

Environmental and Social Data Sheet

Overview

Project Name:	<i>Offshore HVDC Transmission Project</i>
Project Number:	<i>2012-0630</i>
Country:	<i>Germany</i>
Project Description:	<i>The Project consists of three High Voltage Direct Current (HVDC) offshore power links - known as HelWin1, SylWin1 and DolWin1 - aimed at connecting far offshore wind farms located in the North Sea to the German Electricity Grid.</i>
EIA required:	<i>An EIA was required for the cable connection from the 12 nmz limit to the onshore converter station of the DolWin1 power link.</i>
Project included in Carbon Footprint Exercise ¹ :	no

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

Underground/undersea cables and converter stations, both onshore and offshore, by virtue of their technical characteristics are neither listed under Annex I nor under Annex II of the EIA Directive. Given the size of the connections and the sensitivity of the sea area, however, the competent authorities requested environmental studies in line with the EU EIA Directives and Appropriate Assessments (AA) in line with the EU Nature Directives. All relevant authorities, stakeholders, and the public were consulted during the authorisation process.

The location of cable corridors and offshore converter stations are compliant with applicable spatial development plans which underwent Strategic Environmental Assessments themselves. Given the environmental sensitivity of the German Bight, the cable corridors cut through several areas of nature conservation interest, including Natura 2000 sites and Nature Parks.

The Competent Authorities confirm after detailed analysis that most potential risks are non-significant under the condition of specific mitigation measures. These comprise, inter alia, bundling of power links, cable routing along least sensitive areas, application site-specific cable-laying techniques, limitation of works to time windows outside main bird breeding and resting periods, and state of the art noise reduction during foundation piling. Construction activities in sensitive areas are monitored and supervised by qualified experts. On some protected habitats and species, however, the risk of significant local impact could not be excluded. In these cases, the Competent Authority has, after minimising risks through appropriate mitigation measures and consulting the relevant nature conservation authorities, given its consent on an exceptional basis because of the overriding public interest of the project, the lack of alternatives, and the fact that those habitats and species affected are not generally endangered through the project.

The Project has been granted all key environmental consents except for the permit for the ca. 40 km AC cable connection between the SylWin Alpha offshore converter station and the Butendiek offshore wind farm. The latter permitting process is on-going and relates to one third of the power link's connection capacity. It is proposed that receipt of the following documentation, satisfactory to the Bank, is a precondition for disbursement related to the AC link connecting Butendiek to SylWin1:

- Final environmental impact studies including non-technical summary and environmental permit related to the AC connection between the offshore converter station SylWin1 and the Butendiek offshore wind farm.
- A written confirmation from the competent nature conservation authority, or an equivalent assessment satisfactory to the Bank, that the connection between the

¹ Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100,000 tons CO₂e/year absolute (gross) or 20,000 tons CO₂e/year relative (net) – both increases and savings.

offshore converter station SylWin1 and the Butendiek offshore wind farm does not have a significant negative impact on any site of nature conservation importance.

The promoter has formally objected against a compensating measure included in all three project permits related to the EEZ: the mandatory decommissioning of certain amounts of third parties' idle cables in the North Sea. According to the promoter such compensating measure is legally not justified and incurring high financial risk. An official complaints procedure is ongoing. It is proposed that the promoter undertakes to send to the Bank proof of a settlement agreement with the competent authorities, once available.

In order to allow the Bank a close follow up of environmental issues during construction, it is proposed that the promoter undertakes to forward to the Bank a final summary report comprising the key aspects of the environmental monitoring activities and results during the construction phase of the three power links. In addition, it is proposed that the promoter undertakes to forward to the Bank details about the implementation of alternative compensation measures that are deemed to replace those which were subject to the promoter's objection.

Based on the information available and under consideration of the proposed conditions, the environmental processes undertaken and results indicated are acceptable for Bank financing.

Environmental and Social Assessment

Environmental Assessment

The project consists of three power links from offshore wind farms to the onshore transmission grid: The cable connections themselves are denominated DolWin1, HelWin1, and SylWin1. The corresponding offshore converter stations are named DolWin alpha, HelWin alpha, and SylWin alpha. The links' onshore converter stations are named Dörpen/West (DolWin) and Büttel (HelWin/SylWin), respectively. For simplicity reasons, the following text uses the names DolWin1, HelWin 1 and SylWin 1 only for the entire power links including all related installations.

All power links follow the approach to bundle grid connections from several offshore wind farms in order to minimise environmental impacts particularly during construction. Their environmental approval processes are partly referring to permits that had previously been granted to individual offshore wind farms' direct grid connections.

The offshore installations are located inside the German Bight which is an industrially intensely used area with many competing users (shipping, fishery, tourism) on the one hand side and many areas of nature conservation interest on the other.

Project parts inside the German Exclusive Economic Zone (EEZ) of the North Sea are consented by the German Maritime and Hydrographic Agency on the basis of the Regulation of Installations inside the EEZ. Cable routes onshore and offshore up the 12 nm zone are consented by the Authority for Road Construction and Traffic Development, Lower Saxony (DolWin1) and by the Ministry for Agriculture, Environment and Rural Areas, Schleswig Holstein (HelWin1 and SylWin1), respectively. These are the environmental Competent Authorities in charge, at federal state level, as defined by the Energy Industry Act. Onshore converter stations are permitted by regional Competent Authorities on the basis of the Federal Industrial Emissions Act.

DolWin1:

The DolWin 1 power link has a capacity of 800 MW. It is designed to export electricity from three offshore wind farms located inside the German EEZ in the North Sea.

Exclusive Economic Zone, EEZ (offshore beyond 12 nm zone):

Inside the EEZ, the DolWin1 power link consists of the offshore converter station, AC cable connections to the adjacent offshore wind farms "MEG Offshore 1", "Borkum West 2", and "Borkum Riffgrund I" (8-14 km each), and 41 km of DC export cable. The location of the offshore converter station and the cable route inside the EEZ are compliant with the relevant spatial plan (Raumordnungsplan Nordsee2009) but nevertheless partly inside a protected habitat under national law (shallow water sand bank). The closest Natura 2000 site is 2 km away (SCI DE 2104301 "Borkum-Riffgrund").

The promoter's application documents included a detailed environmental impact study (EIS) including an Appropriate Assessment in line with EU Directives. The EIS assesses potential impacts on human beings, macro zoo benthos, fish, birds, marine mammals, biodiversity, soil, water, climate/air, landscape and cultural heritage. It also assesses cumulated impacts. The AA comprises an in-depth assessment of potential impacts on protected habitats and species.

The DolWin1 power link does not have any significant environmental impacts inside the EEZ. During construction, the main impacts are related to sound emissions during piling foundations of the offshore converter stations and loss of partly protected sea bed habitat and benthos in the very construction area. Piling sound emissions could, if not mitigated, seriously injure protected marine mammals. These potential impacts are however effectively mitigated through appropriate measures including scare off measures prior to piling, application of state-of-the art piling technique including soft start, maximum sound emission levels, and detailed sound monitoring during works. Work related impacts on sea bed habitat and benthos are locally limited. Further, benthos composition in the project area is "average" for this part of the North Sea and not protected.

During operation, waste heat from the cables must not increase temperature levels of the sea bed by more than 2 K in 20-30 cm depth in order to avoid adverse environmental impacts. This is ensured through appropriate cable dimensioning and minimum burying depths.

The promoter had applied for the permit in December 2009. The competent authority analysed the studies in detail and consulted the relevant authorities, NGOs and stakeholders. A hearing took place in January 2012 in order to discuss the parties' comments. On 6 September 2012, the Competent Authority issued the corresponding permit. A compensating measure is requested in view of residual non-significant impacts in the immediate footprint area of the power link. It is about the decommissioning of ca. 100 km of yet to be determined old cables inside the EEZ. The Competent Authority in its consent justification admits uncertainties about related efforts. The promoter has formally objected against this measure as it incurs too high financial risks according to its judgement.

Offshore inside 12 nm zone until grid connection point (excl. onshore converter station):

The DolWin1 export cable measures ca. 34 km from the 12 nm link via the island Norderney to the landfall. From there the cable measures ca. 90 km to the onshore converter station. It follows cable corridors that are laid out in the relevant spatial plans (Landes Raumordnungsprogramm Niedersachsen) and partly already utilised by existing power links. The cable corridor passes through the SCI DE2306301 "Nationalpark Niedersächsisches Wattenmeer", the SPA DE2210401 "Niedersächsisches Wattenmeer und angrenzendes Küstenmeer", the SPA DE 2309431 "Ostfriesische Seemarsch zwischen Norden und Esens".

The DolWin 1 link is using a cable duct through Norderney which had been constructed earlier on the basis of a separate authorisation process. It is utilised by other power links and features free capacities for DolWin1.

The Competent Authority requested an Environmental Impact Assessment for the entire cable route of DolWin1 for precaution reasons.

The promoter's application documents included a detailed environmental impact study (EIS) including an Appropriate Assessment in line with EU Directives.

The main potential environmental impacts include during construction the visual and acoustic disturbance of protected and unprotected species and loss of habitat and benthos in the immediate area of works. During operation potential impacts may be caused by heat release from the cables. Most of these impacts, including those on protected habitat and species, are non-significant when mitigation measures are taken into account. A comprehensive set of mitigation measures is therefore in place which comprises, amongst others, strict safeguards against water and soil contamination, use of site-specific cable laying techniques including compulsory horizontal directional drilling, minimization of construction sites, and limitation of works to time windows outside bird breeding and resting periods.

Some potentially significant impacts however remain after mitigation, particularly when cumulated impacts of the construction of several power links in the same corridor are taken into consideration:

- A potentially significant visual and acoustic impact during construction cannot be excluded on four protected bird species (European golden plover, black headed gull,

redshank, European curlew – listed in Annex I of the EU Birds Directive) inside the SPA “Niedersächsisches Wattenmeer und angrenzendes Küstenmeer” (DE2210-401). This would be in conflict with the SPA’s objectives.

- A potentially significant impact has been identified on several nationally protected habitats (mudflats, wetlands, grassland, marsh, woods). These impacts cannot be offset. Further sensitive habitats in the sea area between the island Norderney and the 12 nm limit may also be significantly affected but the official identification of protected habitats inside this sea area is not completed yet.

The above residual risks require formal exemptions from the Competent Authority which have been granted in the course of this authorisation process after consultation of the relevant nature conservation and Nature Park authorities. They are justified on the basis of an overriding public interest in the power link and under consideration that i) there is no reasonable alternative to the proposed cable corridor, ii) impacts are minimised through adequate mitigation measures, and iii) the project does not deteriorate the general living conditions of the affected species and habitats.

Based on the same rationale the Competent Authority also granted approval to the crossing of the Nature Park. Highly sensitive areas of the park are avoided by the selected cable corridor and measures are in place to maintain the coherence of the regional Natura 2000 network (as imposed during the preceding authorisation procedure for the Norderney cable ducts).

Residual impacts of the DolWin1 project in the section 12 nm zone to onshore converter station must be compensated by the implementation of 17ha of new biotope at “Leybucht-Mittelplate” and in addition through payment of compensating fees to several regional nature conservation authorities along the cable route (ca. 400,000 Euro in total).

The promoter applied for this permit in December 2010. The Competent authority issued the permits on 30 June 2011 for the cable section from the 12 nmz limit to the landing point and on 01 February 2012 for the remaining section.

The consent is conditional to comprehensive monitoring during construction, including through a qualified nature conservation expert, and operation.

Onshore converter station and grid connection:

The converter station “Dörpen/West” is a green field project, located outside urban areas and outside Natura 2000 sites. Main environmental impacts are expected from general work related disturbances and during operation from noise and visual appearance.

The promoter applied for the consent to build and operate the station on 14 January 2011. The Competent authority (Trade Supervisory Office of the town of Emden) consulted relevant authorities, verified that the project is compliant with all applicable law and regulations and issued the permit on 5 July 2011. The permit comprises environmental mitigation measures. Compensating measures (plantations) have been defined in view of the project-related land sealing.

The onshore converter station Dörpen/West is directly connected to the existing 380-kV overhead line Diele–Meppen. This modification of the 380-kV overhead line was permitted by a plan permit of August 12, 2011.

HelWin1:

The HelWin 1 power link has a capacity of 576 MW. It is designed to export electricity from two offshore wind farms located inside the German EEZ in the North Sea.

Exclusive Economic Zone, EEZ (offshore beyond 12 nm zone):

Inside the EEZ, the HelWin1 power link consists of the offshore converter station, AC cable connections to the adjacent offshore wind farms “Nordsee Ost” and “Meerwind Ost und Süd” (4-8 km each), and 20 km of DC export cable. The location of the offshore converter station and the cable route inside the EEZ are compliant with the relevant spatial plan; most of the cable connection inside the EEZ is however located inside the SPA DE 1011401 “Östliche Deutsche Bucht”. Another relevant area is SCI DE1209301 “Sylter Außenriff” which is about

10 km away from the project. Small cable parts may in addition be placed on protected habitats under national law (coarse sand/ gravel sea bed with high biodiversity) but their geographical identification is still ongoing.

The promoter's application documents included a detailed environmental impact study (EIS) including an Appropriate Assessment in line with the EU Directives. The EIS assesses potential impacts on human beings, macro zoo benthos, fish, birds, marine mammals, biodiversity, soil, water, climate/air, landscape and cultural heritage. It also assesses cumulated impacts. The AA comprises an in-depth assessment of potential impacts on protected habitats and species.

The HelWin1 power link inside the EEZ does not have any significant environmental impacts, including on areas of nature conservation interest. The same impacts and mitigation measures apply as described in the DolWin1 case. However, due to closer proximity to the habitats of protected marine mammals, additional sound reduction measures are put in place (buffer dam).

The promoter had applied for this permit in June 2011. The competent authority analysed the studies in detail and consulted the relevant authorities, NGOs and stakeholders. A hearing took place in July 2011 in order to discuss the parties' comments. On 2 July 2012, the Competent Authority issued the corresponding permit. A compensating measure is requested in view of residual non-significant impacts in the immediate footprint area of the power link. It is about the decommissioning of ca. 38 km of yet to be determined old cables inside the EEZ. The Competent Authority in its consent justification admits uncertainties about related efforts. The promoter has formally objected against this measure as it incurs too high financial risks according to its judgement.

Offshore inside 12 nm zone until grid connection point (excl. onshore converter station):

The HelWin1 export cable measures ca. 65 km from the 12 nm zone limit to the landfall in Neuenkoog, Büsum. From there the cable measures another ca. 45 km to the onshore converter station. The projected cable route from the 12 nm limit to the landfall in Neuenkoog crosses the SPA DE0916491 "Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete", SPA DE1813491 "Seevogelschutzgebiet Helgoland" and SCI DE0916391 "National Park S-H Wattenmeer und angrenzende Küstengebiete". It complies with the objective of the relevant spatial plan (Landesentwicklungsplan Schleswig-Holstein 2010) to bundle grid connections inside the 12 nm zone.

The promoter's application documents included an updated environmental impact study (EIS) including an Appropriate Assessment (AA) for the offshore and landfall area in line with EU Directives. The EIS identifies the projected cable route as a preferred one in comparison with several alternatives.

During construction HelWin1 may cause temporary disturbances to protected species and habitats, and loss of habitat and benthos in the vicinity of works. During operation it generates off-heat from the cables. All of these impacts, including those on protected habitat and species, are non-significant when mitigation measures are taken into account. The mitigation measures are comparable to those already described for DolWin1 plus additional safeguards to avoid disturbances to new-born seals and amphibians in protected wetlands. The crossing of an area of cultural heritage interest will be pursued in close cooperation with corresponding experts.

The only potentially significant but geographically limited residual impact has been identified on nationally protected habitats (mudflats) which cannot be offset.

The crossing of the Nature Park and related protected habitats under national law require formal exemptions from the Competent Authority which have been granted in the course of this authorisation process after consultation of the relevant nature conservation authorities. They are justified on the basis of an overriding public interest in the power link and under consideration that i) there is no reasonable alternative to the proposed cable corridor, ii) impacts are minimised through adequate mitigation measures, and iii) the project does not deteriorate the general living conditions of the affected species and habitats.

Residual impacts of the HelWin1 project are to be compensated through payment of ca. EUR 3m to the Competent Authority plus substitute measures on 54 ha.

The promoter applied for this permit in May 2009. The Competent authority issued the permits on 7 September 2010 (for the cable section from the 12 nmz limit to the landing point) and on 31 January 2011 (for the remaining section), respectively.

The consent is conditional to comprehensive monitoring during construction, including through a qualified nature conservation expert, and operation.

The approved cable route for HelWin1 runs through a permitted but not utilised shellfish cultivation area belonging to a third party. 7.5 ha of this shellfish cultivation area are affected by the cable route, making this area unfit for future shellfish cultivation. The promoter intends to enter into a license agreement with this third party similar to the license agreements concluded with land owners relating to onshore cable routes. Alternatively, the affected third party may bring a lawsuit against the Land of Schleswig-Holstein. The issue might, therefore, be solved by the Land of Schleswig-Holstein by allocating a different shellfish cultivation area to the third party which does not interfere with the cable route.

Onshore converter station and grid connection:

The transformer station "Büttel" is also a greenfield project, located outside urban areas and outside Natura 2000 sites. It will eventually host all converter stations for the power links HelWin1 and 2 and SylWin1 and 2.

The promoter applied for the consent to build and operate a switchyard as part of a new substation in September 2009. The Competent authority (Agency for Rural Areas of Schleswig-Holstein) consulted relevant authorities, verified that the project is compliant with all applicable law and regulations and issued the permit on 06 September 2010. In January 2011 the promoter applied to install and operate the corresponding converter station at the same location. The Competent Authority also authorised this activity after consultation and verification on 11 August 2011.

The connection of the onshore converter station to the 380-kV grid is implemented through an additional transmission line to the existing 380-kV overhead line Brunsbüttel – Wilster. This modification of the 380-kV overhead line was permitted by a plan approval decision on January 20, 2012.

SylWin 1:

The SylWin 1 power link has a capacity of 864 MW. It is designed to export electricity from three offshore wind farms located inside the German EEZ in the North Sea.

Exclusive Economic Zone, EEZ (offshore beyond 12 nm zone):

Inside the EEZ, the SylWin1 power link consists of the offshore converter station, AC cable connections to the adjacent offshore wind farms "DanTysk", "Butendiek" and "Sandbank" (10 - 40 km each), and 94 km of DC export cable. The location of the offshore converter station and the cable route inside the EEZ are compliant with the relevant spatial plan. Most of the cable connection inside the EEZ is however located inside the SPA DE 1011401 "Östliche Deutsche Bucht" and inside the SCI DE1209301 "Sylter Außenriff". HVDC and AC cable corridors partly coincide with protected habitats under national law (coarse sand/ gravel sea bed with high biodiversity, sandbanks, reefs).

The promoter has applied for this permit in December 2011, covering the SylWin1 power link parts inside the EEZ but excluding the AC cables between the offshore converter station and the "Butendiek" offshore wind farm which are located in a more sensitive sea area.

The promoter's application documents included a detailed environmental impact study (EIS) including an Appropriate Assessment in line with the EU Directives. The EIS assesses all relevant impacts including cumulated impacts. The AA comprises an in-depth assessment of potential impacts on protected habitats and species.

The SylWin1 power link inside the EEZ (excl. Butendiek connection) does not have any significant environmental impacts, including on areas of nature conservation interest. Similar impacts and mitigation measures apply as described for the DolWin1 power link. Protected habitats are bypassed where possible. Due to closer proximity to the habitats of protected marine mammals, piling is only allowed in defined periods and limited to a maximum duration.

The competent authority analysed the studies in detail and consulted the relevant authorities, NGOs and stakeholders. A hearing took place in July 2012 in order to discuss the parties' comments. On 23 May 2013, the Competent Authority issued the corresponding permit. A compensating measure is requested in view of residual non-significant impacts in the immediate footprint area of the power link. It is about the decommissioning of ca. 105 km of yet to be determined old cables inside the EEZ. The Competent Authority in its consent justification admits uncertainties about related efforts. The promoter has formally objected against this measure as it incurs too high financial risks according to its judgement.

A separate application was submitted in January 2012 for the AC cables between the offshore converter station and the "Butendiek" offshore wind farm. The application documents include detailed environmental impact studies and Appropriate Assessments in line with EU Directives. The consenting process is ongoing.

Offshore inside 12 nm zone until grid connection point (excl. onshore converter station):

The cable connections for SylWin1 and HelWin1 in the area from the 12nmz limit to the onshore converter station were authorised in a joint procedure. See HelWin1 section for details.

Onshore converter station and grid connection:

The Onshore converter station for SylWin1 power link is an extension to the onshore converter station of HelWin1. The Agency for Rural Areas of Schleswig-Holstein (Landesamt für ländliche Räume) issued a permit for this extension on 1 December 2011.