

Environmental and Social Data Sheet

Overview

Project Name:	NORDLINK HVDC PROJECT
Project Number:	2015-0911
Country:	Germany and Norway
Project Description:	The proposed project concerns the implementation of a bipolar High Voltage Direct Current (HVDC) link interconnecting Norway and Germany across the North Sea. The project will have a rated capacity of 1400 MW, terminal voltage of ± 515 kV and a total route length of 624 km. The submarine route of the project crosses German, Danish and Norwegian waters.
EIA required:	no (equivalent procedure/assessment undertaken for the overhead line in Norway)
Project included in Carbon Footprint Exercise ¹ :	yes
(details for projects included are provided in section: "EIB Carbon Footprint Exercise")	

Environmental and Social Assessment

Environmental Assessment

The project consists of the following parts:

- A converter station in Wilster (Germany);
- 2x55 km of land cable in Germany;
- 2x516 km of submarine cable (154 km in German waters, 228 km in Danish waters and 134 km in Norwegian waters);
- a transition station in Vollesfjord (Norway), including a few hundred meters of landing tunnel;
- 53 km of double circuit direct current overhead line from Vollesfjord to in Ertsmyra (Norway);
- a converter station in Ertsmyra (Norway).

In Germany and Denmark the project falls neither under Annex I nor Annex II of the EIA directive. Environmental studies including Appropriate Assessments and public consultations have been however carried out in the context of the licensing processes. The Norwegian route of the project instead comprises an overhead line and therefore, if located in the EU, would fall under Annex I of the EIA Directive. In Norway the project has undergone an EIA-equivalent process including environmental and biodiversity assessment and public consultation.

The environmental authorisation of the project is complete in Germany and Norway. The permission to install the cables in the Danish exclusive economic zone was granted on 21/10/2014 but has now lapsed because works at sea have not started in summer 2016 as originally planned. A renewal of the permission has been sought but not yet granted.

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.

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Norway:

The Ministry of Petroleum and Energy granted the construction licence for the project on 13/10/2014 pursuant to Section 3-1 of the Norwegian Energy Act and to Section 3-2 of the Norwegian Offshore Energy Act. Environmental analyses including biodiversity assessments and public consultations for the project have been carried out in the context of the licensing process. The duration of the licence is 30 years.

According to the construction licence, the greatest negative effects of the facility at sea will be linked to the construction phase. The total effects of the proposed submarine cable are considered to be relatively small. The cable laying may impose restrictions on fishermen and shipping. As good communication to these industries during the construction phase will allow significant reduction of the drawbacks, fishermen and other shipping traffic in the area shall be informed about the construction works.

It is not expected that the cable will result in any significant negative consequences for marine biodiversity. The reason for this is the cable's limited area, and because the cable will mainly be flushed down. The greatest negative effects will also be linked to the construction phase, as fish that spawn on the seabed could be affected by the work. The cable route will run through an area with eel grass and kelp forests, but these are expected to grow quickly again after the cable has been laid. In order to minimise possible impacts the cable should be laid as close to the NorNed cable as technically possible without incurring significantly increased costs.

The power line on land will largely follow existing routes from Vollesfjord to Ertsmyra, with the exception of a section from Hestesprangvatna on the border between Flekkefjord and Kvinesdal municipalities to Gileknuten. There is little settlement near the power line, with the exception of the villages of Tjersland and Lavstøl in Flekkefjord municipality. The power line primarily runs through forest terrain and mountains/moorland. Although the direct current transmission line will follow the two main grid transmission lines in the area, the additive effect of another line will mean that the landscape in that area will be further characterised by the technical facilities. This means that the outdoor experience could be deteriorated to a greater extent than occurs with the current transmission lines. The section where the power lines will be most visible is the down-lead to Ertsmyra substation. The transmission line here will be visible from settlements in north-western parts of Tonstad and from the village of Josdal, which is located north of Ertsmyra substation. Both the power lines and clearing belt under the transmission line will create a visible corridor towards the substation. As a remedial measure less visible composite isolators will be used on the entire route and the transmission line will be dulled (so to provide less reflection of direct sunlight) where it does not run in parallel with other transmission lines. The distance to the nearest dwelling is over a kilometre.

Several breeding sites for red listed birds of prey (eagle owl, goshawk and osprey) have been registered near the route. On sections where the direct current transmission line runs in parallel with the main grid transmission lines, there will be two or three rows of masts where the lines are suspended at different heights. This will increase the risk of collisions for resident and migratory birds. There will also be drawbacks associated with the construction phase where noise and construction work could displace birds from the area. A number of eagle owl habitats could be affected by the construction work in the form of noise and construction activity, but this is not expected to have any lasting negative effect on the eagle owl population. In order to minimise possible impacts the promoter has carried out a survey program of known nesting areas for threatened birds of prey along the transmission line corridor. These nesting areas will be registered as restriction areas for the construction works. There will be some noise from the rectifier in Ertsmyra substation. The noise calculations show that the limit values will be maintained, but the rectifier could generate noise audible from the nearest dwellings. For users of the area surrounding Ertsmyra for outdoor recreation, the noise will also pose a drawback. As a remedial measure the promoter has placed requirements on noise levels from individual components such as fans, transformers and

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reactors so that noise threshold levels at the nearest residential properties will be met with a good margin.

Denmark:

The Danish Energy Agency granted permission to install the cables of the project in the Danish exclusive economic zone on 21/10/2014 pursuant to section 4 of the Danish Continental Shelf Act. The approval has now lapsed because works at sea have not started in summer 2016 as envisaged in the permit application. A renewal of the permission has been sought but not yet granted.

In Danish waters the cables will run through the Natura 2000 site 246 called Southern North Sea, which includes SAC n. 255 and SPA n. 133. The habitats and species for which SAC 225 is designated include harbour porpoise, common seal and sandbanks while SPA 133 includes areas nationally and internationally important to migrating of red-throated and black-throated diver and little gull. The cables will also run close (1 km) to the Jutland Reef SAC n. 257 which includes hard bottom habitat types (reefs).

Based on the Appropriate Assessment Report prepared by the promoters neither the installation phase nor the subsequent operations will have a significant effect on the above sites.

As construction works will proceed slowly and will only go on for a limited period of time, it was evaluated that the disturbance of marine mammals within the SAC and of harbour porpoise outside the SAC will be insignificant.

Disturbance to the three bird species, which are the basis for designation of the Natura 2000 site Southern North Sea, was deemed insignificant in the installation phase because there is only a slight overlap between the construction period (April to September) and the period when the birds use the area. Nonetheless the Danish Nature Agency requested as a condition under the permit that the installation works in the Natura 2000 site must only take place between 1 June and 30 September, due to the presence of red-throated divers in the area from October to May.

A further condition under the permit is that grabbed stones ($\varnothing > 20$ cm) cannot be removed from the seabed, so if stones are moved in connection with the installation work, these must not be brought up to the surface.

As regards impacts on fishing activities, the cables will potentially make it impossible to carry out trawling east/west of the whole cable length due to the Danish Executive Order on Cables. In the light of this, under the permit project promoters are encouraged to seek dispensation from the Danish Executive Order on Cables, in order to prevent the creation of a corridor with fishing banned for 400 metres all the way down the North Sea. If dispensation is not sought, negotiations must be started pursuant to section 78 of the Danish Fisheries Act before the installation work begins. The promoters informed that such dispensation will be sought in due time.

Authorisation in Germany:

Project parts inside the German Exclusive Economic Zone (EEZ) of the North Sea are consented by the German Maritime and Hydrographic Agency (BSH) on the basis of the Federal Mining Act. Onshore converter station, cable routes onshore and cable routes offshore up the 12 nm limit are consented by the Agency for Plan Approval Energy at Ministry of Energy, Agriculture, the Environment and Rural Areas, Schleswig Holstein, as defined by the Energy Industry Act.

The project is included in the German Federal Plan of Required Infrastructure (Bundesbedarfsplan). This confirms its general overriding public interest by law.

EEZ:

Inside the EEZ, the project consists of 91 km of DC export cable. The cable route is located entirely inside the SPA DE 1010-401 „Östliche Deutsche Bucht“ and to a large extent also

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inside the SCI DE 1209-301 "Sylter Außenriff". It is further crossing locally protected sea bed habitats under national law.

The promoter applied for the permit in May 2011. Its application documents included detailed environmental studies (ES, as amended in the course of the authorisation process) of the project. The ES also cover alternative cable routes inside the EEZ and include an in-depth assessment of potential impacts on protected habitats and species.

The competent authority (BSH) analysed the ES in detail, and pursued an Appropriate Assessment of project impacts on Natura 2000 sites. Relevant national and neighbouring countries' authorities, NGOs and affected stakeholders were consulted. Hearings took place in December 2013 and in August 2014 in order to discuss the parties' comments. On 02 October 2014, BSH issued the permit under the Federal Mining Act because there was no legal ground for rejecting the application. The permit also provides consent under the Federal Nature Conservation Act. The permit does not define an end date of validity. Its conditions and obligations remain in force until the project is taken out of operation and decommissioned.

In its permit justification BSH confirms that the proposed cable route inside the EEZ has neither a better alternative nor has any significant environmental impacts. No protected site is affected by the project in its integrity.

The permit contains compulsory naval safety and nature conservation measures. Amongst others, no works are allowed outside the period 15 May to 31 October of any year. Works in sensitive habitats must be limited to a narrow cable corridor. 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. This is to be ensured through appropriate cable dimensioning and minimum burying depths and to be monitored regularly.

The consent further requests the decommissioning of 118 km of yet to be determined old cables inside the EEZ. The promoter has formally objected against this measure as it incurs too high financial risks according to its judgement. At the time of appraisal, this issue is still pending.

The BSH permit requires a parallel consent from the relevant Federal State Authority for Mining, Energy and Geology to become valid. This consent has been issued on 29 September 2014.

Offshore inside 12 nm zone, onshore:

The cable measures ca. 64 km from the 12 nm boarder line to the point of landfall. From there the cable measures ca. 54 km to the onshore converter station. The cable corridor passes through the SCI DE 0916-391 „Nationalpark SH Wattenmeer und angrenzende Küstengebiete“ (UNESCO world heritage), the SPA DE 0916-491 „Ramsar-Gebiet Schleswig-Holsteinisches Wattenmeer und angrenzende Küstengebiete“, and the SPA DE 1813-491 „Seevogelschutzgebiet Helgoland“. The cable corridor also crosses protected biotopes under national law. The converter station in Wilster is a green field project in the vicinity of an existing substation. It is located outside protected sites.

The promoter applied for consent (Planfeststellung, initial plan approval order, PPO) in July 2012. The application was supported by environmental studies (ES) of the project which were supplemented and amended by the promoter in the course of the authorisation process. The ES contains alternative cable routes and an in-depth assessment of potential impacts on protected habitats and species.

The competent authority analysed the promoter's studies in detail. Public and private stakeholders affected by the project and NGOs were consulted in the course of 2013 and 2014. Several consultation hearings (closed for public) with public and private stakeholders that had raised concerns were held in February 2014 and May 2014. Many but not all concerns raised could be fully addressed.

On 30 June 2014, the Competent Authority issued its consent to the project (covering parts inside the German coastal waters and onshore). This consent (PPO) bundles approvals under

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several relevant German Acts (incl. Energy Act, National Park Act, Nature Conservation Acts, Water Acts). The consent does not define an end date of validity. Its conditions and obligations remain in force until the project is taken out of operation and decommissioned.

The competent authority confirmed that the project has no significant impact on any protected site if all compulsory mitigation measures are applied. The latter seek to minimise negative impacts on protected species and habitats to the extent possible. For the construction phase, these include: strictly limited periods of work permission (e.g. 01 June – 30 September in the nearshore and landfall area, 15 July until 15 March in most onshore areas with additional limitations for sensitive sites), restrictions on the use of machines and vessels, “soft start” noise emitting techniques offshore, “no go areas” and restrictions to keep minimum distances to sensitive receptors. Full compliance with these and other conditions is to be monitored by an independent environmental expert who will report regularly to the competent authority. During operation, amongst others, minimum burial depth of the cable and a temperature rise of no more than 2 K in 30 cm soil depth must be ensured. In addition, threshold values for the emission of noise from the converter station must be complied with.

Despite the efforts made to mitigate impacts on protected sites, the competent authority still notes that the project has locally and temporarily residual impacts on them. These require formal exemptions under German law which have been granted by the competent authority as part of the PPO after consultation of the relevant nature conservation and Nature Park authorities. The exemptions are deemed justified on the basis of an overriding public interest in the power link and additionally 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. Following the applicable German law, compensating and recultivation measures have been imposed by the competent authority in relation to the residual impacts.

Two private land owners appealed against the PPO at Federal Administrative Court in August 2015. The proceedings were closed in Dec 2015 in both cases.

The PPO confirms the general acceptability of the projects at the time of consenting. It is however subject to subsequent approvals under consideration of detailed technical information. This relates to the onshore cable corridor (road access / transportation concept, crossing of infrastructure of third parties) and to technical details of the converter station. Concerned stakeholders and third parties affected by the additional changes have the right to raise their concerns in the corresponding the permitting procedures and these concerns have to be cleared and solved. The granted PPO is the baseline and reference for these upcoming consultations.

EIB Carbon Footprint Exercise

The source of CO₂ equivalent (CO₂e) emissions for the project is the ohmic losses in the project equipment. At project completion the corresponding absolute and relative emissions are estimated at 85.6 kt CO₂e per year.

For the annual accounting purposes of the EIB Carbon Footprint, the project emissions will be prorated according to the EIB lending amount signed in that year, as a proportion of project cost.

Other Environmental and Social Aspects

The promoter still has to secure all rights of way from public and private land owners for the German onshore cable corridor. The PPO entitles the promoter to enforce such right of way, as a last resort (Energy Act), by law if and where required. Land owners have in any case the right for compensation.

The project is promoted through two national transmission system operators. Each of them has effective environmental and social management schemes in place. Both organisations are certified under ISO 14001 and ISO 9001.

Conclusions and Recommendations

Based on the results of the assessments and with appropriate mitigations specified under the various permits, no significant long-term impacts are expected to result from project's construction and operation.

The German cable corridor passed through the ecologically sensitive German bight area. A monitoring requirement is proposed to inform the Bank of environmental issues during construction.

Based on the information available, and with appropriate environmental conditionality (see below), the project is expected to be acceptable to the Bank in environmental terms.

- Under the FC first disbursement will be conditional to the receipt by the Bank of the extended permission to install the cables of the project in the Danish EEZ.
- TenneT to submit to the Bank electronic copies of all final environmental monitoring reports of the ecological surveyor (ökologische Bauaufsicht) as requested under the PPO consent.
- Electronic copy of the building and operation approval under Federal Immission Control Act and 26th Federal Immission Control Ordinance for the converter station in Wilster (Germany) to be provided as soon as available.