UNOFFICIAL TRANSLATION

Danish Energy Agency

Nord Stream 2

Assessment of the environmental and safety aspects of the northwestern and southeastern routes on the continental shelf

Office/department
Subsoil Resources
and Risk Preparedness

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Background
In a decision dated 26 March 2019, the Danish Energy Agency asked Nord Stream 2 AG to investigate a route southeast of Bornholm on the continental shelf and to draw up an environmental impact report and associated application.

The Danish Energy Agency has reached this decision now, rather than earlier, because the legal status of the area between Denmark (Bornholm) and Poland will shortly be clarified, as the border delimitation between Denmark and Poland had not previously been established. One consequence of this is that Denmark would be able to issue a permit under Section 4(1) of the Danish Continental Shelf Act for laying pipelines in the area once the border delimitation agreement between Denmark and Poland entered into force, which took place on 28 June 2019.

The decision was made on the basis of the Danish Energy Agency's immediate assessment of the environmental and safety aspects of the northwestern and southeastern routes for Nord Stream 2 on the continental shelf. Based on the information available at that time, the Danish Energy Agency concluded that the route southeast of Bornholm on the continental shelf was immediately preferable to the route northwest of Bornholm on the continental shelf. This conclusion was particularly based on the view that the impact on shipping and Natura 2000 sites given the information available to the Danish Energy Agency is considered to be significantly less for the southeastern route than for the northwestern route.

Furthermore, the decision stated that:

- Based on the information available at the time, no permit could be granted for the construction of a pipeline installation either northwest or southeast of Bornholm on the continental shelf before the route southeast of Bornholm on the continental shelf had been investigated and assessed, i.e. an environmental impact assessment process had been performed and an environmental impact report had been prepared for this route; and

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- A permit could only be granted for the most appropriate route based on environmental and safety perspectives.

On 15 April 2019, Nord Stream 2 AG submitted an application for the construction of the southeastern route on the continental shelf with the associated environmental impact report. Two route variants were applied for in the application as two equivalent alternatives, i.e. SE route V1 (NSP2 / NSP2 V1) or SE V2 (NSP2 / NSP2 V2); see Figure 1.

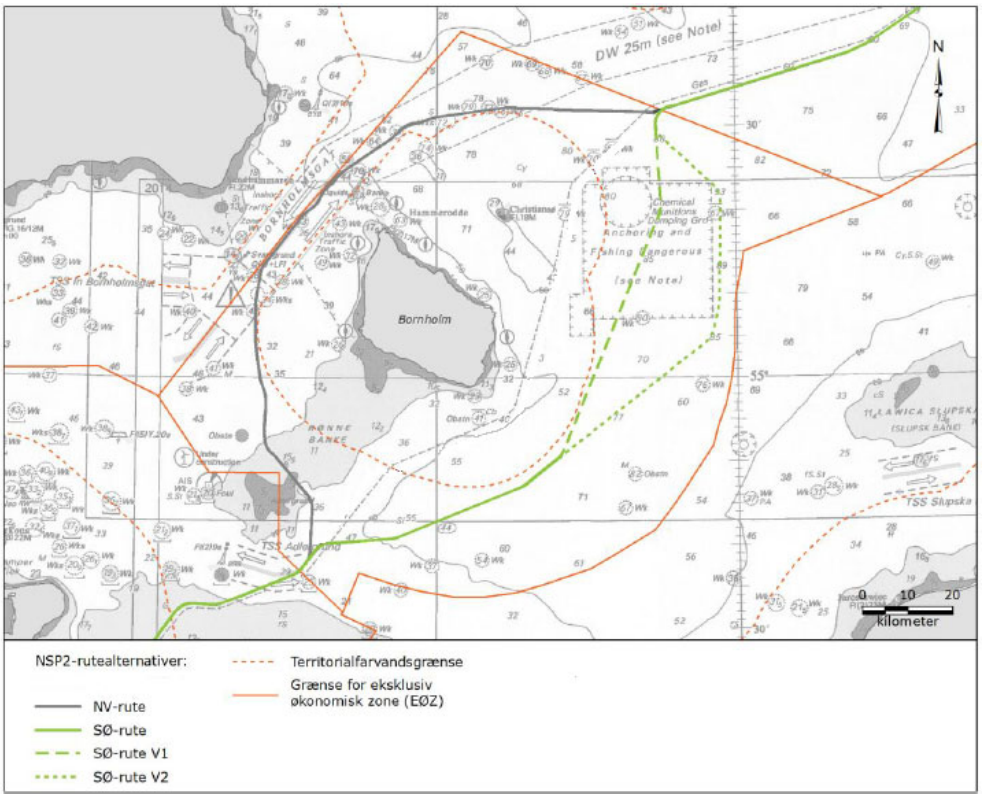

Figure 1 *Source: Adjusted Figure 5-3, "Nord Stream 2 Environmental Impact Report, Denmark, Southeastern Route", April 2019*

The Danish Energy's Agency assessment of the environmental and safety aspects of the northwestern and southeastern routes on the continental shelf

The Danish Energy Agency notes that the assessment must be read together with the permit and other documents; hence, the individual arguments are not described in full and may appear somewhat brief.

The Danish Energy Agency's assessment of the environmental and safety aspects of both the northwestern and southeastern routes for Nord Stream 2 on the continental shelf is based on the ALARP principle. ALARP stands for 'As Low As

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Reasonably Possible', and is used in relation to projects at sea in order to reduce risk.

The following sections list the advantages and disadvantages for both the northwestern route and the two southeastern route variants, and are partly based on environmental impact reports for the routes, consultation responses from the authorities, the general public and neighbouring countries, including the impact assessments of the relevant authorities in relation to chemical and conventional munitions.

Northwestern route

Advantages:

- Long way from dumped chemical munitions.
- No conventional munitions.
- Avoids military areas.

Disadvantages:

- Part of the route is located in Bornholms Gat, which is a traffic separation system (TSS) with a high traffic intensity and potentially major impacts on shipping.
- Part of the route passes through the Natura 2000 site Rønne Banke / Adler Grund, with potential effects on the basis for its designation as a Natura 2000 site (stone reefs and sandy bottoms).
- The route crosses ten cables and pipelines, which may have an impact on the cables and pipelines being crossed, in addition to any preparatory work prior to crossing. Requires more seabed intervention in order to protect and stabilise the pipelines.

Overall, the route therefore requires a number of mitigation measures to be implemented in order to minimise potential impacts. It should be noted that, despite the mitigation measures, there are greater risks associated with the northwestern route.

Southeastern continental route – route variant V1 (NSP 2 /NSP2 V1)

Advantages:

- Requires relatively little seabed intervention because external influences such as shipping and seabed conditions do not require this.
- 18 km from Rønne Banke / Adler Grund (Natura 2000 sites).
- Limited shipping traffic.
- The route crosses four cables and two pipelines.
- Located further away from the 800 kg bottom mines which were encountered across the NSP2 / NSP2 V2 route corridor.
- The probability of the pipelines being exposed to trawling is lower due to the existence of the zone where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents; hence the risk of large UXOs (unexploded ordnances) being caught by trawlers and moved closer to a gas pipeline is reduced.

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- The route variant is located further away from the 800 kg bottom mines (UXOs) identified in relation to NSP2 / NSP2 V2. There is therefore a reduced risk of trawling exposing the pipeline to the 800 kg UXOs than is the case with route variant NSP2 / NPS2 V2.

Disadvantages:

- Passes through two military practice areas for submarines (NATO practice areas).
- Passes through an area east of Bornholm, where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents.

Southeastern continental route – route variant V2 (NSP 2 /NSP2 V2)

Advantages:

- Requires relatively little seabed intervention because external influences such as shipping and seabed conditions do not require this.
- 18 km from Rønne Banke / Adler Grund (Natura 2000 sites).
- Limited shipping traffic.
- The route crosses four cables and two pipelines.
- Route variant NSP2 / NPS2 V2 is located outside an area east of Bornholm, where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents.

Disadvantages:

- Preliminary investigations have revealed a number of 800 kg bottom mines positioned in a line crossing the survey corridor. There is therefore a greater risk of trawling exposing the pipeline to an 800 kg UXO compared with route variant NSP2 / NPS2 V1.
- Passes through three military practice areas for submarines (NATO practice areas).

Assessment

Northwestern vs. Southeastern route

Partly based on information in the environmental impact report for the northwestern and southeastern routes on the continental shelf, the assessments of the relevant authorities of conventional munitions, consultation responses from the authorities, the general public and countries, the Danish Energy Agency has concluded that the route southeast of Bornholm on the continental shelf is preferable to that northwest of Bornholm on the continental shelf. This conclusion is particularly based on the impact on shipping in Bornholms Gat, which is a traffic separation system (TSS) with a very high traffic intensity, and the possible impact on the basis for designation of the Rønne Banke/Adler Grund Natura 2000 site. It should be noted that, if there is a reasonable alternative which does not pass through the Natura 2000 site, this route must be adopted unless other reasons are so compelling that a route through a Natura 2000 site is the only possibility. It has therefore been

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concluded that the southeastern route on the continental shelf, for which a permit has been granted, is a reasonable alternative. Furthermore, the consequences in relation to chemical and conventional munitions and military practice areas can be managed in accordance with instructions issued by Danish Defence.

Southeastern route variants - NSP2 / NSP2 V1 vs. NSP2 / NSP2 V2

Partly based on the consultation responses in relation to the environmental impact reports for the routes, information from the relevant authorities and from Danish Defence in particular concerning the impacts of route variants NSP2 / NSP2 V1 and NSP2 / NSP2 V2 respectively in relation to chemical and conventional munitions, the Danish Energy Agency considers the most appropriate route from an environmental and safety perspective to be NSP2 / NSP2 V1.

In its assessment, the Danish Energy Agency placed particular emphasis on the following considerations, of which the first is particularly important:

- NSP2 / NSP2 V1 is situated further away from the bottom mines which were encountered across the NSP2 / NSP2 V2 route corridor than NSP2 / NSP2 V2. The bottom mines may compromise the integrity of the pipeline if it is exposed to them.
- The probability of the pipelines being exposed to trawling is less due to the existence of the zone where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents; hence the risk of large UXOs being caught by trawlers and moved closer to a gas pipeline is reduced.
  Nord Stream 2 is aware of precautions regarding the identification and handling remains of munitions or objects which could be dangerous (UXOs). This is important in the waters around Bornholm, but it is particularly important in relation to NSP2 / NSP2 V1, as the route passes through the area where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents.
- DP vessels (dynamically positioned vessels) are used, which reduces the risk of encountering any UXOs on the seabed, including when the route passes through the area where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents.
  No seabed intervention is planned through the where bottom trawling, anchoring and seabed intervention is not advised due to the risk of dumped chemical warfare agents, reducing the possibility of encountering any UXOs.

Conclusion

The Danish Energy Agency considers that the southeastern route variant NSP2 / NSP2 V1 is preferable from an environmental and safety perspective, as the level of risk and the impacts are lowest compared with the risk and impact associated with the northwestern route and route variant NSP2 / NSP2 V2.

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