to facilitate the increase in energy flows. It would be necessary to consider how the exemption influences the costs of operating the regulated system(s), if for example, the users of the regulated system(s) are faced with substantially increased higher network tariffs.

Under the current legal regime, four requests for exemptions where brought before the EU Commission.[51] These exemptions concerned the following interconnectors: BritNed, Estlink between Estonia and Finland, East-West Cables between Ireland and the UK, and Tarvisio-Arnoldstein between Italy and Austria. The EU Commission assesses the criteria for granting an exemption strictly. In the case of the first three interconnectors, which are all submarine, exemptions were granted subject to conditions, while in the case of the Tarvisio-Arnoldstein the EU Commission refused to grant an exemption.

In conclusion, should the interconnecting link or the integrated infrastructure as a whole be classified an interconnector, it is assumed that the developer will be unable to request for an exemption. Providing an individual offshore wind farm with guaranteed access to an interconnector would mean a clear violation of the TPA principle. Reserving capacity for an individual wind farm would also mean a sub-optimal use of the interconnector, which will

[51] See for more information: http://ec.europa.eu/energy/infrastructure/exemptions/doc/exemption_decisions.pdf (last accessed 26 June 2014).

negatively influence its effects for the level of interconnection in the EU. This means that the developer of the wind farm will not have guaranteed access to the cable and that he will need to buy capacity on the interconnector on a competitive basis.

3.2.7 Renewable Energy Policy and Legislation

3.2.7.1 Introduction

Since the oil crisis of the 1970s, renewable energy policy has been on the political agendas of several industrialized nations. However, the development of renewable energy was going faster in the EU compared to the rest of the world. In the 1990, the EU gave a strong impetus to go even further. The European Commission identified the need for the promotion of renewable energy on an even larger scale, and suggested for the introduction of targets for the EU Member States.[52]

Within this geopolitical framework, the European Commission decided to promote the use of renewable energy sources. The promotion of renewable energy was not only considered to be beneficial for the fight against climate change, the increased use of domestic energy sources would also contribute to long term energy security.

This has led to the introduction of the first directive on renewable energy in 2001.[53] This old directive also laid down targets for the EU Member States. There was a global target that 12 per cent of gross national energy consumption should come from renewable sources by 2010 and 22.1 per cent of the electricity should be generated from renewable sources in 2010. However, these targets were non-binding. So it was no surprise that this old directive proved to be insufficient because there was no incentive for the EU Member States to comply with the targets set. Nonetheless, the directive did function is a legal basis for a number of national support schemes for renewable energy.

In its progress report of 2009, the European Commission pointed out that progress was insufficient.[54] It was expected by then that the overall target of 12 per cent was unachievable in 2010. In addition, the overall aim of 22.2 per cent of electricity production of renewable sources was not to be achieved. However, some EU Member State like Germany did manage to meet their individual targets. This showed that with enough efforts i.e. national subsidies and energy taxation, it was possible to reach the targets set. This encouraged the European Commission to persist in its efforts and has led to the introduction of the current Directive on renewable energy.

The new Directive on the promotion of the use of energy from renewable sources (hereinafter ‘the Renewables Directive’) creates the existing legal regime for the renewable energy policy in the EU. The Renewables Directive establishes a binding national target for each EU Member State for the share of energy from renewable sources in its gross final energy consumption by 2020, consistent with the overall EU target of 20 per cent share of energy from renewable sources in the EU gross final energy consumption by 2020.[55]

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[52] European Commission, ‘Energy for the future: renewable sources of energy’, COM(96)576.
[53] Directive 2001/77/EC, OJ L 283, 27-10-2001.
[54] European Commission, ‘The Renewable Energy Progress Report’, COM(2009) 192, p. 10.
[55] This EU goal is part of the EU ‘20-20-20’ goals. The other objectives are 20% reduction in greenhouse gas emissions and a 20% reduction in primary energy use by improving energy efficiency.

The Renewables Directive gives every EU Member State a separate target which has to be achieved. The targets differ because of the different renewable energy potentials of the EU Member States.[56] According to Annex I of the Directive, the Netherlands is legally committed to meeting 14 per cent of its energy demand from renewable sources by 2020 and the UK 15 per cent. For comparison, Malta has the lowest target of 10 per cent and Sweden has the highest target with 49 per cent.

The Dutch government, it can be noted, has set for itself the goal to reach a 16 per cent share of electricity production from renewable sources by 2023. This goal was more or less formalized in the SER Energieakkoord.[57] Both the Netherlands and the UK intend to increase their current offshore wind energy capacity in order to achieve their 2020 renewable energy targets. The UK, in particular, is well situated for producing offshore wind. The UK is estimated to have the greatest offshore wind energy potential in Europe, which is at least one-third of the total European potential. It should be noted that the UK government has not yet announced any formal target behind the 2020 horizon.

There is of course the possibility that the Member States fail to meet the target of the Renewables Directive. However, it remains to be seen what sanctions will follow when the EU Member States fail to meet their target. Already the European Commission has signaled a lack of progress.[58] And when the expectations of the European Commission are correct, then a number of EU Member States will fail to meet their targets. The question is whether these EU Member States will be confronted with legal actions at the European Court of Justice or is there going to be a new directive with a horizon for 2030 with new targets. The European legislator has at this point not taken a decision for the 2030 horizon.

The Renewables Directive provides for a variety of measures to reach the targets which are set. For the purpose of this research, the focus will be on the following measures: the use of national support schemes, providing access to grids for renewable energy, and mechanisms for cooperation between Member States.[59]

3.2.7.2 Access to grids

The Renewables Directive provides that each Member State shall ensure that TSOs and distribution system operators in its territory guarantee the transmission (and distribution of electricity) produced from renewable energy sources; provide for either priority access or guaranteed access for electricity produced from renewable energy sources to the grid-system; and shall ensure TSOs give priority to renewable energy installations when dispatching generating stations (Art. 16 Renewables Directive). In addition to this, the Renewables Directive provides that Member States shall require TSOs and distribution system operators to establish and publicize standard rules relating to the integration of renewable energy into the grids.

3.2.7.3 National Support Schemes

The Renewables Directive provides that each Member State may, in order to promote the use of energy from renewable sources and to reach its national target, implement a support scheme (Article 3 (3)(a) Renewables Directive). Such scheme may reduce the cost of

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[56] Recital 15 Renewables Directive.

[57] http://www.energieakkoordser.nl/energieakkoord.aspx (last accessed 7 May 2014).

[58] European Commission, '2013 Renewable Energy Progress Report', COM(2013) 175, p. 12-14.

[59] Other measures include, for example, the simplification of administrative procedures (Art. 13 Renewables Directive) and the promotion of use of renewable energy in transportation (Art. 21 Renewables Directive).

renewable energy that is more costly to produce than traditional energy from fossil fuels, either by increasing the price at which it can be sold, or by increasing by means of a renewable energy obligation or otherwise, the volumeof such energy purchased. More specifically, a support scheme may include investment aid; tax exemptions or reductions; tax refunds; renewable energy obligation support schemes, including those using green certificates; and direct price support schemes, including feed-in tariffs and premium payments. The European Commission and Parliament had accepted that financial support is necessary for renewable energy development to occur, and national support schemes are compatible with the provisions of the TEFU on state aid and the internal market. Article 107(1) of the TEFU provides that, "[s]ave as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."

3.2.7.4 Cooperation Mechanisms

To assist Member States in achieving their national targets, the Renewables Directive introduces the possibility of cooperation between Member States. By introducing these mechanisms, Member States do not have to rely solely on their national support schemes and domestic renewable resources, which may be limited, to reach their national targets. Three specific mechanisms for cross-border cooperation are provided for by the Renewables Directive. These are statistical transfers, joint projects and joint support schemes.

Of the three mechanisms for cross-border cooperation on renewable energy, statistical transfer (Art. 6 Renewables Directive) is the least complex. It allows Member States to agree on a specific amount of energy that would otherwise count towards one State's target for renewable energy to be transferred to another State. Statistical transfers do not involve the physical transmission of energy from the providing State to the receiving State, and is intended to be used only where a State has exceeded its national target.

Two or more Member States may also cooperate on individual projects relating to the production of electricity from renewable energy sources, which cooperation may also involve private parties (Article 7 Renewables Directive). In the case of joint projects, the parties agree on what amounts of energy is to be regarded as counting towards the national overall targets of each other, according to their contributions to the project. The Directive does not further provide directions as to how Member States may go about with joint projects, such as regarding the regulation of a project.

Apart from joint projects, two or more Member States may join or partly coordinate their national support schemes (Art. 11 Renewables Directive). This would also allow for a certain amount of energy from renewable sources produced in the territory of one participating Member State to be counted towards the national overall target of another participating Member State, either by way of a statistical transfer or distribution rule. The Directive does not further provide directions as to how Member States may go about with a joint or coordinated support scheme, such as how the decision to grant a support would be made.

3.3 National Legal Frameworks

An overview of offshore wind energy development to date in UK and Dutch waters has been given under 2.1 and 2.2 above. This section will now examine the national framework of each country governing offshore wind energy generation. It will also examine the national frameworks of the UK and the Netherlands governing farm-to-shore connection and interconnection.

3.3.1 The UK legal framework

3.3.1.1 Offshore wind energy generation

As explained already under paragraph 2.1 above, the Crown Estate has held several rounds of offshore wind energy licensing. By virtue of the Crown Estate Act 1961, the Crown Estate manages all crown lands, which covers the territorial sea. The UK legislator vested in the Crown, among other things, the rights with respect to the exploration and exploitation of the REZ for the production of energy from winds (S. 63 Electricity Act). The Crown Estate is, consequently, able to award leases or licenses for offshore wind farm development in the territorial sea and UK REZ. Leases or licenses however, are not granted until a developer has obtained all other required statutory consents from the relevant authorities. The permits needed for the construction and the operating of an offshore wind farm are listed below.

UK
The consent to construct and operate the offshore wind farm, including all ancillary infrastructures (S. 36 Electricity Act 1989).
A License to deposit materials such as the turbine foundations and the buried cables, on the seabed (S. 5 Food and Environment Protection Act 1985).
A consent in order to make provision for the safety of navigation in relation to the export cables (S. 34 Coast Protection Act 1949).
A planning permission, sought as part of the section 36 application, for the onshore elements of the works required (S. 90 of the Town and Country Planning Act 1990).
The consent for the extinguishment of public rights of navigation for the areas of seabed directly covered by the offshore structures comprising of the turbines, offshore substation and anemometry mast (S. 36A Electricity Act 1989).
A request for the establishment safety zones of up to 500m around all structures, which will limit the activities of certain vessels within this area. (S. 95 Energy Act 2004).

In the UK, offshore wind energy generation is currently supported by a ‘renewables obligation’ requirement under the Electricity Act (see from Section 32). The renewables obligation is a requirement on licensed UK electricity suppliers to source a specified proportion of the electricity they provide to customers from eligible renewable sources and to produce Renewables Obligation Certificates (hereinafter: ROCs) in proof of this. Certain matters must be specified in ROCs in order for them to be valid, including that the electricity has been supplied to customers in Great Britain or has been used in a permitted way.ROCs are issued to operators of eligible generating stations, which include offshore wind farms in the territorial sea and UK REZ. Operators can sell ROCs with other parties (suppliers or traders) with the ROCs ultimately being used by suppliers to demonstrate they have met their obligations. The trade of ROCs by generators allows them to receive a premium in addition to the wholesale electricity price.

The Renewables Obligation will be closed to new generators on 31 March 2017. The replacement scheme is formed by the Contracts for Difference, and this entered into force in 2014. The UK legislator expects that these contracts will remove exposure to volatile wholesale electricity prices and provide a steady revenue stream for investors of all generation technologies, produce a more competitive market and therefore ensure electricity remains affordable. The new subsidy regime will provide long term support for all forms of low-carbon generation; which includes nuclear energy, renewables and carbon capture and storage.

The Contracts for Difference scheme is based on feed-in tariffs which are coupled to a fixed "strike price".[60] This fixed price functions as a benchmark; the producer will receive feed-in tariffs in the case the market reference price is below the strike price, and the producer will have to back if the market reference price is above the strike price. The scheme is open to different types of low carbon producers and distinguishes between different types of producers. There will be different reference price for base load plants (e.g. nuclear, certain types of biomass and fossil fuels that apply carbon capture and storage), intermittent plants (e.g. wind, solar, wave and tidal) and flexible plants (e.g. biomass and fossil fuels that apply carbon capture and storage).

The scheme is financed by the consumers via a levy on their electricity bill. The money is transferred to the producers of low carbon electricity through their contractual counterparty. The counterparty to the Contracts for Difference will be the government-owned CFD Counterparty Company. The newly established company is operational from 1 August 2014.[61]

3.3.1.2 Farm to shore connection and the OFTO regime

Since 2009, under the UK Electricity Act, an 'offshore transmission license' is required for "the transmission within an area of offshore waters of electricity generated by a generating station in such an area" (S. 6C(6) Electricity Act). Offshore waters encompass the territorial sea and the UK REZ. By virtue of the definition of "transmission system" in section 4(4) of the Electricity Act and the definition of "high voltage line" in Section 64(1) of the Electricity Act, the offshore transmission system runs from the offshore substation at the offshore wind farm location to the point of connection with the onshore transmission system as described earlier under 2.1 above. "Transmission system" means "a system which (a) consists (wholly or mainly) of high voltage lines and electrical plant (…)" and "high voltage lines" means "if (…) a relevant offshore line (as defined in subsection (1A)), is of a nominal voltage of 132 kilovolts or more (…)" It can be noted that a "relevant offshore line" is defined as "if (a) it is wholly or partly in an area of GB waters, an area of the territorial sea (…) or an area designated under section 1(7) of the Continental Shelf Act 1964", which corresponds to the UK REZ. It can be noted here that the cables comprising a wind farm collection grid are not high voltage lines, being less than 132 kilovolts.

Offshore transmission licenses are granted through a competitive tender process for the ownership of offshore transmission assets. Thus far, there have been two rounds of offshore transmission licensing in respect of offshore transmission assets that have been or is to be constructed by the offshore wind farm developers. Once the construction of an offshore

[60] http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenergy/275/27506.htm (last accessed on July 14 2014); S. Goldberg & X. Woodhead, Electricity market reform in Great Britain – a European perspective, 14-17.
[61] https://www.gov.uk/government/news/chair-of-the-cfd-counterparty-company-appointed (last accessed on July 14 2014).

transmission system is completed by a developer, the assets are transferred to the successful bidder for the offshore transmission license, who is referred to also as the offshore transmission owner (hereinafter: OFTO). Further OFTO tenders will fall under what is referred to as the enduring regime. Under the enduring regime, offshore wind farm developers have the flexibility to choose whether they or the successful bidder will design and construct the offshore transmission assets. Regardless of the party who constructs the offshore transmission assets, the successful bidder will be the owner of the offshore transmission system.

3.3.1.2.1 ***Background of the OFTO regime***

This tendering is regime is based on three objectives: (i) Delivering fit for purpose transmission infrastructure to connect offshore generation; (ii) providing best value for money to consumers; (iii) attracting new entrants to the sector. These different purposes show that the regimes do not only aim to satisfy the needs of society in terms of increasing offshore electricity production. The regime also aims to attract investors. From the perspective of the investor the return on investment is an important element in the decision making process. In this study the investor wants to know how much revenue he can make on a wind farm/interconnection link.

The first round of offshore wind farms was tendered in 2001. In those early days, the wind farm developer was responsible for consenting, licensing, constructing and maintaining all of the transmission assets that connected the offshore turbines with the onshore substation.[62] There was no legal obstruction for the wind farm developers to operate the infrastructure for themselves. Furthermore, there was no alternative for them. This made that the UK system resembled the current situation of the Netherlands.

The UK government decided that the situation needed to be changed in light of the planned expansion of offshore wind energy. This vast expansion required massive investments that would only be feasible, when the costs would be as low as possible. It was found that the old system was not able to deliver enough cost efficient and timely connections. The UK government furthermore wanted to anticipate on the coming third energy package of the EU, which would prescribe ownership unbundling as the preferred method for unbundling. As a result, the UK government began working on a new regime in 2005. The new regime was implemented in 2009 and had its legal basis in the Energy Act 2004.The guidelines on the tendering of the OFTO license is governed by the Electricity (competitive Tenders for Offshore Transmission Licences) Regulations 2013 (hereinafter: the Regulation). This regulation was drafted by the Gas and Electricity Markets Authority, to which is referred to as the Authority (S. 6C (1) Electricity Act).

It is important to stress that this regime is based on the following cornerstones. First of all the Electricity Act stipulates that it is required to possess a license when one is engaged in offshore transmission activities, and this license can only be obtained through a competitive tendering process (S. 6(1)(b) in conjunction with 6C(1) Electricity Act). Secondly, this license applies for a specific piece of infrastructure and entitles the party who possesses the licenses a regulated rate of return on the costs of building and operating those networks (S. 6(6A) Electricity Act). Thirdly, the English legislator opted for a strict unbundling regime with regard to the operation of an interconnector on the one hand and the operation of transmission

[62] Ofgem, ‘Government response to consultations on offshore electricity transmission’, p. 4.

infrastructure on the other hand (S. 6(2A) Electricity Act). On this specific legal aspect we shall elaborate more in the following paragraph.

3.3.1.2.2 *The tendering process*

The tendering procedure is described in detail in the Regulation. This tendering procedure comprises of seven different stages and is hosted by Ofgem as the competent public authority. The moment of occurrence of the tendering procedure depends on the choice of the model. There are three models available.

(1) The early OFTO-build model. The OFTO license holder, after having been awarded the license, will perform the environmental impact assessment, do the consent planning and make the application for the necessary consents. This means that all the relevant aspects regarding pre-construction and construction shall be dealt with by the license holder.
(2) The late OFTO-build model. The wind farm developer will perform all the tasks within the pre-construction phase. When all the relevant permits have been acquired, the tendering procedure is commenced. The successful bidder who obtains the OFTO license will then construct the transmission infrastructure.
(3) The generator-build model. The wind farm developer will do the preparatory works for the licenses and construct the entire infrastructure. The tendering procedure will then determine which party will be able to operate the transmission infrastructure.

In the first stage the developer makes a request at Ofgem to start the tendering procedure (S. 8(1) Regulation). Ofgem will assess whether the developer meets the requirements as specified in the schedule 1 of the regulation (S. 8(4) Regulation). The requirements may differ in light of the chosen model, being either early or late OFTO-build or generator-build. (I) The developer needs to have entered into a bilateral agreement with the holder of a co-ordination license in accordance with the arrangements for connection and use of the transmission system. (II) The developer also needs to have entered into an agreement for lease of the seabed with the Crown Estate Commissioners. (III) The developer needs to have obtained all necessary consents and property rights for the transmission assets to be constructed and maintained and ensured that any such consents or property rights which are capable of being assignable to the successful bidder are so assignable. (IV) In the case of the generator-build model Ofgem will assess if the construction is completed, or if the developer entered into all necessary contracts for the construction of the transmission assets and ensured that any such contracts are assignable to the successful bidder. (V) If the infrastructure needs to be constructed, Ofgem will also assess whether the financing is secured.
It should be noted that if one of the requirements is not met at the moment when the developer makes its request, Ofgem has the discretionary authority to decide to go ahead with the procedure if the developer will use its reasonable endeavors to meet those requirements within a reasonable time period.

In the second stage Ofgem will publish the notice to initiate a tender (S. 11(1) Regulation). Ofgem will also publish the tender rules and the cost-recover methodology (S. 11 (4) Regulation). It is important to note that Ofgem will recover the costs of the tender procedure (S. 29 (1) Regulation). The cost recovery methodology in the case of generator-build model and OFTO-build model are described respectively in Part 2 and Part 3 of the regulation. In order to guarantee that Ofgem receives payment, securities in the form of a charge over a bank account or any other asset, a deposit of money, a performance bond or bank guarantee, an insurance policy or a letter of credit is required (S. 9(b) Regulation). The security needs to be provided by the developer. In general, the notice to initiate the tender will only be published, after Ofgem has received payment and security from the developer.

In the third stage Ofgem will assess which bidders will become the qualifying bidders (S. 13 and 14 Regulation). This stage is called the pre-qualification stage and shall be organized when Ofgem deems it unnecessary to organize a qualification stage (S. 12(2) Regulation). This is somewhat confusing because a pre-qualification stage will be organized, in the case when the qualification stage will not be held. In order to make the assessment under the pre-qualification stage, Ofgem will send a pre-qualification questionnaire to the bidders (S. 14(1) Regulation).

In the fourth stage Ofgem will decide which bidders shall be invited to participated to the tender (S. 15 and 16 Regulation). Before the bidders shall be invited to the tender, the bidders are required to enter into a confidentiality agreement with the wind farm developer (S. 15 Regulation). Doing so enables the wind farm developer and bidders to exchange information for the purpose of the tendering process on a confidential basis.
When the bidders are invited to participate in the tender Ofgem needs to make a selection between the different bidders. The bidders who shall not be invited are given notice of this and the reasons why they not have been invited shall be given to them (S. 16(3) Regulation).

In the fifth stage Ofgem will invite the qualifying bidders to the tender (S. 17 and 18 Regulation). This fifth stage is referred to as the invitation to the tender stage. At this point, Ofgem will also decide which bidders shall be acting as the preferred bidders (S. 18(1)(a) Regulation), and whether a best and final offer stage shall be organized (S. 18(1)(a) Regulation). When the qualifying bidders are invited to participate in the tender, they shall be given notice of the amount payable to Ofgem (S. 17(1) Regulation).

The sixth stage is the optional best and final offer stage. This stage is organized if there is no clear preferred bidder yet. Here a small number of bidders will have the opportunity to put forward an improved final bid. When invitation to the tender stage clearly identify a strong bid that Ofgem considers appropriate to identify as the preferred bidder for a particular project, Ofgem may decide that there is little benefit in seeking a best and final offer stage.

In the seventh and last stage Ofgem shall give the preferred bidder the change to become the successful bidder (S. 20 Regulation). The criteria for becoming the successful bidder is the Tender Revenue Stream (hereinafter: TRS). TRS reflects the cost of performing the OFTOs obligations and the costs of financing the investment. The bidder with the lowest TRS is awarded the OFTO license.

The regulation gives different rules for this stage and the decision on which rules apply depend on the question whether the generator-build model (S. 20(4)(a) Regulation) or a different model is utilized (S. 20(4)(b) Regulation). In this stage the developer is under the obligation to perform to the best of its ability to enable the preferred bidder to revolve the last obstructing matters in the procedure and to transfer the preliminary works or transmission assets as the case may be to the preferred bidder (S. 21 Regulation). When the preferred bidder has become the successful bidder, Ofgem shall publish a notice of this (S. 27(1) Regulation).

These are the stages of the tendering process. If there are no problems, then the procedure will follow these steps. However, there may be problems along the road. The capacity of the wind farm that is envisaged by the developer may be extended dramatically, a bidder fails to submit the required questionnaire or the successful bidder may even withdraw from the tender exercise. In these circumstances, Ofgem may consider to organize a re-run of the procedure (S. 23 Regulation). Ofgem is free to choice the point in the procedure from where the re-run shall commence (S. 23 (1) Regulation). In case a consortium of parties is participating in the tender procedure, the option of a re-run might be used by Ofgem to influence the composition of the consortium.

In extreme cases Ofgem may even decide to cancel the tender procedure all together (S. 24 Regulation). This may happen for instance when Ofgem determines that there are no bidders or qualifying bidders in respect of a qualifying project or if the developer has been disqualified from the tender exercise (S. 26(1) Regulation). This scenario is from the wind farm developer off course unthinkable. He would then have constructed a wind farm and is deprived of a connection with the national grid in the OFTO build model. In the case of the generator-build model he would have constructed the transmission assets, but will be unable to use them.

3.3.1.2.3 *The effectiveness of the OFTO regime*

When one considers the different approaches towards offshore wind energy in both the Netherlands and the UK, the most striking difference is the financial approach. In the Netherlands, the public discussion is primarily on costs and how wind farm initiatives should be subsidized. In the UK, wind farms operations and OFTO activities are presented as a form of investment.[63] In 2012 it was estimated that since the launch of the tendering procedures in 2009, over £ 470 million has been invested in offshore transmission assets. In this paragraph we shall discuss some of the general advantages and disadvantages of the OFTO tendering system.

The advantages of the OFTO tendering model can be divided in financial and operational advantages.[64] From an investor perspective the financial advantages are the most interesting. The first financial advantage is formed by the fact that the investment provides fixed 20 year revenue which is indexed to UK inflation. This revenue is not dependent on the performance of the generator assets. This means that payment to the OFTO will continue, even when the wind farm is out of service. The payments are done by the National grid. This is a regulated business with a low risk profile. It should also be noted that the system contains an incentive for the operators of offshore transmission assets to perform well. There are mechanisms that reward the OFTO if he manages to realize costs savings. This means that an investment in an OFTO project means a low risk investment with higher returns to comparable asset classes.

There are also operational advantages for an investor in OFTO assets. Under the enduring regime the OFTO license holder has the choice for either the OFTO-build or the generator-build model. This means that the OFTO has the choice between the whole package of building and operating of the transmission assets, or the option of only the operating of the assets. Ofgem introduced another interesting feature in 2013 when it created the possibility to tender projects that are constructed in multiple stages.[65] This was done to facilitate the wind farm developers who wanted to develop wind farms in stages. When a phase is tendered, the

[63] See for example: KPMG, 'Offshore Transmission: an investor perspective', p. 5.
[64] KPMG, 'Offshore transmission: an investor perspective', p. 5-7.
[65] Ofgem, 'Offshore Electricity Transmission: Statement on future generatorbuild tenders', p. 23-25.

holder of the OFTO license has the choice to construct all of the transmission assets at ones or in different stages.

From the perspective of the wind farm developer there are four advantages to the OFTO build model.[66] The first advantage is the wind farm developer will be relieved from the obligation to finance the construction of the offshore transmission infrastructure, freeing up the balance sheet to finance the wind farm construction. The second advantage is that the complexity of later having to transfer the offshore infrastructure will no longer arise. The third advantage is that the risk for the wind farm developer regarding the offshore transmission infrastructure is lower, now that the OFTO license holder bears this risk. The fourth advantage is formed by the fact that a combination of design, construction, long-term operation and financing might deliver lower cost outcomes for the wind farm developer.

There are also some disadvantages that are caused by the OFTO tendering system. These are either the result of the formulation of the UK Electricity Act or practical implementation of the UK Electricity Act.[67]

The first prominent flaw in the system is the problem of commissioning of the newly constructed infrastructure. For an investor in offshore transmission assets it is vital that the electrical infrastructure is functioning when he buys it. This means that in the case of a generator-build model, the generator would have the transmission assets working prior to the transfer of the ownership. This poses a problem in relation to the provisions of the Electricity Act that prohibit the involvement in transmission activities without a license (S. 4(1)(b) Electricity Act).

The second flaw in the system is methodology for the calculation of the amount that the developer receives under the generator-build model. The amount which the developer receives is determined by Ofgem. In order to estimate the amount payable, Ofgem will look at the costs that ought to have been incurred by the developer. This will be done on the base of two analyses, a financial and a technical. The financial analysis is executed by Ernst & Young and the technical analysis is performed by DNV-Kema. This analysis is however not done without the benefit of hindsight. This will basically mean that the experts will look at the project as if it were performed under optimal circumstances. This can be explained by looking at an example.

> To lay a 200 km cable it is necessary to contract with a cable laying company who owns the ship. Under normal condition this would take one voyage with the ship. However, the cable laying cannot use the ship because the ship is needed elsewhere. The company has a smaller ship available. Because this is a smaller ship, it will take two voyages and this is more costly. When Ofgem assesses the laying of the cable, it will conclude that only one voyage must be compensated because this would have been possible under optimal circumstances. This means that the developer is bearing the risk for the possible underperformance by a third party. It will mean that the developer must find a way of securing himself against the breach of contract by a third party.

When one looks at the profit that the developer is allowed to make, the same picture arises. Ofgem will grant a regulated profit to the wind farm developer of approximately 10 per cent. This is of course only the profit that would be generated when all of the costs under the

[66] KPMG, ‘Offshore transmission: an investor perspective’, p. 27.
[67] Phillips, ‘Offshore transmission: the enduring OFTO regime’, *I.H.L.* (2012) nr. 205, p. 10-11.

optimal scenario have been recovered. If the actual costs are higher than under the optimal circumstances, then the room for profit diminishes.

Up until this date a total of nine offshore transmission assets have been transferred under this new regime. These assets have been bought by two different parties who own the majority of the existing offshore transmission assets.

It should also be noted that these OFTO are treated as TSOs under UK legislation. Ofgem has started the certification procedure of these OFTO TSOs under the provisions of Electricity Directive and Regulation.[68]In this certification procedure, the European Commission gave its reasoned opinion on the certification of four OFTO license holders (Art. 3(1) Electricity Regulation). The European Commission accepted the request and performed a substantial investigation into the question whether the unbundling requirements where respected.[69] Both the Commission and Ofgem did not found any objections to the certification, and the procedure was finalized on June 27 2012 with a positive decision to certify the OFTO license holders.[70]

This could be the start of an interesting development. What would happen for example when there are 50 offshore wind farms that are connected to the shore by ten different OFTO license holders. This could lead to the theoretical possibility that the UK will be represented at ENTSO-E by National Grid and a number of offshore TSOs.

3.3.1.3 Interconnection

Under the UK Electricity Act, the operation of an interconnector is prohibited without an interconnector license (S. 4(1)(d) Electricity Act). An interconnector is defined under Section 4(3E) as “so much of an electric line or other electrical plant as – (a) is situated at a place within the jurisdiction of Great Britain; and (b) subsists wholly or primarily for the purposes of the conveyance of electricity (whether in both directions or in only one) between Great Britain and a place within the jurisdiction of another country or territory.” According to the Article 6(2A) of the Electricity Act, the same person may not be the holder of an interconnector license and the holder of another type of license under the Electricity Act.

Under UK law it is allowed to gain access to an interconnector through an open season procedure. This deviates from the European legislation which prescribes market based methods i.e. implicit or explicit auctions. The reason for this is the UK position on the extension of the number of interconnectors. In the UK, the construction of an interconnector is viewed as a commercial activity which aims to increase the level of electricity trade between Member States. In order to enable investors to invest in interconnectors, they are given the possibility to gain access over a longer period of time to the interconnector through an open season procedure. This guaranteed access is the security they require to make an investment into the interconnector.

[68] KPMG, ‘Offshore transmission: an investor perspective’, p. 27.

[69] European Commission, ‘Commission Opinion pursuant to Article 3(1) of Regulation (EC) No 714/2009 and Article 10(6) of Directive 2009/72/EC – United Kingdom – Certification of TC Robin Rigg OFTO Limited, TC Gunfleet Sands OFTO Limited, TC Barrow OFTO Limited and TC Ormonde OFTO Limited’, C(2012) 3006 final, 27-04-2012.

[70] https://www.ofgem.gov.uk/ofgem-publications/50804/tcp-final-decisions-120627.pdf (last accessed July 14 2014).

Ofgem has been investigating how the connection of a generating station from outside the UK to the UK grid should be qualified. For the purpose of this investigation a consultation document was published.[71] The final results of this research are expected to be delivered in September 2014.[72] In the consultation document Ofgem tries to describe the connection from a non-GB generator. The reader witnesses the struggles of the author. When discussing the status of the cable, and assessing whether it can be considered to be an interconnector it is said that:

> 3.10. Our preliminary view is that assets connecting non-GB generation to the GB electricity transmission system fall within the definition of interconnection in the Electricity Regulation. This would mean that, where relevant, the provisions of the Electricity Regulation (and the Electricity Directive) that apply to interconnection – including the possibility to apply for an exemption – also apply to these assets.[73]

This seems to be a firm conclusion and extremely practical for the purpose of the TKI research. It seems that the wind farm interconnecting link, when it involves only a wind farm on the Dutch side of the border, can be considered to be an interconnector according to Ofgem. From a regulatory standpoint this makes it easier to comprehend; from a private investor perspective this conclusion is less satisfying, because the unbundling requirement won't allow for a generator to invest in an interconnector. However, the conclusion from Ofgem is alas not as firm as it might seem at first glance. The consultation document continues:

> 3.12. We welcome views on the interpretation of the legislation provided in this consultation and its implication for the regulatory options presented in the next chapter.
>
> 3.13. We also seek views on the potential outcome where further consideration of these issues, for example where discussion with the European Commission leads to the conclusion that direct and exclusive connections do not fall under the definition of interconnection under the Electricity Regulation. We are interested in views from stakeholders on what effect this would have on the project? Please provide detail where possible.[74]

It thus looks like that Ofgem might have reasonable doubts with regard to this matter. This could be result of the fact that the UK definition on interconnection has not been changed with the enactment of the Electricity Regulation. As a result, the UK definition on interconnection diverges from the European definition on interconnection.

In the consultation document Ofgem also discusses possible regulatory options. These options all start from the assumption that the connection is to treat as an interconnection. Ofgem presents three different options: an interconnector license with exemption under the Electricity Regulation, a regulated revenue model with cap & floor revenues and a regulated

[71] Ofgem, 'Regulation of transmission connecting non-GB generation to the GB electricity transmission system', https://www.ofgem.gov.uk/ofgem-publications/84494/regulationtransmissionconnectingnongbgeneration2.pdf (last accessed at 28 February 2014).
[72] https://www.ofgem.gov.uk/ofgem-publications/87833/openletterupdateonnongb.pdf (last accessed July 14 2014).
[73] Ofgem, 'Regulation of transmission connecting non-GB generation to the GB electricity transmission system', p. 16.
[74] Ofgem, 'Regulation of transmission connecting non-GB generation to the GB electricity transmission system', p. 16-17

revenue model with fixed revenue.[75] Ofgem is currently working on the further development of the model that utilizes the cap & floor revenues, which they intent to implement as soon as possible.[76] With regard to the exemption-model, Ofgem acknowledges that under the existing regime of the EU Commission it is difficult to acquire an exemption. However, Ofgem does not consider it impossible to receive an exemption for the generator connection, as this model has not been applied yet.[77]

3.3.2 The Dutch legal regime

3.3.2.1 Offshore wind energy generation

Unlike in the case of the UK Electricity Act, the Electricity Act 98 does not require a specific permit for electricity generation. Furthermore, the Dutch electricity legislation does not apply to the Dutch EEZ, apart from the provisions on support for renewable energy generation (Art. 1(4) Electricity Act '98). However, it can be noted, that the law governing the construction of installations offshore – the Dutch Water Act[78] – does apply. As mentioned in paragraph 2.2 above, in 2009 12 licenses were issued for the construction and operation of offshore wind farms in the Dutch EEZ. These permits were issued under the predecessor of the Water Act. The permits were later renewed to permits under the Water Act.[79] The Water Act concerns the good management of Dutch water resources. Pursuant to Article 6.5 of the Water Act and Article 6.13 of the Water Decree[80], made under the Water Act, the construction of wind turbines is prohibited unless an authorization from the Minister of Infrastructure and Environment is obtained. As mentioned in paragraph 2.2 above, there is a moratorium currently in place on further offshore wind energy development until a more detailed legislative and policy framework is developed and put in place.

The permit under the Water Act only governs the construction of the turbines and other offshore auxiliary structures, as well as laying the cable to the shore. For the structures and the part of the onshore cable there are several additional permits required. The schedule below lists all required permits:

Netherlands
A permit for construction of the offshore wind farm, including all ancillary infrastructures in the Dutch EEZ (Art. 6.5 Water Act in conjunction with Art. 6.13 Water Decree).
A permit for the construction for the onshore components (Art. 2.1 Environmental Licensing Act[81]).
A request for the establishment of a 500m safety zone (Art. 6.10 Water Act).

[75] Ofgem, 'Regulation of transmission connecting non-GB generation to the GB electricity transmission system', p. 23-30.
[76] Ofgem, 'The regulation of future electricity interconnection: proposal to roll out a cap and floor regime to near-term projects', p. 36-37.
[77] Ofgem, 'Regulation of transmission connecting non-GB generation to the GB electricity transmission system', p. 26.
[78] Stb. 2009, 107.
[79] ABRvS 03-07-2014, ECLI:NL:RVS:2013:174.
[80] Stb. 2009, 548.
[81] Stb. 2008, 496.

	An exemption on the base of the Flora and Fauna Act (Art. 75 Flora and Fauna Act[82]).
	A permit to develop activities near a protected nature wildlife area (Art. 19d Nature Conservation Act 1998[83]).

The permits listed above are required for the offshore part of the wind farm. The cable from the wind farm to the grid of the TSO needs to make a landfall on the Dutch coast. Depending on the place where the landfall takes place, additional permits and decisions may be required. These may include permits under the Environmental Licensing Act and a number of spatial decisions under the Spatial planning act (short: Spa)[84].

3.3.2.1.1 *A new regime for wind energy on sea*

The legislator is preparing a bill that will govern the permitting of offshore wind farms, and will replace the existing regime under the Water Act. The proposals have been formulated in a consultation document, which was has been laid down for consultation in March and April 2014.[85] This consultation document contains a draft bill for the act, which gives the reader more insight in the plans of the legislator. At the core of the bill lies the idea that the current regime is unsuitable, due to the split design within the system in which a permit for the construction of the wind farm needs to be obtained along with a separate decision on the subsidizing of the electricity production. The decision on permitting of the construction is a separate decision from the decision on granting of the subsidy. However, these are constitutive decisions whereby both decision are needed for the construction and the operating of the wind farm. Instead of coordinating both decisions, the legislator has opted to integrate both permitting systems into one new act.

The consultation document describes the foundations of the proposed system. Before describing the outlines of the envisaged system, it must be noted that the system only regulates the permitting of the constructing of the offshore wind farm; the possible responsibility of TenneT for connecting the offshore wind farm to the (offshore) grid is dealt with under the legislative agenda STROOM which is discussed below.

The consultation document contains a draft bill (short: DB) which we shall describe in short. The draft bill is based on a system of planning, tendering and permitting. The first step is to identify the areas in the Dutch EEZ that are suitable for the construction of offshore wind farm (Art. 4(2) DB). These areas are specified in the national water plan (Art. 4.1 Water Act). This national water plan is also a structural vision under the Spatial planning act (Art. 2.3 Spa).

The second step is to designate, within the area as mentioned in the water plan, the locations where the wind farms and their connection are to be constructed in a location-decision (Art. 4(1) DB). This location-decision contains the outlines of the wind farms that is to be constructed, the precise technical aspects such as the number of turbines is left open. The environmental aspects regarding wild life protection and nature conservation will be integrated in the location-decision (Art. 5(1)(b) and 8 DB). In order to preserve the location

[82] Stb. 1998, 402.
[83] Stb. 1998, 403.
[84] Stb. 2006, 566.
[85] http://www.internetconsultatie.nl/wetwindenergieopzee (last accessed at 30 July 2014).

that is subject to the location-decision the Minister can take a preparation decision (Art. 9 DB), which is similar to the preparation decision under the Spatial planning act (Art. 3.7 Spa). The result of a preparation decision is that the existing situation is fixed. Once the location decision is taken, a sort of prefab set of rules and regulations for the future wind farm is in place. These prefab rules form the framework which is needed to organize the tender.

The third step consists of organizing a tender in which the permit for the realization of the wind farm is granted (Art. 12 DB). In this tender, the granting of the permit will be coordinated with the granting of the SDE+ subsidy (see below).

Finally, the draft bill contains one provision that is relevant for TenneT. The legislator intends to amend the Electricity Act '98 in order to make TenneT responsible for preparing the construction of the offshore grid (Art. 31 DB). This provision anticipates on the results of the legislative agenda STROOM. However, it remains to be seen what 'preparing the construction of the offshore grids' means. It thus remains to be seen whether TenneT can be sanctioned for failing to prepare for the construction.

It should be noted that this draft bill that is elaborated on in the consultation document is no bill or even an act. It is unclear in what form, if any, this draft will become law. It could be that during the parliamentary deliberations some elements may change dramatically.

3.3.2.1.2 ***Subsidies***

In the Netherlands, offshore wind farms may benefit from SDE+ subsidies. This subsidy scheme is available only to businesses and organizations, and only the most cost effective techniques will be granted subsidies. Basically, the SDE+ scheme is intended to promote only the most effective and efficient technologies. The duration of the period for which subsidies may be granted varies from five up to fifteen years. In 2013, the total budget for SDE+ is around three billion euros (Art. 2(1) Regulation on subsidizing of renewable energy 2013).[86]The principle for granting of subsidies under the SDE+ is first-come-first-served (Art. 2(2) Regulation on subsidizing of renewable energy 2013). The SDE+ will remain the most important incentive measure for stimulating investment in large-scale renewable sources of energy, including offshore wind energy generation.

The amount of SDE+ subsidies depends on the cost price of generating electricity from fossil fuels, which is referred to as 'grey energy'. Is the cost price of 'grey energy' low, than the amount of SDE+ subsidies will increase and when the cost price of 'grey energy' is high than the amount of SDE+ subsidies will decrease. There is however a bottom floor in the cost price of 'grey energy'. Should the cost price of 'grey energy' decrease below this bottom floor, than the SDE+ subsidies will not increase anymore. This bottom floor is important in the system for applying for a SDE+ subsidies, because the calendar year is divided into six phases in which a party can apply for a subsidy. In the first phase, the bottom floor is low and during the year the bottom floor will increase which each following phase. For example, the bottom floor for wind energy on sea in phase one in 2014 is € 0.0875 and € 0.1875 in phase six.[87]

Because the cost of offshore wind energy generation is high, offshore wind generation scarcely benefits from subsidies as it will require a higher bottom floor. This means that an offshore wind farm operator will need to wait until he can apply for a subsidy in a later phase.

[86] Stcrt. 2013, 2815.
[87] http://www.rvo.nl/subsidies-regelingen/wind-sde-2014 (last accessed 30 July 2014).

However, the decisions on granting of subsidies are taken on the basis of moment of receiving the applications. In combination with a subsidy ceiling (Art. 4:25 Gala[88]) this means that the users of low-cost renewable energy technologies who can apply in an early phase have a higher change of obtaining a subsidy compared to developers of offshore wind energy.

So far, subsidies have been granted for the development of only three wind farms. However, the cost of offshore wind energy is considered to be falling, which increases the potential for obtaining SDE+ subsidies.[89] The Dutch government has pledged that in the period up to 2020 around eighteen Billion Euro's shall be allocated to subsidize the production of electricity from renewable sources.[90]

3.3.2.2 Farm-to-shore connection

As explained in 2.2 above, the offshore electricity infrastructure used to connect wind turbines in Dutch waters to the shore is, to date, considered part of the wind farm installations. This is because the transmission grid does not extend offshore because the Electricity Act '98 is applicable in the EEZ. That is why the connection between the wind farm and the onshore grid is regulated through the Water Act. Pursuant to Article 6.5 of the Water Act and Article 6.13 of the Water Decree, the construction of offshore electricity infrastructure is also prohibited unless an authorization from the Minister of Infrastructure and Environment is obtained. In practice, a single Water Act permit is issued that covers both offshore wind turbines and offshore electricity infrastructure.

While the Dutch Electricity Act '98 does not require any permit for offshore electricity infrastructure it is relevant with regard to the connection of offshore wind farm cables to the onshore or national electricity grid. This means that the Dutch Electricity Act is relevant when the offshore cable have 'landed' onshore. Ones onshore, the developer wants to connect the cables to the grid so that the electricity from the wind farms may be transmitted. The Dutch Electricity Act '98 regulates transmission which, according to article 10 of the Electricity Act '98, concerns the national grid. The national grid is defined by article 1(1)(j) read in conjunction with article 10(1) of the Electricity Act '98 as comprising the network for the transport of electricity at a voltage level of 110kV or higher and interconnections with alternating current. According to article 23(1) of the Electricity Act '98, the operator of the transmission grid is obliged to connect any person to the grid upon request. Accordingly, TenneT is obliged to allow and facilitate connection of turbine-to-shore cables at feed-in points, subject to conditions and charges it may impose for such connection pursuant to Article 24 of the Electricity Act '98.

This inability of TenneT to operate in the EEZ has been identified as one of the reasons why offshore wind energy has been developing so slowly in the Netherlands. There has been discussion in the Dutch government and the offshore wind industry as to whether TenneT should be obliged to be responsible for offshore electricity infrastructure. As part of the proposal for a new regime governing offshore wind energy development, the cabinet was called upon by the parliament to make TenneT responsible for turbine-to-shore connection.[91] The minister promised the parliament that he would draft a bill to amend the Electricity Act.[92]In order to do so, two legislative agendas have been created. These agendas aim to

[88] Gala = General act on administrative law (Awb).
[89]http://www.nwea.nl/greendeal (last accessed 30 July 2014).
[90]*Aanhangsel Handelingen II,* 2013/14, nr. 2013Z20206.
[91]*Kamerstukken II*, 2007/08, 31 239, nr. 17.
[92]*Kamerstukken II*, 2007/08, 31 239, nr. 91, p. 6.

change and modernize the Dutch energy legislation.[93] The overall aim is to streamline the Dutch legislation by way of integrating the Gas Act 2000 and the Electricity Act ’98 into one act. However, progress is slow and the actual bill has not been made public at the moment of writing. The legislator is ambiguous about the actual role of TenneT when it comes to offshore obligations. In the consultation document that was published in early 2014, the following sentence was included which spoke of the offshore role of TenneT:

> TenneT krijgt de verantwoordelijkheid voor de aanleg van een net op zee, daar waar dit efficiënter is dan een individuele aansluiting van windparken rechtstreeks op het landelijk hoogspanningsnet.[94]

This sentence says two things: TenneT shall be responsible for the offshore grid, but only when the construction is more efficient than the construction of a radial connection between the wind farm and the onshore transmission grid. This formulation reveals that the legislator was unable to make a decision at that moment. However, on the 18th of June of 2014 the Minister of Economic Affairs informed the Dutch parliament that he is working on a bill that should make TenneT responsible for the future offshore grid.[95] In the following paragraphs we shall identify and describe two possible solutions to deal with this issue, and we shall investigate the proposed changes of the Minister under the legislative agenda STROOM.

3.3.2.3 Creating an Offshore obligation for TenneT through an offshore paragraph

The legislator may under UNCLOS declare its national legislation applicable to the EEZ for the exercise of its sovereign rights. When the Electricity Act is made fully applicable, the provisions regarding interconnections and grid connection become relevant for this research. Then the regime of regulated tariffs as well as the supervision on investment decision by the regulatory authority will apply to the offshore grid. It is needless to say that all of the technical codes are applicable.

However, it is not possible to amend Article 1(4) Electricity Act ’98 by simply stating that the Electricity Act ’98 will apply to the EEZ. The Electricity Act ’98 is based on the onshore situation in which large centralized production units are connected to the final consumers through the transmission and distribution grids. Furthermore, substantial parts of the delegated legislation i.e. technical codes contain provisions that only apply to onshore activities.

In addition to the land based character of the Electricity Act ’98, there is the question what this offshore grid should encompass. Should TenneT construct a number of AC/DC convertors offshore to which the nearby wind farms can be connected, thus leaving the connection between the wind farm and the convertor outside of the responsibility? Or should TenneT construct the entire connection to each individual wind farm. The answer to this question is not legal in nature, but an economical and technical. It is a matter of offshore grid design, the law can only facilitate this process as we will discuss below.

Before an offshore paragraph may be included in the Electricity Act ’98, the legislator should make some of the definitions of the Electricity Act ’98 compatible for the new offshore framework. The first provision that needs amending is Article 1(1)(b) of the Electricity

[93] STROOM stands for “STROomlijnen”, “Optimaliseren” & “Moderniseren”.
[94] Consultatiedocument STROOM, p. 9. Accessible at https://www.internetconsultatie.nl/stroom (last accessed at 12 May 2014).
[95] Letter of the Minister of Economic Affairs on the legislative agenda STROOM of June 18 2014, ref. DGETM-EM / 14059743.

Act ’98. This article defines the term grid connection. European legislation does not define grid connection, so this is left to the Member State to define. The Dutch legislator has defined grid connection as follows:

> Aansluiting: één of meer verbindingen tussen een net en een onroerende zaak als bedoeld in artikel 16, onderdelen a tot en met e, van de Wet waardering onroerende zaken, waaronder begrepen één of meer verbindingen tussen een net dat wordt beheerd door een netbeheerder en een net dat beheerd wordt door een ander dan die netbeheerder.
>
> Connection: one or more connections between a grid and an immovable property referred to in Article 16, subparagraphs a to e, Act on the valuation of property, including one or more connections between a grid operated by a grid operator and a grid that is managed by someone other than the grid operator.

This means the necessary requirement for an immovable property (Art. 3:2 Civil Code). This implies that there needs to be a construction that is permanently connected to the soil. In offshore situations this is rather complicated. The Civil Code states that the seabed of the territorial sea and the Waddenzee is owned by the Dutch State (Art. 5:25 Civil Code). The Civil Code is however not applicable to the EEZ. This means that nobody can own the seabed in the EEZ. This does not exclude a party to have exclusive rights to a specified area of the sea on the base of the Mining Act for example. This also means that a wind turbine that is abiding connected to the seabed in the EEZ is not considered to be immovable property. For the Electricity Act ’98 to be fully applicable, this definition which requires a connection with immovable property needs to be changed.

It should also be noted that definition on the connection is relevant for other aspects of this research. This is especially the case with interconnectors. The definition of an interconnector is derived from European law.[96] The requirements for a cable to be an interconnector are that is needs to be transmission line that spans or crosses a border and *connects* the grids of two TSOs with each other. If the legislator fails to give an accurate definition on the offshore grid, it is not unthinkable that legal uncertainty will arise on the question whether there is an interconnector or a cable which is not regulated by the Electricity Act ‘98. Here the legislator has to make a choice. It can apply the Electricity Act ’98 without alteration to the EEZ, or it may choose to formulate specific provision on the grid in the EEZ. The latter option is most preferable.

Should the legislator apply the Electricity Act without any alterations then the question would arise whether DSOs also have an offshore obligation. The provisions on the construction of a connection to the grid do not specify to what system operator the provisions apply. This could lead to the hypothetical situation in which a very small wind farm consisting of one turbine is constructed in the EEZ and this wind farm operator demands a connection to the nearest distribution grid. The discussion will then become whether DSOs have an offshore obligation. This is not what was envisaged. The legislator must thus rewrite the relevant provisions so that wind farm operators may only request from TenneT to be connected. This can be done by including an offshore paragraph in the Electricity Act ’98.

The offshore paragraph may serve as the legal basis for delegated legislation that can be laid down in an order in counsel or ministerial regulation. However, in order to insert an offshore

[96] See article 2(1) Regulation (EC) 714/2009.

paragraph a number of introductory articles have to be amended. These are Article 1(1)(b); 10(1) & 23 Electricity Act ’98.

As was discussed above, the reference to immovable property in Article 1(1)(b) Electricity Act ’98 makes this it impossible to apply this provision on offshore connections. We propose the following rearrangement of the provision:

> Artikel 1 lid 1 sub b
> Aansluiting: één of meer verbindingen tussen een net en een onroerende zaak als bedoeld in artikel 16, onderdelen a tot en met e, van de Wet waardering onroerende zaken *dan wel een of meerdere verbindingen tussen het net zoals bedoeld in artikel 1 lid 1 sub k en een installatie gelegen binnen de Nederlandse exclusieve economische zone*, waaronder begrepen één of meer verbindingen tussen een net dat wordt beheerd door een netbeheerder en een net dat beheerd wordt door een ander dan die netbeheerder,
>
> Connection: one or more connections between a grid and an immovable property referred to in Article 16, subparagraphs a to e, Act on the valuation of propertyor one or more connections between the grid as referred to in Article 1, paragraph 1, sub k and an installation located within the Dutch exclusive economic zone, including one or more connections between a grid operated by a grid operator and a grid that is managed by someone other than the grid operator.

After Article 1(1)(j) a new sub will be inserted, dealing with the offshore transmission grid:

> Artikel 1 lid 1 sub k
> *Net op zee: het net dat is gelegen binnen de Nederlandse exclusieve economische zone en dat beheerd wordt door de landelijk beheerder van het hoogspanningsnet.*
>
> *Article 1, paragraph 1, sub k*
> *Offshore grid: the grid that is located within the Dutch exclusive economic zone and managed by the administrator of the national transmission grid.*

By defining the offshore grid that is operated by TenneT as a separate grid, the legislator is able to insert an additional paragraph in the Electricity Act ’98 which deals with this grid. In this paragraph the legislator may draft specific rules that apply for the offshore grid. Issues of topics that the legislator may want to include deal with connections, tariff setting and the possibilities to make a connection with a foreign generating station. There is one specific issue that the legislator might want to address in the offshore paragraph, and that is the possibility of the construction of a radial connection by the wind farm operator. This can facilitate the wind farm operator in the case that it want to construct their own transmission cable to the shore instead of being dependent on TenneT for connecting them to the grid.

Offshore connections differ from onshore connection. Not only from a technical perspective, also from a legal perspective. Regarding the legal perspective, the obligation to facilitate a connection deserves close attention of the legislator. Onshore, the grid operator is obliged to connect consumers and producers to the grid. This obligation cannot easily be put aside on the argument that the grid operator lacks grid capacity in the vicinity of the envisaged connection point.[97] It remains to be seen whether this line of reasoning can also be applied in an offshore setting. This can be shown with the following example.

> There are plans for two new offshore wind farms which are located in the same area of the Dutch EEZ. The first wind farm is developed by company A and the second

[97] CBb 22-10-2008, ECLI:NL:CBB;2008:BG3834.

> wind farm is developed by company B. The capacity of the first wind farm is 300 MW and the capacity of the second wind farm is 250 MW.
> The first wind farm has been granted a permit under the Water Act and has secured its financing. The wind farm is expected to become operational in the summer of 2015. The second wind farm which is being developed by company B is still in its planning stage, and no permit has been secured yet. However, due to the firm business case the necessary investors already gave their support for the project. It is expected that the project will go through and that the wind farm will become operational somewhere in 2016.

TenneT is under the obligation to connect the wind farm of company A to the grid in 2015, and the wind farm of company B in 2016 when it becomes operational. There is however the matter of grid planning. TenneT is a regulated undertaking with a regulated income. One of the aims of the Electricity Act ’98 is to regulate the income of the undertaking in order to ensure that TenneT functions efficiently. In this situation two separate generators request a connection. There are two options: two radial connections of 300 and 250 MW respectively or one cable of 550 MW which branches off and connects both wind farms. It is assumed that the second option is more economical. It would thus seem logical that TenneT builds the larger cable in 2015 and provide company A with a connection. The question arises whether TenneT will be able to make a return on the investment in the oversized cable. The income of TenneT is regulated by the ACM and it remains to be seen whether the ACM would allow for the construction of an oversized cable that will only will be used to it full extent in 2016. The ACM may argue that company B has not yet acquired a permit, so that the margin of uncertainty is too substantial to allow for an anticipating investment.

This example shows that some sort of offshore grid planning is required. This can be done by using the already existing provisions on grid planning reporting (Art. 21 Electricity Act ’98). This provisions implements Article 3 on the public service obligations of the second Electricity Directive in to the Dutch Electricity Act ’98.[98] Article 21 of the Electricity Act ’98 may be extended so that it will include the obligation for TenneT to develop an offshore grid plan. This offshore grid plan should be developed by TenneT in close cooperation with the industry and the government. This is because of the triangular constellation that is involved in the planning of the construction of offshore wind farms. It is the government that designates areas which are suitable for wind farm construction and who provides the wind farm developers with subsidies so that the wind farms may be operated. The wind farm developers need to assess whether there is a business case for a specific area. If such a business case exists it is the responsibility of TenneT to provide the wind farm with a connection. However, TenneT is also under the obligation to operate the grid as efficient as possible. This requires that TenneT should be able to perform an integrated grid planning. This can only be done when TenneT has insight in the planning for the construction of wind farms for the foreseeable future.

This means that Article 23 of the Electricity Act ’98 should be reformulated so that the provision may strike a balance between the mandatory obligation of TenneT to connect offshore wind farms to grid and securing that this done on an efficient. In doing so, the highest amount of social welfare may be ensured. After the first paragraph, a second paragraph should be included:

> *2. De netbeheerder van het landelijk hoogspanningsnet is verplicht degene die daarom verzoekt te voorzien van een aansluiting op het door hem beheerde net op*

[98] *Kamerstukken II*, 2006/07, 30 934, nr. 3, p. 9. It should be noted that parliamentary speaks incorrectly of article 4 of the Electricity Directive.

> *zee indien deze aansluiting naar het oordeel van de Autoriteit Consument en Markt doelmatig is. De Autoriteit Consument en Markt beoordeelt het verzoek overeenkomstig bij ministeriële regeling te stellen regels.*
>
> *2. The TSO is required to provide the person who requests a connection to the offshore grid with this connection if in the opinion of the Authority for Consumer Market this connection is deemed to be efficient. The Authority Consumer and Market assess the request according to rules set by ministerial regulation.*

This paragraph creates a link between Article 23 and the new offshore paragraph. The obligation to connect an offshore wind farm remains unaffected. What is new in this paragraph is a necessity test which is too performed by the ACM. The clause 'naar het oordeel van' makes it clear that the ACM has (explicit) discretion when making this decision.[99] Last sentence gives the Minister of Economic Affairs the authority to make delegated rules which the ACM has to take in to account when it makes its decision. When making this delegated legislation the Minister can make a coupling with the offshore paragraph.

When the introductory articles which deal with the definitions of the offshore grid are introduced, and the responsibility for the offshore grid and the obligation to connect a wind farm to the grid have been written, the legislator can introduce a separate offshore paragraph. At this point it is not possible to suggest where this paragraph should be placed because of the planned integration of the Gas and Electricity Act.[100] We can however, state the issues that should be addressed in the paragraph. It should contain a legal basis for making delegated legislation on the technical aspects of the operation of the offshore grid. This is essential, because the operation of the offshore grid requires different rules then the operation of the onshore grid.

3.3.2.4 Implementing the German system

Apart from simply extending the application of the Electricity Act '98 to offshore activities, the legislator may also implement the German system for the connecting offshore wind farms. We shall describe the main characteristics of the German regime and compare the possible effects of the introduction of this regime with application of the Electricity Act in full at the end of this paragraph.

The German regime for offshore wind farm connections is partially based on a liability regime. This means that in additions to instruments under public law, the wind farm developer may also utilize private law instruments. The German act creates a direct claim for the wind farm developer on the TSO, should the TSO fail to connect the wind farm to the grid. This regime for offshore wind farm connections was put in place as part of the German energy *Energiewende* with the long-term aim of covering Germany's future energy supply through renewable sources, instead of fossil fuels. Offshore wind plays a crucial role in this *Energiewende*. In 2012, however, it became obvious that the expansion of offshore wind power capacity was stagnating. There were multiple reasons such as technical, financial and legal barriers. The uncertainty surrounding the applicable liability regime for the late connection of offshore wind farms to the transmission grid is one legal barrier. That is why 2013, the German government put a new liability regime in place.

Under the *Energiewirtschaftsgesetz* (hereinafter: EWG), the TSO is responsible to connect producers of electricity to the grid (S. 17(1) EWG). When the TSO is unable to provide the

[99] Damen, Bestuursrecht 1, p. 335-336.
[100] *Kammerstukken I*, 2013/14, 33 493, C, p. 2.

wind farm developer with a working connection to the grid, the TSO is obliged to pay damages to the wind farm developer. Under the old act the formulation of this provision was rather open: the TSO had to provide for a working grid connection once the wind farm became operational. However, this did not facilitate a co-ordinated extension of the grid into the North Sea and the Baltic. The legal uncertainty that was created by this has prompted the legislator to introduce a regime of strict liability combined with a planning obligation. There are basically two forms of liability: liability for failing to connect and liability for disruptions in existing connections.

Before discussing the liability regime, it is important to mention that the German TSOs are also under the obligation to draft an offshore grid development plan (*Offshore-Netzentwicklungsplan*) (S. 17b EWG). The idea behind this mandatory plan is that with an integrated plan, the TSOs are facilitated to design the offshore infrastructure in an efficient manner. Should the TSO be unable to realize the goals which are to be achieved under the offshore grid development plan, then a competitive tender is organized to appoint a new TSO (S. 65(2a) EWG). It should be noted that this plan is additional to the existing offshore grid plan (*Offshore-Netzplan*) (S. 12b EWG).

The central element in the offshore grid development plan is the expected completion date (*Fertigstellungsdatum*). This differs from the old system in which the date of completion of the wind farm was the determining factor. The new system is based on the idea of demand planning in which wind farm developers have to cooperate with the TSO to determine what planning and lay out configuration for the offshore infrastructure is the best. The result of this cooperative planning is the determination of the expected completion date. The expected completion date may be postponed after examination and acceptance by the federal network agency (*Bundesnetzagentur*). The date will become fixed 30 months in advance of the expected completion of the grid connection (S. 17b(2) EWG). This can be shown with the following example. If the expected completion date is set on the first of July 2016, then the TSO may request for a postponement until June 30 of 2014. On the first of July of 2014 the date will be fixed. This expected date of completion is crucial for determining whether the TSO is liable for damages.

As was said above, the act distinguishes between damages as a result of interruption and damages as a result connections delays (S. 17e German Energy Act). We shall start with discussing the latter. The first category of liability centres on the date of completion of the wind farm. The act states that when the wind farm becomes operational, the connection should be there. This rule aims to give the wind farm developers the security that when they have completed the wind farm, the transport of electricity may commence instantly.

The liability for a TSO in the case of failing to connect an offshore wind farm seems to be based on strict liability, but this is not necessarily the case. This can be shown by first looking at the criteria for liability and then to deviating scenarios. Basically there are two criteria which have to be met for the TSO to be liable. (I) The wind farm needs to be operational on the expected date of completion, and (II) the grid connection is not established on the expected date of completion. If these criteria are met, then the operator is entitled to payment of damages of 90% of the Feed-In Remuneration (*Einspeisevergütung*). This Feed-In Remuneration is determined by the average power fed in by a comparable wind generating installation on the very particular day on which the grid connection was interrupted. The German legislator applied a rule that limits the amount of damages payable. This rule differs from the rule laid down in the Dutch Civil Code in article 6:110, because the German act determines the payable amount directly in the act.

There are however a number of deviating scenarios. The first scenario is when the wind farm is not operational on the expected date of completion, then the TSO not liable until the eleventh day after expiration of the expected date of completion. It should be noted that the court that has to determine the amount payable has to determine whether the wind farm operator has actually suffered damages. The second scenario is when the delay is caused by wilful misconduct on the part of the TSO. The wind farm operator is then entitled to payment of 100% of the damages from the first day after the expected date of completion.

The second form of liability centres on the interruption of an already established connection. Again it is irrespective whether the TSO is responsible for the interruption. There are three types of situations. (I) The TSO has to pay damages if there has been a disruption of ten consecutive days. From the eleventh day onward, the TSO has to pay damages for the interruption. (II) Damages have also to be paid when there have been eighteen (non-consecutive) days of interruption within one calendar year. In both these two cases the wind farm operator is entitled to 90% damage recovery. (III) The TSO has to pay 100% of the damage incurred by the wind farm operator if the interruption is the result of wilful misconduct. Again, the amounts payable are based on the Feed-In Remuneration.

Finally, there is the matter of passing the damages to the consumers that the legislator had to take into consideration. If this matter were to be left unregulated, the TSO simply would pass the damages on to the users of the grid. In this way, companies and consumers would have to share the burden of the possible misconduct of the TSO and the TSO would have no incentive to function as best is possible. The legislator was also aware that the TSOs couldn’t bear all of the burdens themselves. That is why the legislator put a cap on the amount of paid damages which may be passed along to the users of the grid through the tariffs. These tariffs are subject to certain deductibles based on a sliding scale which must be borne by the TSO. These deductibles range from 20% percent of the compensation costs for damages up to EUR200 million per calendar year, to 5% of the compensation costs for damages exceeding EUR600 million up to EUR1 billion per calendar year. Damages exceeding EUR1billion per calendar year may be passed in full. Furthermore, except for cases of gross negligence, the TSO’s deductible is limited toEUR7.5 million per damaging event.

The last question that needs answering is how this system would compare to the Dutch system when this is made applicable to the EEZ. We have shown above that the German regime is based on a system of liability under civil law which is created by the EEG. The Dutch system, on the other hand, puts an emphasis on administrative law. We have compared both systems and concluded that the Dutch system with a special offshore paragraph is preferred.

Chapter 5A of the Electricity Act ’98 contains the provisions on supervision. When TenneT is made responsible for the offshore grid and it fails to comply with its obligation to connect an offshore wind farm to the offshore grid, then the ACM is authorized to sanction TenneT. This can be done in two ways: a reparatory or a punitive sanction. The difference of both sanctions depends on the intention of the ACM. The reparatory sanction aims to end the illegal situation i.e. the fact that the wind farm is not connected (art. 5:2(1)(b) Gala). The punitive sanction intents to punish TenneT, this is done in order to give an incentive to refrain from this behaviour in the future (art. 5:2(1)(c) Gala).

The ACM may impose a non-compliance penalty as a reparatory sanction (Art. 77h Electricity Act ’98). This means that if TenneT fails to connect to an offshore wind farm to the offshore grid, it will have to pay a penalty to the State. The amount payable will have to be determined by the ACM. It should be noted that this amount should be substantial enough to serve as an incentive for TenneT to comply with its obligations. In addition to this non-compliance penalty the ACM may fine TenneT. The maximum fine can be 10% of the annual returns (Art. 77i(2) Electricity Act ’98). This means that TenneT is faced with both a reparatory and a punitive sanction.

It should be noted that the wind farm operator that is left without a connected is not empty handed. When TenneT fails to connect a wind farm and thus violates a legal obligation, this may give rise to a claim on the base of tort (Art. 6:162(2) Civil Code). It is also clear that the provisions on grid connection are written to protect the interests of generator such as an offshore wind farm, so the relativity is given (Art. 6:163 Civil Code). This means that the result is similar to the German system. However, it remains to be seen how matters of causal connection (Art. 6:98 Civil Code) and contributory negligence (Art. 6:101 Civil Code) will be applied with regard to these offshore connection failures.

From a legal perspective, the Dutch system is preferred over the German system. This is because of two reasons. Firstly, in both systems the wind farm developers may claim damages from the TSO. It of course remains to be seen whether the results of individual proceedings will show similar results in both countries. Secondly, in the Dutch system there are the additional administrative provisions on supervision. This makes that the wind farm developer does not stand alone when TenneT fails to connect him. It should be assumed that the use of reparatory and punitive sanctions will contribute significantly to enforce the connection obligation of TenneT.

3.3.2.5 The legislative agenda STROOM

As was seen above, the Minister has informed the parliament about the possible changes that could be implemented in the near future with regard to the connection of offshore wind farms. In order to fully understand the plans of the Minister, one must read the letter of Minister of June 18 in connection with the draft bill for wind energy on sea.[101] The draft bill envisages that TenneT should start preparing for the construction of the offshore grid before the finalizing of the legislative agenda STROOM.

The Minister states that TenneT will be made responsible for the construction of the offshore grid.[102] This offshore grid will be constructed on voltage level of 150 kV and it is assumed that it will be operated on altering current. The total investment that TenneT is expected to make will be between two and three billion Euro’s. These costs will be socialized through the regulated tariffs.

The Minister intends to use the German system as an inspiration for the new legal framework. This means that there will be a separate offshore grid development plan, and this plan will be drafted by TenneT.[103] The Minister envisages a leading role for the national government in the drafting of the offshore grid development plan. This enables for integrated grid planning

[101] See § 3.3.2.1.1. at p. 31.
[102] Letter of the Minister of Economic Affairs on the legislative agenda STROOM of June 18 2014, ref. DGETM-EM / 14059743, p. 14-16.
[103] Letter of the Minister of Economic Affairs on the legislative agenda STROOM of June 18 2014, ref. DGETM-EM / 14059743, p. 17.

in conjunction with the construction of the offshore wind farms. In order to instruct TenneT when it is developing its offshore grid development plan, the Minister will send TenneT a scenario that describes the expected developments with regard to offshore wind farm construction. This scenario has the characteristics of an instruction and TenneT has to take this instruction into account when drafting the offshore grid development plan. The ACM will assess whether TenneT has correctly implemented the scenario into its offshore grid development plan.

The wind farm developers and TenneT should work closely together when constructing the offshore wind farms as well as the offshore grid. Should TenneT fail to deliver the grid connection for the wind farm in time, then TenneT is obliged to pay damages to the wind farm operator.[104] However, the Minister does not to clarify what sort of damages are eligible to be compensated and what is the ground on which TenneT is obliged to pay damages to the wind farm operator.

In conclusion, the letter of the Minister is a first indication on the content of the bill that will be delivered to the parliament in 2015. At this point only tentative conclusions can be made on the future legal regime for licensing offshore wind farms and the connection to the offshore grid. From what is publicly known at this point, we can conclude that there will be an offshore grid and that TenneT will become responsible for constructing and operating this grid.

3.3.2.6 Interconnection

According to article 1(1)(as) of the Dutch Electricity Act ’98, ‘interconnector’ is defined as a network that crosses the border between the Netherlands and another country and links the Dutch grid with the grid of the other country. This is an open definition that fits the European definition of an interconnector. However, the Dutch Electricity Act ’98 makes a distinction between two types of interconnectors. This distinction is made with regard to the fact if the interconnector consists of an altering current or direct current.

According to Article 10(1) of the Electricity Act ’98 interconnectors that operated on alternating current form part of the Dutch grid and are, therefore, the responsibility and assets of TenneT. This seems practical because it is hard to identify the interconnector in an onshore situation. Take for example an onshore interconnector between the Netherlands and Germany which is based on altering current. Both TSO will extend their grid to the border and make a physical connection at that point. It is hard to identify the actual point where the interconnector is located. Is it the cable between a Dutch and a German transformer station? Is it a single bolt which is used to make a connection to the German transformer station when the Dutch cable is connected to it or vice versa? From a logical and a legal perspective it seems fair to treat the altering current interconnector as a part of the transmission grid. TenneT is thus responsible for organizing the capacity auctions on the congested altering current interconnectors.

The rules for the Dutch TSO on capacity auctioning are laid down in the Grid Code.[105] This detailed regulation states that the instrument for the allocation of capacity is the auction (Art. 5.6.5.1 Grid Code). The different types of auctions for the AC connections with the German

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[104] Letter of the Minister of Economic Affairs on the legislative agenda STROOM of June 18 2014, ref. DGETM-EM / 14059743, p. 18.

[105] https://www.acm.nl/download/documenten/acm-energie/netcode-elektriciteit-26-maart-2014.pdf (last accessed at 7 May 2014).

grid are yearly, monthly, day-ahead and intraday (Art. 5.6.6.1 Grid Code). The capacity on the NordNed interconnector is auctioned on the day-ahead auction, and the unused capacity is auctioned on the intraday auction (Art. 5.6.6.2a Grid Code).

However, the situation is different for direct current interconnectors. These interconnectors are not directly connected to the national transmission grid which is operated on altering current. There are convertor stations which separate the national grid from the interconnector. This makes that the direct current interconnector can be operated separately from the transmission grid that is operated on altering current. This is why these direct current interconnectors do not form part of the national transmission grid (Art. 10 (1) Electricity Act '98). Therefore, it is not automatically TenneT that will undertake the development of direct current interconnections. Another party that satisfies the requirements of the relevant provisions of the Electricity Act '98 on certification, as required under EU law, could construct and operate direct current interconnection (Art. 10Aa Electricity Act '98).[106]

3.3.2.7 Investing in the transmission grid

With the market liberalization, the grid operators have been separated from the electricity supply companies. Because of the fact that these grid operators are natural monopolies, the European legislator prescribed a system of regulated tariffs. The ACM as the competent regulatory authority will set the tariffs and conditions. The ACM must do this with due regards for multiple and sometimes conflicting interests. These interests include those of the grid operators, the producers of electricity, the consumers and the society as a whole.

The system of regulated tariffs enables TenneT to do investments. There are three types of investments: regular investments, substantial investments and interconnector investments.[107] The regular investments are the day-to-day investments of TenneT. For these investments TenneT is reimbursed through the regular tariffs that the users of the grid have to pay

The rules for the financing of substantial investments have been amended in 2010.[108] This means that former instrument for *uitzonderlijke en aanmerkelijke investeringen* (hereinafter: AI), has been replaced by an instrument for *uitbreidingsinvesteringen* (hereinafter: UI). The AI had its legal basis in article 41b(2) Electricity Act '98. The decision to grant TenneT permission to engage in an AI was to be taken by the NMA, the predecessor of the ACM. The NMA drafted policy rules (Art. 4:81 Gala) which it used when deciding on AI requests.[109] There were three criteria that have to be met for an AI to be approved by the NMA. The investment needed to be 'exceptional', 'substantial' and must 'serve for the expansion of the grid' (Art. 3 Policy rules). The NMA had a substantial amount of discretion when deciding on these investments.[110] This has led to a policy of the NMA in which rarely an AI request was awarded.[111] This had led to criticism from TenneT and DSOs because of the fact that this system that is based on ex-post decision making, makes it difficult for them to plan investments. This is one of the reasons why the system was amended in 2010. A new system

[106] The construction of any interconnector, or part thereof, will be subject to the provisions of the Waterwet and its secondary legislation.
[107] M. van Eeuwen, 'Investeren in het elektriciteit- en gasnet; bewegingen in het reguleringskader', *NTE* (2011) nr. 1, p. 5.
[108]Stb. 2010, 810.
[109] Beleidsregels beoordeling voorstellen voor aanmerkelijke investering ter uitbreiding van het door een netbeheerder beheerde net, nr. 102000-14, Stcrt.2005, 143.
[110]CBb 28-11-2007, *LJN* BC2448.
[111] M. van Eeuwen, 'Investeren in het elektriciteit- en gasnet; bewegingen in het reguleringskader', *NTE* (2011) nr. 1, p. 6-7.

of ex-ante regulation was introduced in Article 20e Electricity Act ’98. The need for a new regime was so much desired, that no transitional provision were included in the act. Requests on which the NMA had not decided by that moment fell under the scope of the new regime.[112]

Article 20e Electricity Act ’98 contains two regimes, one regime for the DSOs and a separate regime for TenneT. The competent authority for deciding on an UI of TenneT is the Minister of Economic Affairs (Art. 20e(1) Electricity Act ’98). However, the ACM must advice the Minister (Art. 20e(3) Electricity Act ’98). This means that the ACM has an important role to play, because advices on such complex investment decisions by a specialized public authority cannot be easily put aside in a procedure. Furthermore, if the UI is related to a project that is not mentioned in a structural vision (Art. 2.3 Spa) then the Minister must send the draft decision to the parliament (Art. 20e(3) Electricity Act ’98). It is likely that the investments of TenneT falling under the scope of the UI will be listed on the ten year investment plan of TenneT (Art. 22 Electricity Directive). The investment will also be included on the quality and capacity document (Art. 21 Electricity Act ’98).

With regard to the possible offshore obligation of TenneT it needs to be noted that this offshore grid could fall under the scope of either the regular investments or the substantial investments. In the initial phase of the construction of the offshore grid, one may argue that these investments fall under the scope of the instrument of UI. However, in a later stage when the backbone of the offshore grid is constructed and TenneT is planning to add extra lines to it, the investments could be treated as regular investments. It is up the regulatory authority, which has discretionary powers in this matter, to decide how an investment in the offshore grid should be treated.

Finally, it should be mentioned that the Minister has declared in its letter of June 18 that the rules for grid-planning and the assessment of investment decision by the ACM might be changed.[113] The focus will be on the new grid development plan, which will be drafted by TenneT and which will be assessed by the ACM. However, it remains to be seen how this framework will be laid down in the bill which will be send to the parliament in 2015.

[112] *Kamerstukken II* 2008/09, 31 904, nr. 7, p. 58.
[113] Letter of the Minister of Economic Affairs on the legislative agenda STROOM of June 18 2014, ref. DGETM-EM / 14059743, p. 6-7.

4 The legal qualification of the six scenarios

4.1 Introduction

The development of cross-border integrated offshore electricity infrastructure must be considered in the context of the existing legal frameworks outlined above. The analysis here focuses on six hypothetical scenarios for cross-border integrated offshore electricity infrastructure. These six scenarios are a selection of technical scenarios for the implementation of cross-border offshore integrated electricity infrastructure based on four market references (Market-Ref -P1, -P2, and –P3), discussed under the 'Financial and Business' part of the report. These market references are in turn based on plans for the construction and connection of the East Anglia One offshore wind farm in the UK REZ and the Beaufort offshore wind farm in the Dutch EEZ.

In respect of each of the six scenarios, following a basic description, consideration is given to two main questions. The first question concerns how the cross-border integrated offshore electricity infrastructure would be characterized, bearing in mind EU legislation on interconnection and transmission, national legislation of both the UK and the Netherlands on interconnection, and UK legislation on offshore transmission. The answer to this question also determines what electricity legislation license would be required and to what operational rules the infrastructure is subjected to. Furthermore, it is important for the business model for implementing the cross-border integrated offshore electricity infrastructure, bearing in mind the requirement for ownership unbundling. Two variants of the answer to the first question are given based on two ways the development may be performed. In respect of each scenario, the offshore wind farm(s) and the entire offshore electricity infrastructure have yet to be constructed. This means that there is a *tabula rasa*, and the development could occur either as follows:

> (A) The offshore wind farm(s) is/are first constructed and connected to the local shore(s). Thereafter, in the case where two offshore wind farms are involved, their offshore electricity infrastructures are linked together; or in the case where one offshore wind farm is involved, connection is made with the opposite shore.
>
> (B) The offshore electricity infrastructure between the two shores and the maritime border is completed first. Thereafter, the offshore wind farm(s) is/are constructed and connected to this infrastructure.

In respect of each scenario, the second main question concerns to what extent an offshore wind farm in the UK REZ that is connected to the Dutch shore can benefit from that the Dutch support scheme, and to what extent an offshore wind farm in the Dutch EEZ can benefit from the UK support scheme.

It should be reminded that what is considered to be part of a wind farm and what is considered to be part of the offshore electricity infrastructure differs on each side of the border. The UK has the OFTO regime in place, and the offshore electricity infrastructure begins from the offshore substation where this component is present, which is the case in all six scenarios. A UK offshore wind farm consists of the array of turbines and the collection grid. The Netherlands does not have something similar to the UK, and the entire offshore electricity infrastructure is considered as part and parcel of the offshore wind farm.

Finally with regard to the scenario descriptions, these descriptions are based on the existing legal framework. We did not take in to account the possible or desired changes in the legislation on either national or European level.

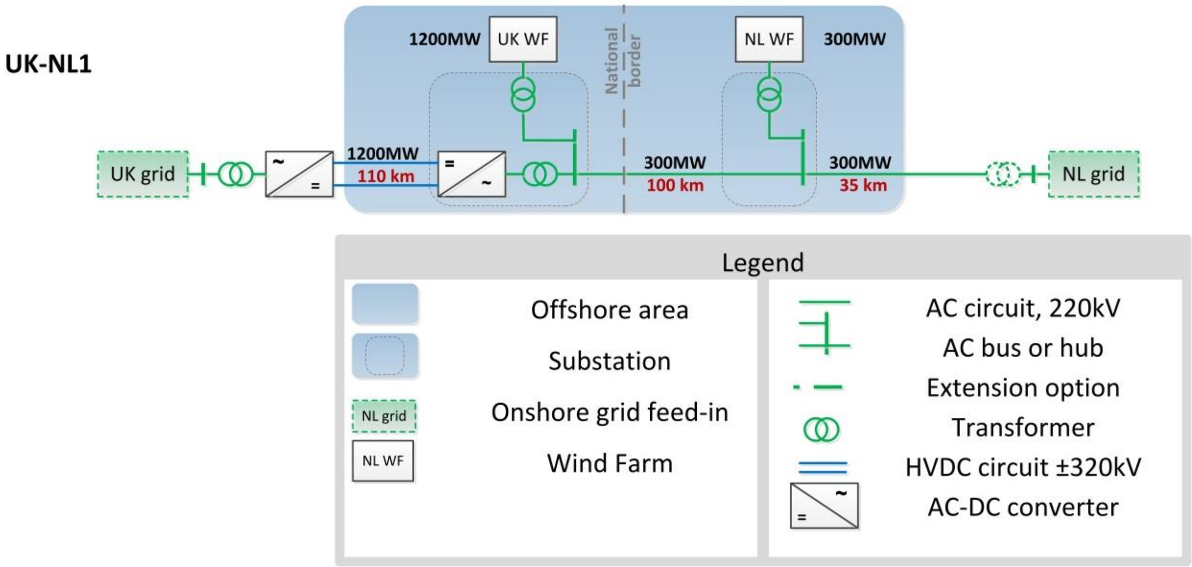
In addition to describing the legal qualifications of the chosen scenarios, the consequences for the subsidizing regimes shall also be addressed. The descriptions of the Dutch and British subsidizing regimes were based on the assumption of an offshore wind farm with a radial connection to the shore of the coastal state where it would receive subsidies.[114]

4.2 The characterization of the infrastructure

4.2.1 Scenario 1: UK-NL1

4.2.1.1 Basic Description

Figure A:



The first scenario is illustrated in Figure A above. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. There will be two wind farms, one located in the UK REZ and the other located in the Dutch EEZ. Both wind farms are connected to a substation. On the Dutch side the substation consist of a transformer and an AC hub/bus. On the UK side the substation consists of two transformers, an AC hub/bus and an AC/DC convertor. The substation on the UK side is part of the OFTO regime. From both the UK and Dutch substation a subsea cable will run to the onshore electricity systems of the UK and the Netherlands. On the Dutch side the connection to the Dutch grid is made through a transformer station that is part of the Dutch grid. On the UK side the connection to the UK grid made through a transformer and AC/DC convertor that is situated in an onshore substation station that is part of the OFTO regime. The two wind farms are connected to each other by way a subsea AC cable that runs via the offshore substations.
Please note that this description also holds for scenarios UK-NL2 and UK-NL3, which are identical to UK-NL, except for the different installed capacities of the lines and the offshore wind farms.
As the legend is the same for the following schemes it has not been reprinted.

[114] See § 3.3.1.1. & 3.3.2.1.

4.2.1.2 Variant A

The first step is that both wind farms are constructed in the EEZ of both nations and connected to the national grids of both countries. This means that the connection from the Dutch wind farm to the Dutch shore is considered to be part of the generation activity. The subsea AC cable to the Dutch shore and the onshore cable to the transformer station then need to be constructed by the operator of the wind farm.

The UK wind farm needs to be connected to the grid of the OFTO. This offshore grid is operated by the person or entity that holds an offshore transmission license. This offshore transmission license is a specific form of a transmission license (S. 4 (1)(b) Electricity Act 1989). The holder of this transmission license may engage in the activity of transmission of electricity in offshore waters (S. 6c (5) Electricity Act 1989).The holder of the transmission license is obliged to enter into agreements for the use of the offshore transmission grid by generators of electricity, such as wind farm operators (S. 7 (2) Electricity Ac 1989).

The second step is that a subsea AC cable is constructed between the substations stations near the wind farms. It is uncertain what the legal status of this subsea AC cable will be. Although the subsea AC cable creates a physical connection between the Dutch and the UK grid, it is not correct to say that this subsea AC cable functions as an interconnector in the way as it is envisaged by the EU legislator. The subsea AC cable does not connect the TSOs of both nations directly to each other. This is because the subsea AC cable in the Dutch EEZ is part of the wind farm operations. The Electricity Directive states that an interconnector should be a transmission cable that connects the transmission grids of two Member States. Furthermore, it should be noted that the layout depicts this transmission cable as a subsea AC cable. Moreover, subsea interconnectors usually consist of a subsea DC cable that is connected to AC/DC convertor stations on both shores. Given the fact that this subsea AC cable will not be used primarily for the connection of both national grids, it is thus that one could not speak of an interconnection.

The question then arises whether this subsea AC cable can be defined as something else, for example a direct line (Article 34 Electricity Directive)? The definition of a direct line is somewhat unclear. It speaks of an electricity line linking an isolated generation site with an isolated customer or an electricity line linking an electricity producer and an electricity supply undertaking to supply directly their own premises, subsidiaries and eligible customers (Article 2(15) Electricity Directive). In this case there is an isolated producer in the form of the wind farm; the question is whether there is an isolated customer. This is uncertain. Firstly, because of the fact that is not clear to what this AC cable is connected. Is it connected to an offshore substation or to an offshore AC cable? Secondly, it is not clear to whom the electricity is sold and delivered. This means that the existing legislative framework contains a possible omission. It is difficult to define this AC cable in legal terms.

4.2.1.3 Variant B

In this variant the subsea cable running from shore to shore will be constructed first. This subsea cable will on the Dutch side be an AC cable and on the UK side it will be connected to an AC/DC convertor, from which a DC cable will run to the UK shore. It is likely that this subsea cable will function as an interconnection. Because it is in part an AC interconnection, it will be unlikely that the operator of the interconnection would be granted an exemption. This is because the costs and risks in question need to be particularly high and it needs to be an exceptional case (Article 17(2) Electricity Regulation). The question whether an exemption will be granted also depends partly on the functioning of the interconnection. At this point it is not clear how this interconnection, with the addition of two offshore wind farms will function.

Because it is a regulated interconnector, the operator has to facilitate TPA (Article 32 Electricity Directive). This means that the operator needs to facilitate a connection with the wind farm and let the operator of the wind farm use the interconnector to convey electricity to both the UK and the Netherlands. This creates an additional question, because of the renewables directive. Under this renewables directive, the producers of energy from renewable sources such as wind energy have priority access to the grid (Article 16(1)(b) Renewables Directive). The operator needs to permanently reserve part of the interconnection capacity for the operator(s) of the wind farm(s) in the case of expected congestion on the line. This means that the operation of the interconnector might be hindered, because part of the capacity must allocated for the wind farm(s) and will thus be not available for the conveyance of electricity between the two national grids. Because of the fact that the generation capacity of a wind farm is hard to predict in advance, this could mean that part of capacity that is reserved for these wind farm(s) will be left unused. This unused capacity is lost for earning back the investments that have been made to construct the interconnection. A higher utilization of the interconnector for trade can be achieved when the remaining capacity after reservation for wind is sold to the market on a shorter time scale. In practice this would mean on intra-day market instead of a day-ahead market.

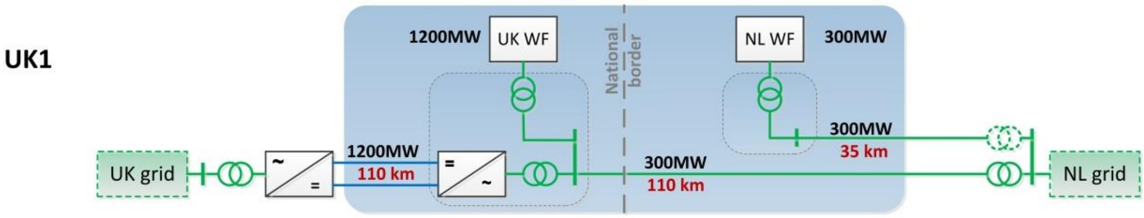
Another complicating fact is the applicability of the national legislation within the EEZ. This is especially the case for the Dutch situation. The Electricity Act ’98 is not applicable in the EEZ, apart from matters concerning support schemes (Art. 1(4) Electricity Act ’98). This means that TenneT will have no obligations under the Electricity Act ’98 in the EEZ. Furthermore should it be noted that the term ‘connection’ as meant in the Electricity Act ’98 is not suited to be used for offshore activities. This makes that if TenneT refuses to facilitate the realization of the offshore electrical infrastructure, it cannot be sanctioned on the base of article 77(i) Electricity Act ’98, because TenneT is not obliged to do this and the ACM has no regulatory authority within the EEZ.

With regard to the situation within the EEZ of the UK it should be noted that this variant is not possible. When the initial subsea AC cable is constructed as an interconnection, a license is required for the operation of it (S. 4(1)(d) Electricity Act). When later on the wind farm is connected to the subsea AC cable, an offshore transmission license is required (S. 6C(5) Electricity Act). The complicating situation that arises is that the holder of an interconnector license cannot have a transmission license at the same time (S. 6(2A) Electricity Act). It should be noted that the UK Electricity Act does not make a difference with regard to AC or DC cables.

4.2.2 Scenario 2: UK1

4.2.2.1 Basic Description

Figure B:



The second scenario is illustrated in Figure B above. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. There will be one wind farm which is located in the UK REZ. This UK wind farm is connected to a substation, which comprises of two transformers, an AC hub/bus and an AC/DC converter. This offshore substation on the UK side is part the OFTO regime. The UK wind farm is connected to the Dutch shore via a subsea AC cable that runs through the substation. When this AC cable comes to shore, it will be connected to the Dutch grid through a transformer. This transformer is part of the Dutch grid. From the UK substation a DC cable will run to the UK shore. On the UK shore a convertor will be connected to the DC cable. The onshore AC/DC convertor is connected to a transformer. This transformer is connected to the UK grid. Both the onshore transformer and the AC/DC convertor are part of the OFTO regime. There will also be a Dutch wind farm. This wind farm is connected to the Dutch shore where it is connected to the Dutch grid through a transformer. This transformer is part of the Dutch grid. Because this wind farm is not connected to any offshore electricity infrastructure, it will be left outside of the equation.

4.2.2.2 Variant A

The first step will be the construction of the wind farm in UK REZ. This UK wind farm needs to be connected to the offshore transmission grid. This offshore transmission grid is operated by the person or entity that holds an offshore transmission license. This offshore transmission license is a specific form of a transmission license (S. 4(1)(b) Electricity Act). The holder of this transmission license may engage in the transmission of electricity in offshore waters (S. 6C(5) Electricity Act). The holder of the transmission license is obliged to enter into agreements for the use of the offshore transmission grid by generators of electricity, such as wind farm operators (S. 7(2) Electricity Act).

The second step is to make a connection between the UK wind farm and the Dutch shore. It is ones again unclear how this subsea AC cable will be qualified. Primarily, it should be noted that this is not an interconnector because it will not directly connect the Dutch to the UK grid. It connects the Dutch national transmission grid to the offshore transmission grid. Secondly it should be noted that is unclear who may construct this AC cable. A person or company from the UK enjoys the freedom to lay subsea cables in the Dutch EEZ (Article 58(1) UNCLOS). The Netherlands do not have to accept that this AC comes to shore.

And as discussed under the previous scenario, it will not likely be considered a direct line. For the construction of the AC line running from the border to the Dutch shore a permit under the Water Act will be required (Art. 6.5 Water Act and Art. 6.13 Water Decree). The situation that was discussed above, assumed that the AC cable to the Dutch shore will be constructed by the party that operates the wind farm. It could also be possible that a party from the

Netherlands wants to construct the AC cable from the Dutch shore to the UK wind farm. It is unclear whether the OFTO needs to cooperate to establish this connection.

4.2.2.3 Variant B

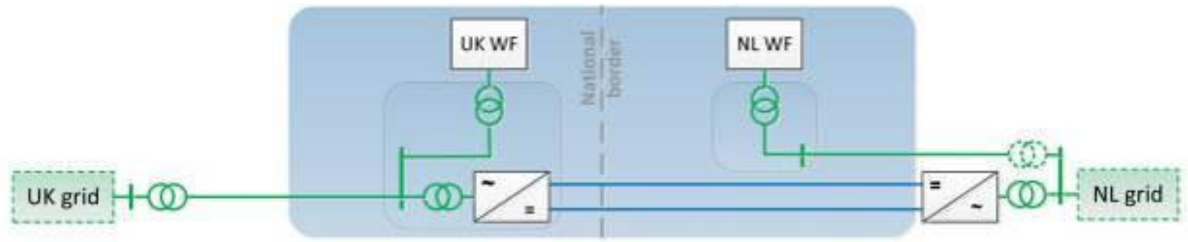
In this variant the subsea cable running from shore to shore will be constructed first. This subsea cable will on the Dutch side be an AC cable and on the UK side it will be connected to an AC/DC convertor, from which a DC cable will run to the UK shore. As mentioned above, will it be likely that this subsea cable will function as an interconnection. It will be likely that this will be a regulated interconnector. The question will be whether the status of this interconnector would change when the UK wind farm is connected to it. This is because of the fact that the cable would not only be used for interconnection purposes, but also be used for offshore transmission activities. This would lead to the complication that one entity cannot operate an offshore transmission grid and an interconnector at the same time (S. 6(2A) Electricity Act).

In this scenario, the fact that no Dutch wind farm is connected makes it on the other hand somewhat easier. Especially with regard to the matter of priority access of electricity produced from renewable sources, because of the fact that the operator of the interconnector only needs to facilitate priority access for one wind farm. As mentioned in the previous scenario, this layout will not be possible in the UK because of the fact that one person cannot have a license for transmission as well as a license for the operation of an interconnection (S. 6(2A) Electricity Act).

4.2.3 Scenario 3

4.2.3.1 Basic Description

Figure C:



The third scenario is illustrated in Figure C above. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. There will be one wind farm which is located in the UK REZ. This UK wind farm is connected to a substation, which comprises of a transformer, an AC hub/bus and a converter. This offshore substation on the UK side is part the OFTO regime. From the substation there is a subsea AC cable that runs to the UK shore. On the UK shore there will be a transformer which is part of the OFTO. This transformer is connected to the UK grid. In the offshore substation the AC/DC convertor will converts the electricity to DC. From the convertor a subsea DC cable will run to the Dutch shore, where another convertor is located. In the convertor, the DC electricity is again converted to AC, and is then fed in to the Dutch grid. The AC/DC convertor will be part of the Dutch grid. There will also be a Dutch wind farm. This wind farm is connected to the Dutch shore on which it is connected to the Dutch grid through a transformer. This transformer is part of the Dutch grid. Because this wind farm is not connected to any offshore electricity infrastructure, it will be left outside of the equation.

Please note this particular scenario (with the HVac connection of the UK-WF) was rejected as a result from the technology review (see Appendix A of the main report) and therefore not labelled. The scenario UK2 was selected instead, together with the scenarios UK3 and UK4, which have different line and wind farm capacities. Scenario UK2 is described in section 4.2.6.

4.2.3.2 Variant A

The first step will be the construction of the wind farm in UK REZ. This UK wind farm needs to be connected to the offshore transmission grid. This offshore transmission grid is operated by the person or entity that holds an offshore transmission license.

The second step is to make a connection between the UK wind farm and the Dutch shore. It is ones again unclear how this subsea DC cable will be qualified. It is not an interconnector because it will not directly connect the Dutch to the UK grid. It connects the Dutch national transmission grid to the offshore transmission grid. And as discussed under the previous scenario, it is still uncertain whether this DC cable can be treated as a direct line. For the construction of the DC line running from the border to the Dutch shore a permit under the Water Act will be required (Art. 6.5 Water Act and Art. 6.13 Water Decree).

4.2.3.3 Variant B

In this variant the subsea cable running from shore to shore will be constructed first. This subsea cable will on the Dutch side be a DC cable and on the UK side it will be connected to an AC/DC convertor, from which an AC cable will run to the UK shore. As mentioned above, will it be likely that this subsea cable will function as an interconnection. Initially, it will be a regulated interconnector. But depending on the investment decision by the investor, it could be possible that the developer will request for an exemption.

The question will be whether the status of this interconnector would change when the UK wind farm is connected to it. This is because of the fact that the cable would not only be used for interconnection purposes, but also be used for offshore transmission activities. This would lead to the complication that one entity cannot operate an offshore transmission grid and an interconnector at the same time (S. 6(2A) Electricity Act).

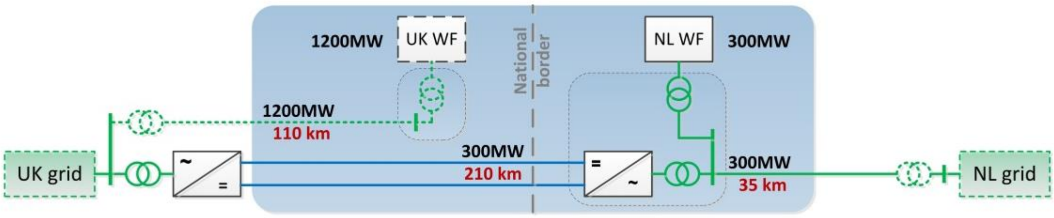
In this scenario, the fact that no Dutch wind farm is connected makes it on the other hand somewhat easier. Especially with regard to the matter of priority access of electricity produced from renewable sources, because of the fact that the operator of the interconnector only needs to facilitate priority access for one wind farm. As mentioned in the previous scenario, this layout will not be possible in the UK because of the fact that one person cannot have a license for transmission as well as a license for the operation of an interconnection (S. (2A) Electricity Act). It can also be possible that a party from the Netherlands will take the initiative. The question will then be, as we have seen with regard to previous scenario, whether the OFTO needs to facilitate the establishment of a connection with its grid.

4.2.4 Scenario 4: NL1

4.2.4.1 Basic Description

Figure D:

NL1



The fourth scenario is illustrated in Figure D above. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. There will be one wind farm which is located in the Dutch EEZ. From this This Dutch wind farm is connected to a substation with a subsea AC cable. This substation comprises of a transformer, an AC hub/bus and an AC/DC converter. From this substation there is a subsea AC cable that is connected to the onshore Dutch transmission grid. In this substation there is also an AC/DC convertor which converts the electricity to DC. From the convertor a subsea DC cable will run to the UK shore, where another convertor is located. Here the DC electricity is again converted to AC, and is then fed in to the UK grid. Both the AC/DC convertor and the transformer are part of the OFTO. There will also be an UK wind farm which is located in the UK REZ. This wind farm is connected to the UK grid via a cable that runs from the offshore transformer to a transformer which is situated on the shore. Both transformers and the cables that connect them are part of the OFTO. Because this wind farm is not connected to any integrated offshore electricity infrastructure, it will not be discussed further in this analysis.
Please note that for the scenario NL2 the interconnection between UK and NL is identical, only the parallel connection of the UK-WF is implemented as HVdc instead of HVac.

4.2.4.2 Variant A

The first step will be the construction of the wind farm in the Dutch EEZ. There is one important legal aspect that needs to be mentioned. Because on the Dutch side there will be an additional substation, this will influence the acquiring of a permit under the Water Act. The permit will not only cover the turbines, transformers within the wind farm and the subsea cable to shore. The permit also needs to cover the additional substation with the transformers and the substation. This makes that the granting of the permit will be more complicated, it will require more time and be more costly for the operator of the wind farm.

The second step will be the construction of the subsea DC cable from the substation on the Dutch side, to the UK shore. It will unlikely that this cable can be treated as an interconnection under EU law. This is because of the fact that it does no connect the grids of two TSOs to each other.

4.2.4.3 Variant B

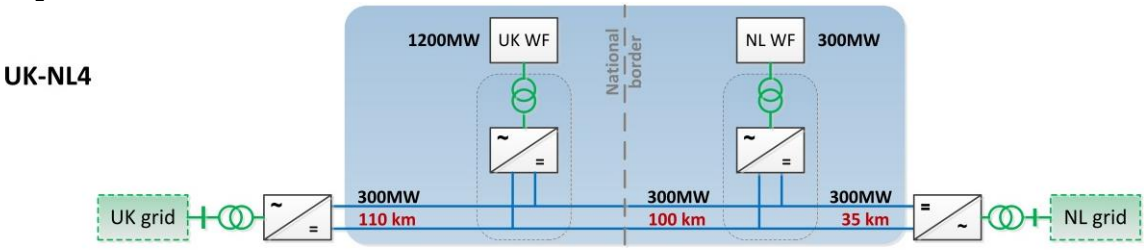
In this variant the subsea cable running from shore to shore will be constructed first. This is however somewhat unlikely, as will be clear when one looks at the layout. From the Dutch shore to the offshore substation, this will be a subsea AC cable. On the offshore substation there will be an AC/DC converter. From the substation a subsea DC cable will cross the maritime border and land on the UK shore. This subsea cable, when there is no wind farms connected to it, will function as an interconnection.

The second step will be the connection of the Dutch wind farm to interconnection cable. The problem arises that the Electricity Act ’98 is not applicable in the EEZ (Art. 1(4) Electricity Act ’98). This means that the operator of the interconnector will not be obliged to facilitate a connection from the wind farm to it (Article 23 read with Articles10 and 10Aa Electricity Act ’98). This is because of the simple fact that a connection to a grid at sea is not possible under the Electricity Act ’98.

4.2.5 Scenario 5: UK-NL4

4.2.5.1 Basic Description

Figure E:



The fifth scenario is illustrated in Figure E above. This scenario is only expected to be possible after 2020, when the required technology becomes available. This means that the regulatory regime at that point in time could be different from the current regime. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. The integrated offshore electricity infrastructure in this scenario encompasses a subsea DC cable between the UK shore and the Dutch shore. On each shore, the subsea DC cable will be connected to land cables and AC/DC convertor stations at each end. Other onshore electrical components include transformer substations before there is eventual connection to the national grids of both countries. On the Dutch side, the transformer and the AC/DC convertor are part of the grid. On the UK side, the transformer and the AC/DC convertor are part of the OFTO regime. Two offshore wind farms, one UK and the other Dutch, will be connected to the subsea DC cable via a substation. The wind farms are connected to the substation by a subsea AC cable. In this substation an AC/DC converter will convert the electricity to DC, which then can be fed in to the subsea DC cable.
Please note the scenarios UK-NL5-7 are identical to the scenario UK-NL4 shown here, except for the line and wind farm capacities.

4.2.5.2 Variant A

The first step is that both the wind farms are constructed in the EEZ of both states. This means that the connection from the Dutch wind farm to the Dutch shore is part of the generation activity. The substation, the subsea DC cable to the Dutch shore and the onshore convertors need to be constructed by the operator of the wind farm

The UK wind farm needs to be connected to the offshore transmission grid. This offshore transmission grid is operated by the person or entity that holds an offshore transmission license. This offshore transmission license is a specific form of a transmission license (S. 4(1)(b) Electricity Act). The holder of this transmission license may engage in the activity of transmission of electricity in offshore waters (S. 6C(5) Electricity Act). The holder of the transmission license is obliged to enter into agreements for the use of the offshore transmission grid by generators of electricity, such as wind farm operators (S. 7(2) Electricity Act).

The second step is that a subsea DC cable is constructed between the substations near the wind farms. As discussed in the first scenario, the status of this subsea DC cable in unclear. This scenario is however slightly different from the first scenario, in that way this subsea cable is a DC cable. When there would be no wind farms involved, this would resemble a typical layout of a DC interconnection. The problem is that offshore wind farms are connected to this subsea DC cable. This gives rise to the same questions that were discussed with regard to scenario 1. The most important problem will be that the subsea cable does not connect the national grids of two TSO's to each other.

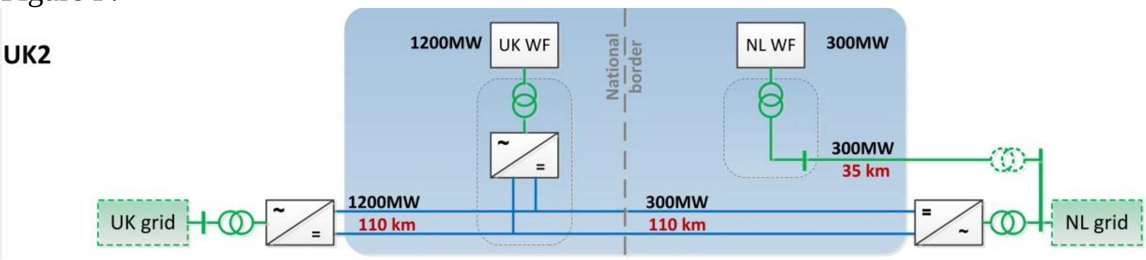
4.2.5.3 Variant B

In this variant the subsea DC cable will be constructed first, and the wind farms will be connected to this subsea DC cable afterwards. As mentioned above, this layout resembles a typical DC interconnection. The question is whether the connection of two wind farms would alter this status. Because of the fact that this hasn't been constructed yet anywhere in the world, it would be unlikely that this DC connection would remain an interconnector in the strict sense. This is because of the fact that the subsea DC cable would gain an additional function, which is transmission. This means that for the part in the UK, the problem arises that one person cannot be engaged in transmission and the operation of an interconnector at the same time (S. 6(2A) Electricity Act). For the Dutch portion of the cable, the problem will be that the Dutch electricity legislation is not applicable (Art. 1(4) Electricity Act '98).

4.2.6 Scenario 6: UK2

4.2.6.1 Basic Description

Figure F:



The sixth scenario is illustrated in Figure F above. This scenario is only expected to be possible after 2020, when the required technology becomes available. This means that the regulatory regime at that point in time could be different from the current regime. After the entire offshore electricity infrastructure is constructed, the layout will be as followed. The integrated offshore electricity infrastructure encompasses a subsea DC cable between the UK shore and the Dutch shore. On each shore, the subsea DC cable will be connected to land cables and AC/DC convertor stations at each end. Other onshore electrical components include transformer substations before there is eventual connection to the national grids of both countries. On the Dutch side the onshore transformer and the AC/DC convertor are part of the Dutch grid. On the UK side, both the onshore transformer and the AC/DC convertor are part of the OFTO. One wind farm on the UK side of the border will be connected to the subsea DC cable between the UK and the Netherlands. A subsea AC cable would run from the wind farm to a transformer substation. In this substation a converter will convert the electricity to DC, which then can be fed in to the subsea DC cable. There will also be a Dutch wind farm. This wind farm is connected to the Dutch shore on which it is connected to the Dutch grid through a transformer. This transformer is part of the Dutch grid. Because this

wind farm is not connected to any offshore electricity infrastructure, it will be left outside of the equation.
Please note the scenarios UK3 and UK4 are identical to the scenario UK2 shown here, except for the line and wind farm capacities.

4.2.6.2 Variant A

The first step will be the construction of the wind farm in the UK REZ. This will require the necessary generation and offshore transmission permits. Afterwards the DC connection between the substation in the EEZ of the UK and the Dutch shore will be construction. On the Dutch shore a convertor will convert the electricity to AC so that it may be fed in to the Dutch grid. As discussed in the previous scenario, there will be the problem on how to qualify this subsea cable. This is because of the fact that the subsea DC cable does not connect the national grids of two TSO's to each other.

4.2.6.3 Variant B

In this variant the subsea DC cable will be constructed first, and the UK wind farm will be afterwards connected to this subsea cable. It should be noted that the same question is raised as in the previous scenario. The answer is also the same. It will be unlikely that a DC interconnection will retain its status, when it also functions as a transmission line. For the UK portion of the cable there will be problem that one person cannot hold an interconnection license as well as a transmission license (S. 6(2A) Electricity Act).

4.3 The application of support schemes

4.3.1 Challenges

When considering the subsidizing of electricity production from offshore wind farms which are connected through an interconnecting link, one need to realize that the existing subsidizing schemes are national in scope. This means that four questions arise regarding the application of the Dutch and UK support schemes in the case of offshore wind farms which are using cross-border integrated offshore electricity infrastructure.

(I) To the extent that electricity generated by the Dutch wind farm is transported to the UK, would this affect a subsidy grant under the Dutch SDE+ scheme? (II) To the extent that electricity generated by the Dutch wind farm is transported to the UK, can the Dutch wind farm benefit from the UK renewables obligation scheme? (III) To the extent that electricity generated by the UK wind farm is transported to the Netherlands, can the UK wind farm benefit under the UK renewables obligation scheme? (IV) To the extent that electricity generated by the UK wind farm is transported to the Netherlands, can the UK wind farm benefit from the Dutch SDE+ scheme? The conclusion on each of these questions is as follows:

(I) The export of electricity generated by the Dutch wind farm to the UK would affect the grant of subsidies to the Dutch wind farm under the Dutch SDE+ scheme. To qualify for applying for subsidies under the SDE+ scheme, it must be shown that the electricity generated from a renewable energy production facility is fed into the Dutch grid. (Art. 11 of Regulation on subsidizing of renewable energy 2013 and Art. 15of the Decree on stimulating of renewable energy production[115]).

[115] Stb. 2007, 410.

(II) The Dutch wind farm would not be able to benefit from the old UK renewables obligation scheme. According to regulation 17(3) of the Renewables Obligation Order 2009, generating stations located outside the UK's EEZ (except in the case of connection to Northern Ireland) do not qualify for participation in the scheme. However, under the new Contracts for Difference it is expected that foreign producers may also benefit from UK subsidies.[116]

(III) The UK wind farm would not be able to benefit from the UK renewables obligation scheme and the Contracts for Difference in respect of electricity exported to Netherlands. According to Regulation 14 of the Renewables Obligation Order 2009 and Section 32B of the UK Electricity Act, renewable obligation certificates can only be issued in respect of electricity supplied to customers in the UK, or in respect of electricity used in a permitted way. That is, the supply of electricity to customers in the UK through a private connection, electricity used on site by the operator of the generating station, or electricity provided to the grid in circumstances in which its supply to customers cannot be demonstrated.

(IV) The UK wind farm would not be able to benefit from the Dutch SDE+ scheme. The scheme applies only to Dutch wind farms, since the Framework Act Economic Affairs Subsidies[117] says nothing about the grant of subsidies to projects outside the Netherlands. The text of the Framework Act Economic Affairs Subsidies should be read restrictive because of the fact that if the legislator wanted to give extraterritorial application to the act, it should be stated explicitly.

This analysis shows that the current support schemes are partially inadequate to provide for public support for integrated offshore electricity infrastructure. This problem could potentially be solved by using the instruments of the Renewables Directive. Particularly the instrument that facilitates coordination of the national support schemes can be useful (Art. 11 Renewables Directive).

4.3.2 Possible solutions

The Renewables Directive provides the Member States with instruments that may help them to coordinate their efforts in order to reach the 20-20-20 goals. A special category of these instruments are the cooperation mechanisms. These instruments where introduced in 2009, and initially the Commission did not provide additional information on how to use these instruments. However, in November 2013 the Commission published a Commission Staff Working Document (hereinafter: the working document).[118] In this document, the Commission describes the advantages of the instruments and gives general guidelines on how the instruments are to be implemented. According to the Commission the use of cooperation mechanism can have substantial advantages for the Member States: up to 6% lower support cost, 5% lower generation cost and 3% less capital expenditure.[119]

[116] Ofgem, 'Synergies and Conflicts of Interest arising from the Great Britain System Operator delivering Electricity Market Reform', p. 28.
[117] Stb. 1996, 180.
[118] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final.
[119] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 3.

4.3.2.1 The cooperation mechanisms

As was identified above, there are three types of cooperation mechanisms.[120]These instruments can be applied as standalone instruments, but the instruments can also be used in combination with each other. For example the risks of a joint project can be mitigated with a possible 'back up' statistical transfer.[121] It is should be noted that the list of instruments in the Renewables Directive is not exhaustive. Member states are free and are encouraged to pursue all forms of cooperation, such as exchanges of information and best practices.[122]

The first instrument is that of the statistical transfer. Hereby the renewable electricity production of a Member State with 'overproduction' is transferred to a Member State with 'underproduction'. This transfer is purely statistical; no physical connection in terms of electrical infrastructure is required. It should be noted that this instrument may give rise to moral hazards. Member States may refrain from investing in renewable electricity generation and anticipate on a transaction to buy statistical renewable energy before or on the benchmark date. It remains to be seen how substantial this risk is.

The second instrument is that of the joint project. Hereby two or more Member States set up a renewable electricity production installation and enter into a contract on how the renewable electricity is to be allocated to each Member State. A joint project may also be set up in conjunction with a third country. This instrument can be used for technology development, testing and long term cooperation.[123]

The third instrument is that of the joint support schemes. Hereby two or more Member States coordinate their support scheme and make contractual arrangements on how the renewable energy should be allocated. This instrument is the most sophisticated, and requires well integrated electricity markets and similar technologies.

The Member States have the initiative to implement these mechanisms. In 2012 six EU Member States had integrated the use of cooperation mechanism in their renewable energy policy. However, only one joint support scheme between Norway and Sweden has been created up till now, and this scheme originated from before 2009. The other five Member States have made tentative steps towards the actual implementation of the cooperation mechanism. It is expected that by 2020 only 0.4% of the EU renewable energy production will be traded in cross-border transactions.[124]Both the Dutch and UK governments had announced in 2010, that they will not implement any cooperation mechanism in their national policy. But they have not ruled out the use of cooperation mechanisms in the future.[125]

The working document has high expectations for the instrument of the statistical transfers. Not only should spot transactions take place, the Commission envisages a new market with its own derivatives and other financial instruments.[126] The expectation of others is that the

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[120] See § 3.2.7.4.
[121] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 6.
[122] Recital 35 Directive 2009/28/EC.
[123] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 5.
[124] Sascha T. Schröder et al, 'Joint Support and Efficient Offshore Investment : Market and Transmission Connection Barriers and Solutions', *RELP* (2012) nr. 2, p. 114.
[125] UK government, 'National Renewable Energy Action Plan for the United Kingdom', p. 148-149; Dutch Government, 'National renewable energy action plan', p. 113.
[126] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy

instrument will mainly be used to straighten out the position in renewable energy production by 2020.[127] The market for statistical transfers does not have the characteristics of a perfect market. Parties have only a limited amount of foresight and exhibit risk-avoiding behavior. This makes it unlikely that long term contracts for the statistical transfer of renewable energy are entered into. The prospects for the mechanism of joint projects are more hopeful. This instrument gives Member States the ability to initiate projects in other states where it is cheaper to generate renewable energy than in the home country. The Commission stresses that one of the advantages of a joint project is the fact that it does not requires actual transmission of the generated electricity, If the physical transmission of electricity is considered to be a requirement, than this could under circumstances hamper the functioning of the internal market.[128] The drawback of this instrument seems to be the high transaction and administrative costs of establishing renewable energy generating plant on project-by-project basis. This instrument seems to be ideal to implement in a relative short time, but might be too burdensome to have a strategic impact. The joint support schemes might serve the strategic role. These joint support schemes could theoretically be designed for whole systems, a limited geographic area, or limited to specific technologies. This instrument could thus support a wide variety of projects. The disadvantage of this instrument is that a well-designed joint support scheme is expected to require a large preparation and implementation effort. This investment is expected to contribute significantly to strategic cooperation since they can involve more renewable energy production than on the basis of the joint projects. Furthermore, joint support schemes are expected to be better rooted in the Member States national support and regulatory systems and will thus diminish uncertainty. According to the working document of the Commission, joint support schemes are the most suitable instruments for facilitating renewable energy production on the most economical basis.[129] It is likely that coordinated offshore wind farm development will require the use of one or more cooperation mechanism. Because of the fact that joint support schemes seem to be the most suitable instrument in terms of strategic planning, the focus will be on this instrument.

4.3.2.2 Joint support scheme

In order for a joint support scheme to function it is essential that both Member States benefit from the scheme. The direct and indirect costs and benefits have to be identified and balanced.[130]

The direct costs are the primary support costs for renewable energy production i.e. the feed-in premiums. The direct benefit is the contribution to the renewable energy production target. It can be argued that this may only be an indirect benefit, because Member States have to comply with the 20-20-20 targets in 2020. There are no intermediate targets that have to be met before 2020.

The indirect costs can only be identified in the context of the specific Member States. In general there are following indirect costs: cost for integrating renewable electricity production into the grid, electricity price effects, diminishing incomes for conventional generators,

cooperation mechanism', SWD(2013) 440 final, p. 7-8.

[127] Sascha T. Schröder et al, 'Joint Support and Efficient Offshore Investment: Market and Transmission Connection Barriers and Solutions', *RELP* (2012) nr. 2, p. 114.

[128] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 22.

[129] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 36.

[130] Corinna Klessmann, 'The evolution of flexibility mechanisms for achieving European renewable energy targets 2020 – ex-ante evaluation of the principle mechanisms', *Energy Policy* (2009), nr. 37, p. 4966.

negative employment effects, and reduced security of supply. It should be noted that not all of aspects that have been mentioned are purely negative. Job losses in the conventional generator sector may be compensated by jobs created in the renewable energy sector. The Member States should also be aware of the possibility that all of the indirect benefits will fall in one Member State and that the other Member State is left with the costs. The delicate balancing that is thus required makes that a joint support scheme requires close cooperation of the regulatory authorities in both the UK and the Netherlands.

When designing a joint support scheme there are several barriers that have to be taken into account.[131] These barriers may originate from the national legislation or exist because of the electricity market design of Member States concerned.

From the public law perspective there could be three barriers. The first one is the possible diverge in the national support systems. The systems could be based on feed-in tariffs, feed-in premiums, green certificates or tendering auctions. It is hard to combine two systems which are based on different mechanisms. The second barrier from a public law perspective is the level of support i.e. the willingness of the populations or governments of both countries to pay for the extension of renewable electricity production. The third barrier is the possibility that the electricity market regulation in the concerned Member States varies extensively. For the TKI project this risk is only limited, as both the UK and Dutch markets are highly liberated.

From a market perspective there could be two barriers. The first barrier could be the fact that the power markets of the UK and the Netherlands differ. This could be caused by a lack of price coupling, the use of different technologies and market power concentration. The second barrier is closely linked to the first and is possibly formed by the generation mix of the UK and the Netherlands. When assessing this, one should take account of the different lay outs in both countries with respect to centers of production and load.

4.3.3 Conclusion

Irrespective of the choice for either the instrument of the joint project of the joint support scheme, it is required that the authorities of the UK and the Netherland must cooperate from the earliest stage as possible. For a wind farm developer, the instrument of the joint project is the most preferable instrument as it facilitates the realization of the envisaged infrastructure in a relative short period of time. From a regulatory perspective however, it is best that a well-designed joint support scheme should be put in place before commencing with the construction of the wind farms and infrastructure. The cooperation mechanisms provide the Member States with instruments to coordinate and harmonize their efforts regarding renewable energy. It would not be desirable that different legal regimes for each project in the North Sea are created. It is thus up to the governments to create a basis for a joint support scheme. For this they should enter into an agreement on how subsidies should be awarded and how renewable energy production should be allocated to both states. This agreement should be laid down in an international contract without unilateral opt-out clauses. This diminishes the change that project is endangered by a political change in government in either the UK or the Netherlands.[132] The choice for either a system of feed-in tariffs or tradable green certificates must depend on a social welfare test. Furthermore, the agreement should provide

[131] Sascha T. Schröder et al, 'Joint Support and Efficient Offshore Investment: Market and Transmission Connection Barriers and Solutions', *RELP* (2012) nr. 2, p. 115-116.

[132] Sascha T. Schröder et al, 'Joint Support and Efficient Offshore Investment: Market and Transmission Connection Barriers and Solutions', *RELP* (2012) nr. 2, p. 120.

for an institutional imbedding in the form of a joint committee.[133] This joint committee should coordinate and monitor the implementation and the functioning of the joint support scheme. Finally, the agreement should provide for an effective and efficient dispute settlement forum.[134]

[133] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 40.
[134] European Commission, 'Commission Staff Working Document - Guidance on the use of renewable energy cooperation mechanism', SWD(2013) 440 final, p. 41.

5 Consequences for investment decision making

5.1 Introduction

The construction of integrated electrical offshore infrastructure, which includes an interconnecting link between two offshore wind farms, creates legal challenges. These legal challenges influence the decision making process of an investor. In this final chapter we shall address the consequences of the findings on the regulatory framework for this decision making process.

A twofold approach will be taken. We shall address the issues which are relevant for a private investor and those which are relevant for the TSO investor. It should be noted that we shall not address issues as securities for bank loans or other financial instruments in detail.

Because some of the issues are relevant for both perspectives, we shall address these first before moving on to the different investor perspectives. For the sake of clarity, one should recall that under the private investor perspective is understood the case in which an investor other than the TSO is investing in the interconnecting link.

5.2 General issues

5.2.1 Defining the link

The research shows that when a subsea cable is constructed to connect two wind farms or to connect an offshore wind farm to the onshore grid of a foreign state, this subsea cable sometimes cannot be qualified in legal terms. The cable can within the current European legal regime not be qualified as an interconnector as it not connects the grids of two TSO to each other. This creates some legal uncertainty regarding the status of the cable and the obligations related to it, as multiple scenarios become possible. This is due to the fact that an unidentified cable does not fall under the scope of the Electricity Directive or Electricity Regulation. The cable is *sui generis* at this moment, meaning that there is no common accepted definition for this cable.

If ones assume that this cable is either a transmission cable or an interconnector, then it is uncertain which regal regime is applicable to the cable. It was found that the English legislator is precise on this matter; the operator of an interconnector cannot at the same time be involved in transmission activities. Because there are specific rules on interconnectors apart from the rules concerning transmission, it would seem that these activities cannot be combined under the current legal framework. When one cable can be treated as an interconnector as well as a transmission, then two sets of rules would apply and it remains to be seen whether a cable can be operated in an effective manner if this cable is regulated to be used for transmission activities as well as interconnection activities.

There are two possible solutions that could solve this problem. The first is an extensive interpretation of the European law; this requires no additional legislative action from the European legislator. For the use of an extensive interpretation, one can focus on the aim of EU electricity legislation. The aim of the different electricity packages was and remains the creation of one internal energy market for both natural gas and electricity. To create such an internal energy market two specific matters need to be addressed. The first is the regulation of this market. This encompasses different issues such as unbundling, regulated third party access, consumer protection and a harmonized system of market regulation by European public authorities. The second matter is the construction of a transnational European grid on which trade can take place. One clearly sees that the creation of one European electricity market requires more than only legislative action.[135] To this end a special regulation, Regulation (EU) 347/2013[136] (hereinafter: TEN-E Regulation) was created to facilitate the construction of this new European infrastructure. The EU legislator explicitly stated in 2013, one year before the completion of the internal energy market, that 'the market remains fragmented due to insufficient interconnections between national energy networks and to the suboptimal utilisation of existing energy infrastructure.'[137] It should be noted that the construction of new interconnections between the member states does not only serve the purpose of the internal electricity market, it also aims at contributing to the realization of the 20/20/20 goals.[138] The EU legislator stated that the EU legislation should facilitate innovative transmission technologies for electricity allowing for large scale integration of renewable energy.[139]

The TEN-E regulation does not automatically apply to infrastructural projects. It is required that the project is regarded as a project of common interest for which several criteria have to be met.[140] First there are the general requirements. The first general criterion is that project needs to be situated within a priority corridor (art. 4(1)(a) TEN-E Regulation). The North Sea is such a priority corridor which is listed on the first annex of the regulation. It should be noted that the EU legislator mentions specifically the Northern Seas offshore grid which should be used for the purpose of transporting electricity from renewable offshore energy sources. The second general criteria is that the long term benefits of the project outweighs the cost of the project (art. 4(1)(b) TEN-E Regulation). This is the case if one looks at the increased social welfare that is created with an interconnection wind farm combination. The third general requirement is that the project needs to be situated between one or more member states or shall have distinctive benefits for more than one member state if the project is located in one member state. For electricity projects there are a number of additional requirements (art. 4(2)(a) TEN-E Regulation). These include among others that the project involves high voltage networks and contribute significantly to market integration and sustainability.

When one takes the TEN-E regulation in to consideration when reading the EU legislation on the internal electricity market, the use for a grammatical interpretation of the Electricity Regulation might not be as strong as it seems. Moreover when one takes notice of the fact that energy legislation has always been drafted with the idea of fixed structure of the sector which is based around the generating of electricity in large onshore generating sites. This explains why the regulator has only paid attention to offshore activities only recently (UK) or not at all (NL). In the paradigm in which decentralized renewable production, smart grids and offshore wind farm play a pivotal role, a reinterpretation of the EU energy legislation might be required. What is then considered to be an interconnection under the Electricity Regulation might be different from the actual wording.

[135] Recital 5 of Electricity Directive.
[136] OJ L 115, 25-04-2013.
[137] Recital 8 of TEN-E Regulation.
[138] Recital 7 of TEN-E Regulation.
[139] Recital 38 of TEN-E Regulation.
[140] Art. 4 TEN-E Regulation in conjunction with the annexes.

The second is the formulation of a definition for this new type of infrastructure, and this definition should be laid down in new European legislation. It is assumed that the extensive interpretation is faster to apply, but it also creates a degree of legal uncertainty. The formulation of the new definition will be more time consuming, whereas it provides for more legal certainty on the other hand. The new definition and legal framework can be inserted in the European legislation like the direct line (Art. 2(15) Electricity Directive) or the smart grid (Art. 2(7) TEN-E Regulation), thus making the interconnecting link a special purpose grid.

When formulation a new definition for the interconnecting, there remains the issue on the moment of deciding on a definition. There are two options open for the legislator. Wait for the moment on which the construction of the interconnecting link is technological feasible and then regulate that type of infrastructure. Or regulate the interconnecting link by way of a temporary definition as a stop gap solution. Choosing the latter option would mean that the construction of the infrastructure that is envisaged in this project will be made possible at this moment.

5.2.2 The role of the OFTO regime

Part of the integrated electrical offshore infrastructure on the UK side will, under certain circumstances, fall under the OFTO regime. This tendering regime for offshore transmission infrastructure is likely to be applicable the part of the infrastructure that connects the UK offshore wind farm to the UK shore. The first question which has to be addressed is whether the OFTO licensee is a TSO. The stance of the UK regulatory authority is that this is the case. This means that all of the obligations of the European Electricity Directive and Electricity Regulation apply to the OFTO license holder.

In addition, the research has shown that there are a number of disadvantages to the OFTO tendering regime. The most important disadvantage is the compensation that the wind operator receives if the generator-build model is used. It is expected that the wind operator in general will not receive the regulated profit of ten percent due to the fact that cost assessment is based on the construction under optimal circumstances. This makes that the wind farm operator bears the risk of any complication in the construction of the of offshore transmission assets.

Finally, there is the question of what is exactly being tendered. It remains to be seen whether the tendering procedure will encompass the whole capacity on the offshore transmission infrastructure, being transmission capacity and interconnection capacity, or only the capacity that is being used for the transmission of electricity generated by a UK wind farm.

5.2.3 Subsidies

The operators of the offshore wind farms will need access to subsidies in order to produce electricity economically. As indicated, the existing subsidies regimes are national in scope. The investors in the wind farms should be aware that the direction in which his electricity flows will have a direct effect on his income.

In the UK, offshore wind energy generation is currently supported by a ‘renewables obligation’ requirement under the Electricity Act until March 2017and the Contracts for Difference scheme. The renewables obligation is a requirement on licensed UK electricity suppliers to source a specified proportion of the electricity they provide to customers from eligible renewable sources and to produce ROCs in proof of this. The Contracts for Difference is a subsidies scheme based on feed-in tariffs, which guarantees producers of renewable energy and electricity from low carbon sources a fixed minimal income.[141]

Offshore wind energy in the Netherlands may benefit from government subsidies encouraging sustainable energy production, especially renewable energy production. The current subsidizing regime is the *Stimuleringsregeling duurzame energieproductie* (SDE+). This latest scheme is available only to businesses and organizations, and only the most cost effective techniques will be granted subsidies.

The Dutch subsidizing regime is based on the idea that in order to receive subsidies, the generated electricity needs to be fed in on the national grid. This makes it impossible for a Dutch wind farm operator to transport the electricity to the UK grid, and receive subsidies from the Dutch government. The situation is different should the Dutch wind farm operator export the electricity to the UK and apply for subsidies under the Contracts for Difference regime. In that case, the Dutch wind farm operator is eligible for subsidies. It should be noted that a wind farm operator in the UK, cannot apply for SDE+ subsidies should he export his electricity to the Dutch grid.

5.2.4 Coordinating of permitting

For the construction of the offshore wind farms and the additional electrical infrastructure, several permits are required. This means that permitting authorities in both the Netherlands and the UK should coordinate their efforts so that the permits can be granted at the same moment.

5.3 The private investor perspective

5.3.1 Constructing the infrastructure

When a private investor constructs an interconnecting link which is not classified as an interconnector, then one speaks of an unregulated cable i.e. not subjected to regulated TPA. It is somewhat misguiding to speak of an unregulated cable. There is still public law applicable on both the international, European and national level. From the international perspective UNCLOS is the most relevant piece of legislation. On the European level there are directives that regulate activities in the North Sea, such as the Habitats Directive, the Bird Directive and the Marine Strategy Framework Directive. These directives deal with the environmental framework and have been implemented in both the Dutch and UK legislation. Furthermore, there are the European rules on competition as laid down in the TFEU.

5.3.2 Access to the interconnecting link

The interconnecting link, if it is considered to be a *sui generis* cable, could still be classified as an essential facility. There is no exact definition for essential facilities. However, the basic idea is that it is something owned or controlled by a (…) dominant undertaking to which other undertakings need access in order to provide products or services to customers.[142]When the interconnecting link is treated as an essential facility, comparable to upstream pipelines in the hydrocarbon-sector, it means that market participant should have non-discriminatory access to the cable. This rule of non-discriminatory access is based on the general principle of equality

[141] Electricity from low carbon sources is electricity that is generated without the emission of large amounts of carbon. These techniques include, apart from wind, solar and hydro, nuclear energy and coal fired generating in conjunction with carbon capture and storage.
[142] Jones & Sufrin, ‘EU competition law’, p. 486.

and codified in article 102 TFEU on the prohibition of abuse of market powers. Denying a market party access to an essential facility is considered to be an abuse of a dominant market position.

It should be noted that the essential facility doctrine is used when no other legislation applies. Furthermore, it is a form of *ex post* regulation. Only after a party is denied access to an essential facility can he turn to the courts for protection.

5.4 TSO investor perspective

5.4.1 TenneT as the offshore TSO

At present it is unclear how the role of TenneT in the EEZ under the new Electricity Act is going to take shape. However, things have become clearer since the presentation of a draft bill that was published for consultation.[143] But due to the high degree of ambiguity, we have scrutinized two approaches. In the first approach, the Electricity Act '98 will be made applicable to the Dutch EEZ in full through an offshore paragraph. In the second approach, the German example will be followed by creating a more limited regime to offshore activities under the Electricity Act '98.

Before an offshore paragraph can be inserted in the Electricity Act, it is required that the legislator formulates the relevant definitions for the offshore grid. In this research the focus was on the definitions on grids (Art. 1(1)(b) Electricity Act '98) and interconnections (Art. 1(1)(as) Electricity Act '98).

The new offshore paragraph should strike a balance between the ability of TenneT to operate as an offshore TSO and the needs of offshore wind farm developers. It seems that the offshore paragraph should provide for strategic offshore grid planning. This strategic planning should be laid down in an offshore grid plan. This offshore grid plan should be developed by TenneT in close cooperation with the industry and the government. This is because of the triangular constellation that is involved in the planning of the construction of offshore wind farms. Furthermore, the offshore paragraph should provide for a legal basis for delegated legislation, such as technical codes.

However, the situation will be completely different should the legislator opt for the implementation of the system that is used in Germany. The German regime for offshore wind farm connections is based on a liability regime. Before discussing the liability regime, it is important to mention that the German TSOs are also under the obligation to draft an offshore grid development plan (S. 17b EWG). This offshore grid development plan enables wind farm developers and the TSO to perform a strategic planning for the development of offshore wind farms and the connections to the transmission.

Under the *Energiewirtschaftsgesetz* (EWG), the TSO is responsible to connect producers of electricity to the grid (S. 17(1) EWG). When the TSO is unable to provide the wind farm developer with a working connection to the grid, the TSO is obliged to pay damages to the wind farm developer (S. 17e EWG).

[143] http://www.internetconsultatie.nl/wsvstroom (last accessed 7 August 2014).

Finally, if the Dutch legislator decides to classify the offshore grid as a transmission grid, it could be possible that the interconnecting link can be deemed to be an interconnector. The interconnector than connects the UK offshore transmission grid, operated by the OFTO license holder, to the Dutch offshore transmission grid which is operated by TenneT.

5.4.2 The role of the ACM

When the Electricity Act made applicable to the EEZ the ACM, as the regulatory authority, is competent to regulate TenneT. The ACM will set the tariffs and conditions. The ACM must do this with due regards for multiple and sometimes conflicting interests. These interests include those of the grid operators, the producers of electricity, the consumers and the society as a whole. It is assumed that the position of TenneT as an offshore TSO will be different than the position of TenneT as the onshore TSO. This is because of the specific circumstances in the offshore setting.

The system of regulated tariffs enables TenneT to do investments. There are three types of investments: regular investments, substantial investments and interconnector investments. In this research the focus was on the substantial investments (Art. 20e Electricity Act ’98). It is a system of ex-ante regulation. This means that TenneT makes a request at the ACM before making the investment.

It should be noted that this system is introduced in 2010. Under the previous regime, the *uitzonderlijke en aanmerkelijke investeringen* (Art. 41b(2) Electricity Act ’98), a request from a grid operator being either TenneT or a DSO was rarely granted. It is expected that with the new Electricity Act which the legislator is drafting, the existing regulations for the assessment of investment decision will be replaced to suit the new offshore situation.

5.4.3 The auctioning of capacity

In the unlikely situation that the interconnecting link could be qualified as an interconnector, there is the aspect of granting access to this cable for the wind farm operators. One should recall that the European legislation prescribes the unbundling of TSOs and trading entities. This means that the party who owns the wind farms cannot have an interest in the interconnector or interconnecting link. This means that the wind farm should get access to the cable on the ground of priority access in the case of lack of capacity. However, access to the interconnecting function of the cable in time of scarcity is only available through a competitive auction.

In order to connect the wind farm to an interconnector it is required to put a special regime in place. The wind farm in theory could acquire access on the interconnector by bidding on the day ahead spot market if there is insufficient capacity. This is however not possible due the intermitted character of wind energy production. The output of a wind turbine can only be predicted for a couple of hours ahead. This makes it impossible for the wind farm operator to buy capacity on the day ahead spot market.

This means that the wind farm operator needs to apply for an exemption, so that part of the interconnector may be reserved for the offshore wind farm (Art. 17 Electricity Regulation). It should be noted that the criteria which have to meet are strict, and the burden of proof to show that the necessary criteria are met lies with the applicant. Under the current legal regime, four requests for exemptions where brought before the European Commission. The EU Commission assesses the criteria for granting an exemption strictly.

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