

# Nord Stream 2

Permitting and EIA process in Denmark

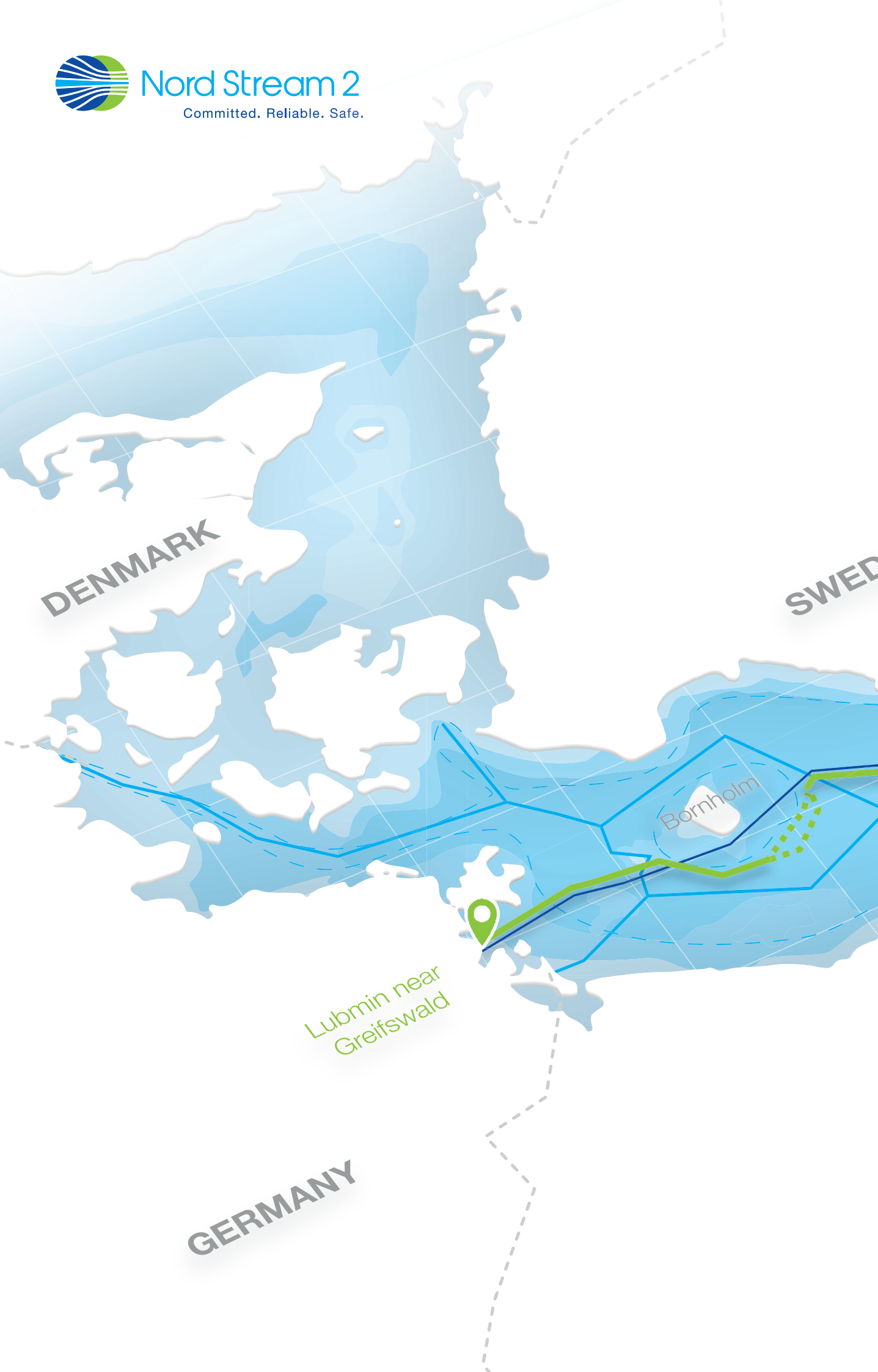




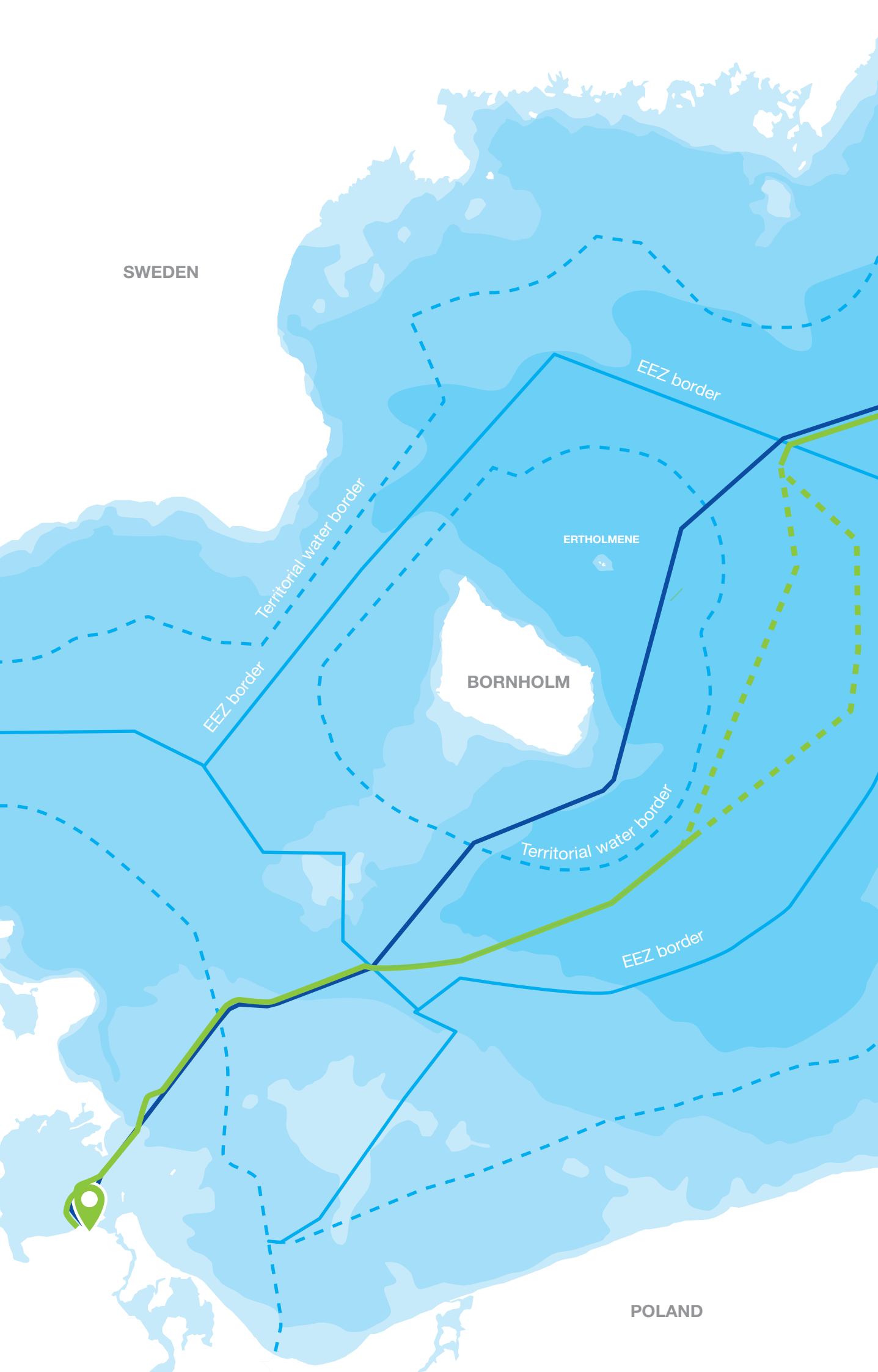


# Nord Stream 2

Committed. Reliable. Safe.



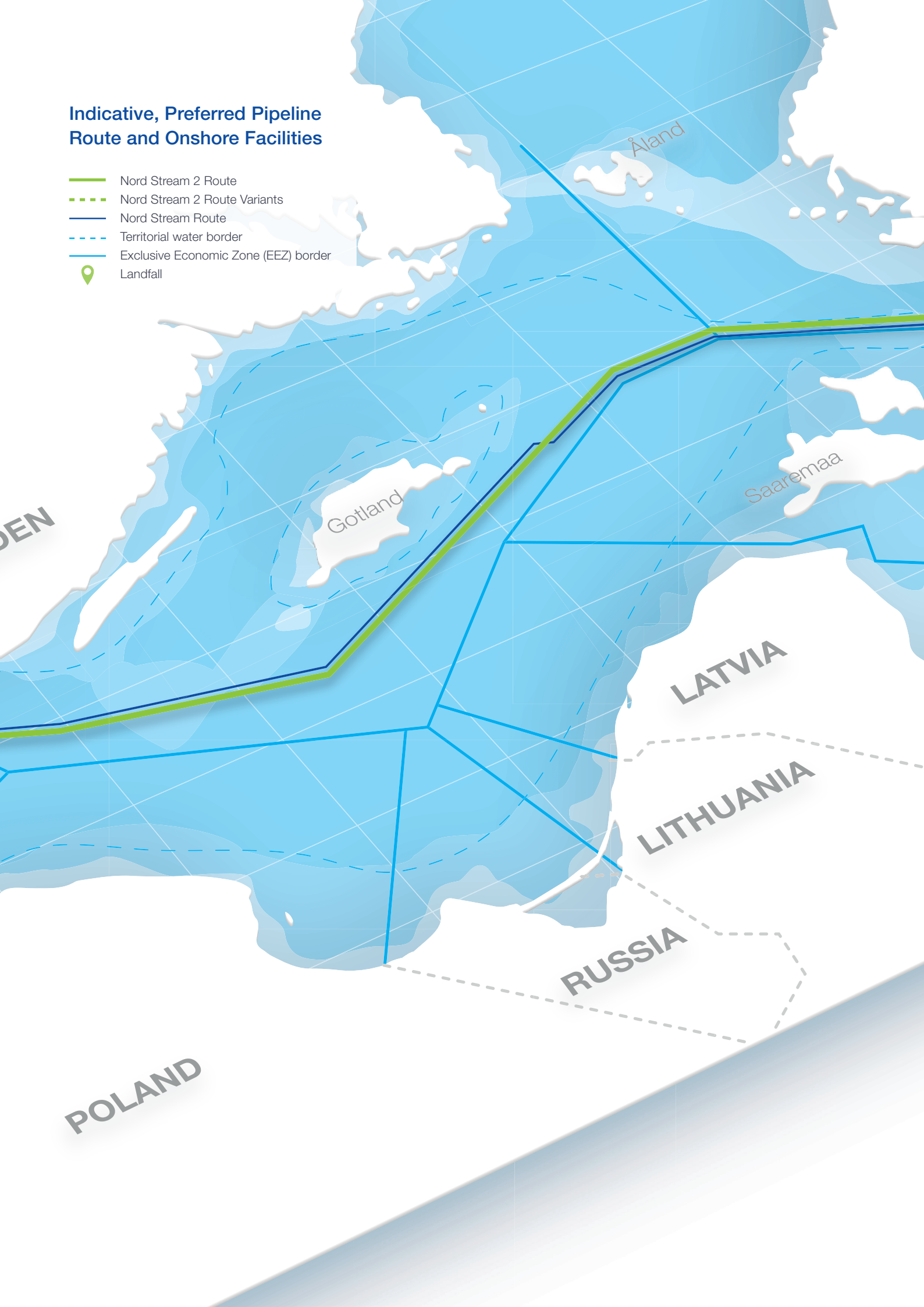




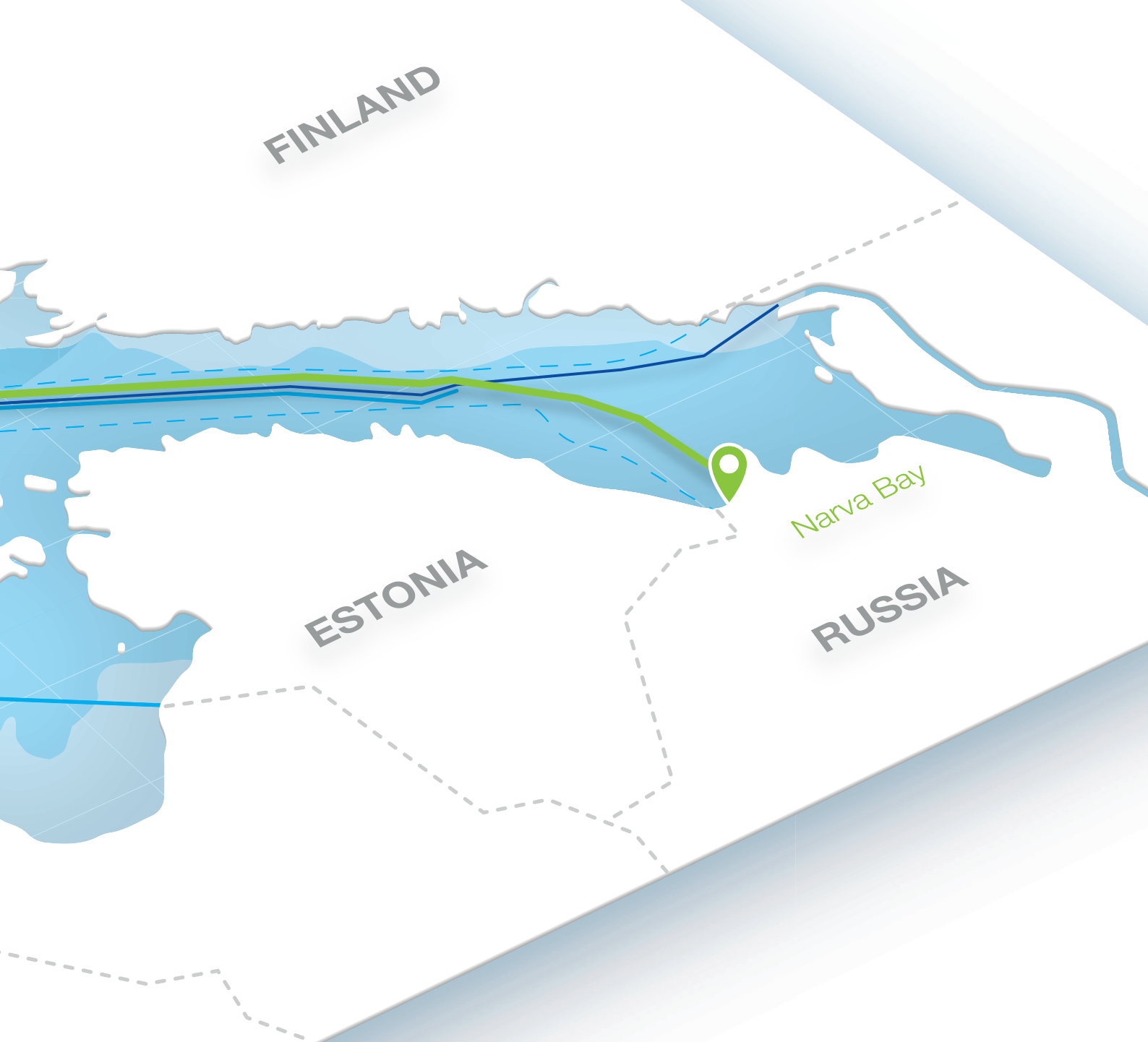


**Indicative, Preferred Pipeline  
Route and Onshore Facilities**

- Nord Stream 2 Route
- Nord Stream 2 Route Variants
- Nord Stream Route
- Territorial water border
- Exclusive Economic Zone (EEZ) border
- Landfall







## Nord Stream 2 Denmark

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Nord Stream 2 is building a pipeline system through the Baltic Sea, which can transport natural gas from the world's largest reserves in Russia directly to the EU's gas market. The twin 1,248-kilometre subsea pipelines will have the capacity to supply about 55 billion cubic metres (bcm) of gas per year. In Denmark, the pipelines are scheduled to be installed one at a time during the first half of 2020. Besides pipelay, the construction activities in Denmark include e. g. rock placement or post-lay trenching and crossing installations. Further information on these activities can be found in this brochure. The environmental impacts of the project in the Danish section of the route have been assessed in the comprehensive national Environmental Impact Assessment (EIA) report.



# Danish Permitting Process

The construction permit application for the Nord Stream 2 Pipeline was submitted to the Danish Energy Agency in April 2019, which manages applications and issues permits on behalf of the Danish state.

## Permit requirements in Denmark

Permits for construction and operation of pipelines for transportation of hydrocarbons produced outside Danish territory, but located in Danish territorial waters and on the Danish Continental Shelf are required, pursuant to the Continental Shelf Act, the Danish State's sovereignty over its territorial waters, and Administrative Order on Pipeline Installations.

Applications for such permits must be submitted to the Danish Energy Agency, which manages the applications and issues the permits on behalf of the Danish State.

The aim of the EIA procedure is to evaluate the potential environmental impacts of a project.

## EIA Procedure in Denmark and EIA report

Pursuant to the Continental Shelf Act and the Offshore EIA Administrative Order, Nord Stream 2 AG is required to submit a national EIA report to the Danish Energy Agency together with its application for the construction permit.

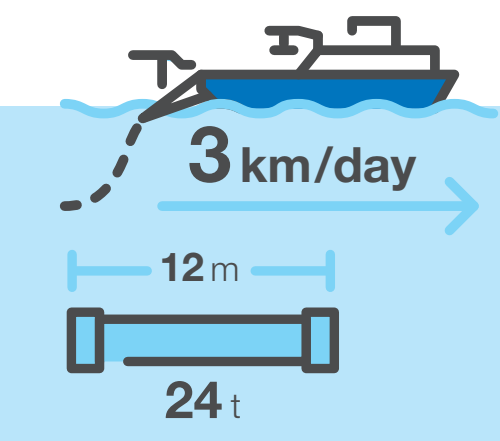
An EIA report must at least contain the information listed in the Offshore EIA Administrative Order, including a description of the factors likely to be significantly affected by the project, both inside and outside of Danish territory.

The aim of the EIA procedure is to evaluate the environmental impacts of a project, to ensure that consistent information on the impacts is available during planning and decision-making and to provide the public with information and the opportunity to participate in the process.

The EIA report describes the main characteristics and technical solutions of the project with a comprehensive assessment of impacts. The report includes assessments of transboundary impacts from the project in Denmark to neighbouring national jurisdictions. In addition, the EIA includes measures to prevent and mitigate potential adverse environmental impacts.

## Process of the route selection

Nord Stream 2 AG originally submitted an EIA report and construction permit application for a route going through Danish territorial waters (base case route) in April 2017.





Given the entry into force of a new bill in January 2018, effectively granting the Ministry of Foreign Affairs the right to veto infrastructure on foreign and security policy concerns, Nord Stream 2 identified a viable alternative route exclusively through the Danish exclusive economic zone (EEZ) north-west of Bornholm. The application for this north-western route that is decided on environmental and safety grounds in accordance with United Nations Law of the Seas was filed in August 2018.

Denmark and Poland have since then resolved a long-standing border dispute over an area located south-east of Bornholm, making it available for Nord Stream 2. A third application for a route south-east of Bornholm and exclusively passing through the Danish EEZ (south-eastern route) was thus filed in April 2019.

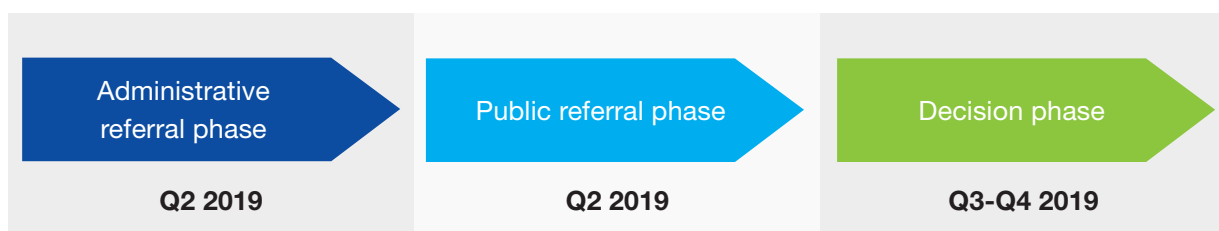
All three routes are acceptable from an environmental and navigational safety point of view.

#### **Permitting procedure for south-eastern route**

Nord Stream 2 AG carried out environmental investigations and assessments in order to prepare the filed national EIA and the Espoo documentation. In April 2019, Nord Stream 2 AG submitted a permit application and the EIA report for the route south-east of Bornholm.

A public consultation phase coordinated by the Danish Energy Agency will provide Danish authorities, citizens and other interested parties including international stakeholders the opportunity to state their opinions on the EIA documentation.

At the end of the public consultation, Nord Stream 2 will receive all the statements handed in by national and international stakeholders and provide answers to these. If the answers are of satisfaction, the application is ready for a decision by the Danish Energy Agency.



# Offshore Construction Activities

**Dynamically positioned or anchored lay barges may be used to lay the Nord Stream 2 Pipeline. On average, 3 kilometres of pipe will be lowered onto the seabed every day.**

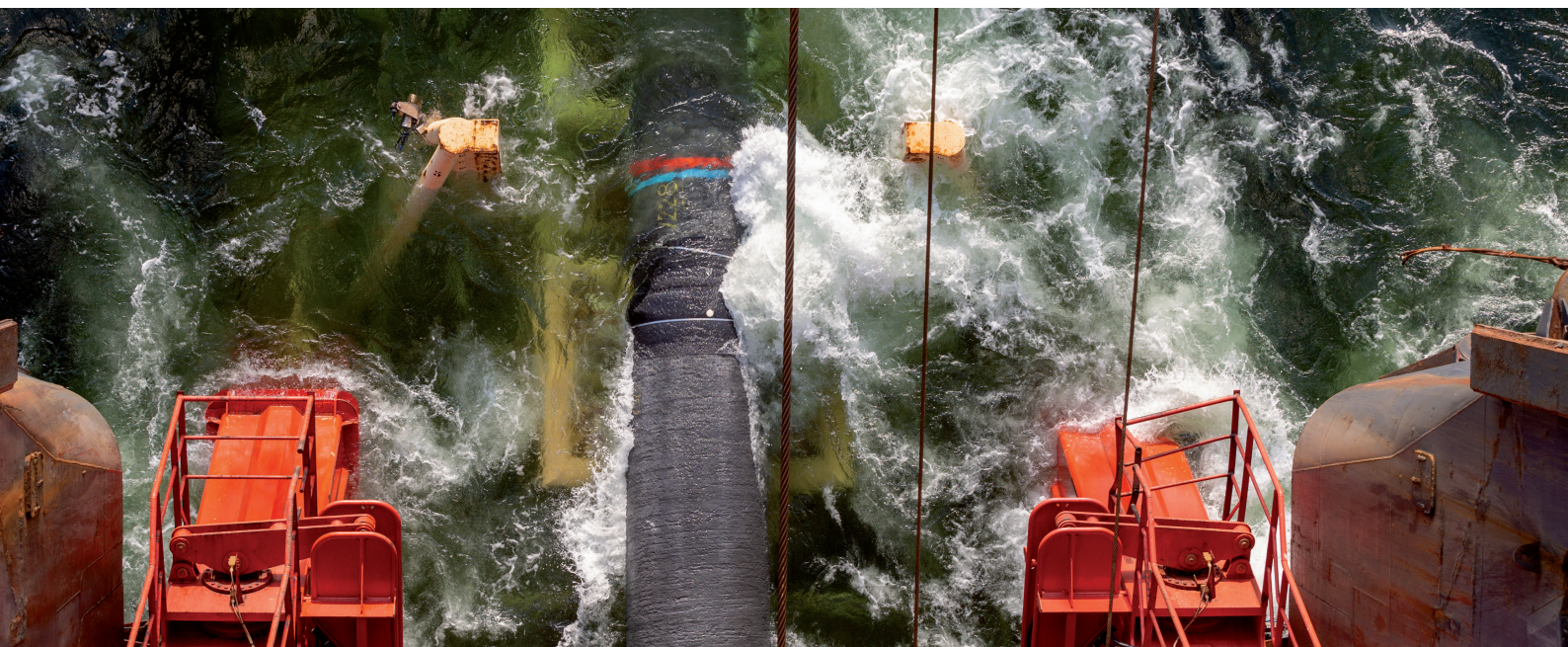
## Pipe-lay

During the pipe-lay process, individual pipe sections (line pipes) will be transported from Mukran, Germany by pipe carrier vessels to the lay barge in Denmark. There, they will be welded together on board the lay barge and lowered as a continuous string onto the seabed. The average speed of the pipe-lay vessel is 3 kilometres per day.

Two different types of lay barge may be used for the construction of the Nord Stream 2 project: dynamically positioned (DP) and anchored lay barges. A DP lay barge uses thrusters for positioning, whereas an anchored lay barge is positioned by anchors which are moved by anchor handling tugs according to planned anchor patterns. It is expected that a DP lay barge will be used for construction in Danish waters.

A remotely operated vehicle (ROV) will be used for continuous touchdown monitoring during key activities such as pipe-lay start-up and laydown and at pipeline and cable crossings.

The construction of the Nord Stream 2 Pipeline in Danish waters is planned to last approximately 125 days in total, assuming an average lay rate of 3 kilometres per day. The actual pipe-lay period is, however, estimated to



*Construction of the pipeline through Danish EEZ is expected to take about 125 days.*



take a total of approximately 4 months, as the Nord Stream 2 Pipeline is planned to be laid sequentially.

### Post-lay trenching (ploughing)

Post-lay trenching will be carried out using a pipeline plough deployed onto the pipeline from a vessel located above the pipeline. The pipeline will then be lifted by hydraulic grippers into the plough and supported on rollers at the front and rear ends of the plough. The rollers will be equipped with load cells to control the loading onto the pipeline during trenching. A tow wire and control umbilical will be connected to the plough from the vessel, which will pull the plough along the seabed, laying the pipeline into the ploughed trench as the plough advances.

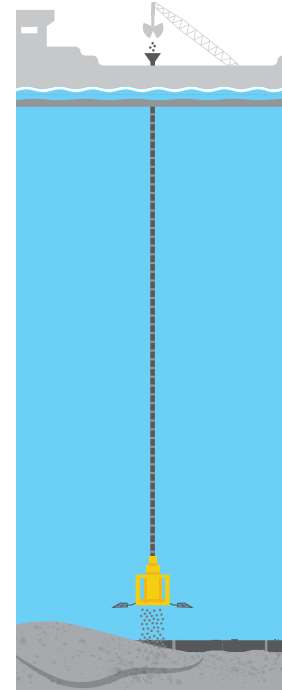
### Rock placement

Rock placement will be carried out to locally reshape the seabed and correct freespans, thereby providing support and covering sections of the pipelines (i.e. at potential tie-in and crossing locations) in order to ensure their long-term integrity).

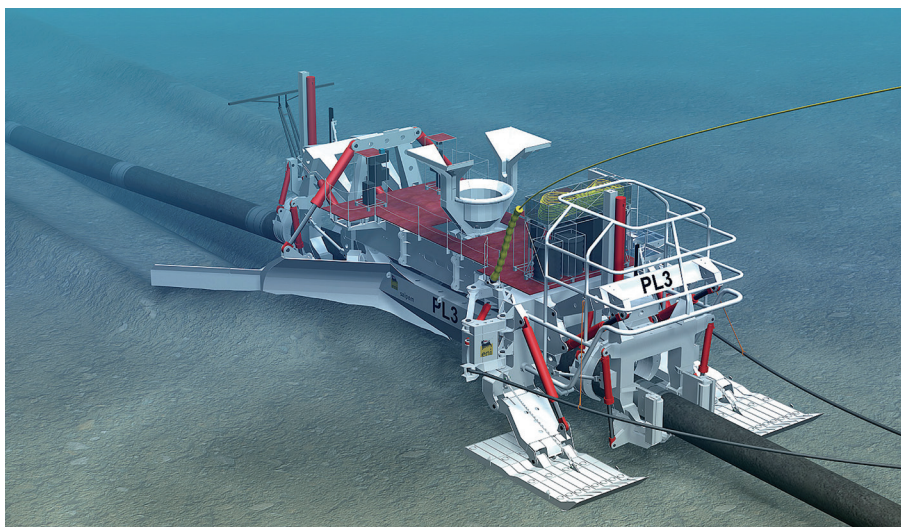
Rock material is planned to be transported by ship to designated locations along the route. The rock material will be placed accurately on the seabed using a fall pipe. Rock placement activities in Denmark will primarily be carried out after pipe-lay. Pre-lay rock placement is only envisaged in Denmark for preparation of the pipeline where it crosses the existing Nord Stream Pipeline.

### Crossing installations

The Nord Stream 2 Pipeline will cross telecommunications- and power cables as well as gas pipelines. Nord Stream 2 is in contact with cable and pipeline owners to agree on the detailed crossing method, however it is anticipated that cables will be protected by concrete support mattresses prior to pipe-lay. A combination of pre-lay concrete mattresses, and pre- and post-lay rock placement will be used at pipeline crossing locations.



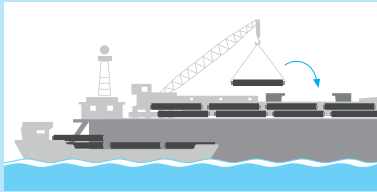
*Strategic rock placement is necessary in some locations to provide support for the pipelines to ensure their long-term integrity. Rock placement is performed using a designated fall-pipe vessel.*



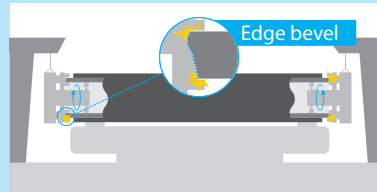
*Lowering of the pipeline below seabed level during post-lay trenching ensures that the pipeline will remain stable in its position throughout its lifetime. The plough weighs approximately 200 tonnes and is 22 metres long. It can excavate a trench to a maximum depth of 2.5 metres.*

# The Pipelaying Process

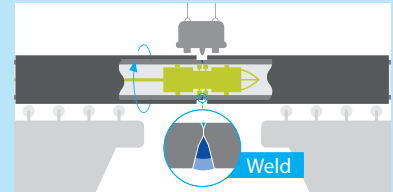
The construction of the Nord Stream 2 Pipeline will be carried out around the clock.



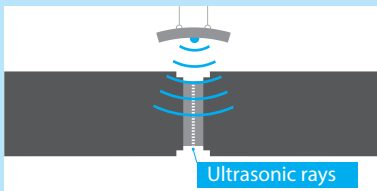
**1** The pipes are unloaded from the pipe carrier vessels and stacked on each side of the lay barge. Pipe deliveries occur regularly to ensure that there is always an adequate line pipe buffer on board to maintain the 24-hour pipelay schedule.



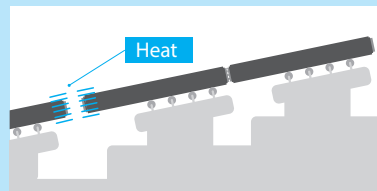
**2** To prepare the pipes for welding, the ends are bevelled to make them exactly the right shape to be fitted together. The inside of the pipe is then cleaned using compressed air before it is conveyed to the double-joint welding station.



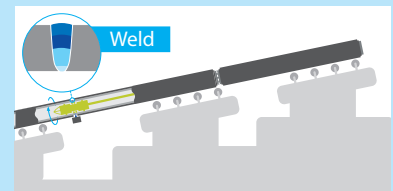
**3** Here, 12-metre pipe joints are aligned and welded together to create a double-joint segment measuring 24 metres. These sections will later be connected to the main pipe string.



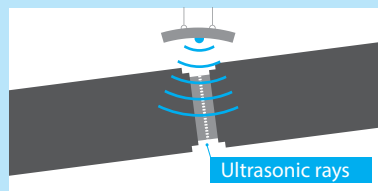
**4** The double-joint is moved to a non-destructive testing station where every millimetre of the weld undergoes automatic ultrasonic testing (AUT) to detect any unacceptable flaws. If required, the defect will be removed and the weld rescanned to ensure that it meets international standards.



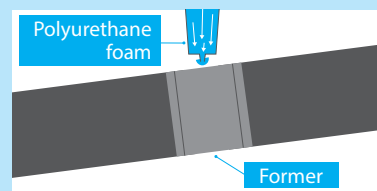
**5** Following AUT, the double-joint is moved in a pipe elevator to the central assembly line. There, the insides are checked for debris and the double joint is aligned with the main pipe string in preparation for welding.



**6** The double-joint is now joined to the end of the pipeline using a semi-automatic welding process. Qualified welding inspectors oversee each of the steps to ensure that welding is performed in accordance with Nord Stream 2's and authority approved welding procedures.



**7** Following welding, the weld between the double-joint and the main pipeline undergoes AUT. Any unacceptable flaws will be removed, and the weld rescanned to ensure it meets international standards.



**8** Once the weld is confirmed acceptable, a corrosion resistant, heat-shrink sleeve is applied over the circumferential girth weld. Then, polyurethane foam is poured into a former surrounding the weld area. This foam hardens, providing further protection.



### Transport of pipes, rock and other material

The project includes the following offshore transport activities:

- > Transport of weight-coated pipes to the lay barges by pipe carrier vessels from Mukran in Germany
- > Transport of material for rock placement from a local nominated port to designated rock placement locations along the route
- > Transport of fuel and other materials to lay barges and support vessels
- > Transport of waste from construction vessels to a port to be selected in the later stages of the project

### Pre-commissioning and commissioning

After installation, the Nord Stream 2 Pipeline will undergo a series of activities which prepares the pipeline system for use. These activities include cleaning, gauging and testing/leak detection.

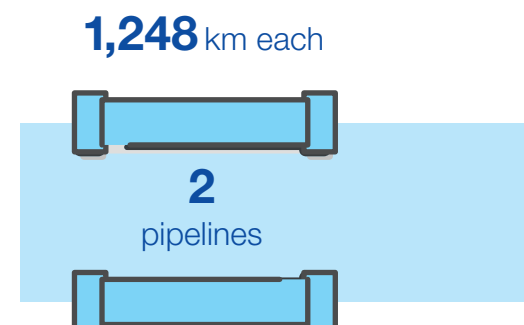
Commissioning comprises all activities that take place after pre-commissioning and until the pipelines begin to transport natural gas. Prior to filling the pipelines with natural gas, all pre-commissioning activities must be successfully completed and the pipelines filled with dry air that is close to atmospheric pressure.

Nitrogen gas is then inserted into the pipelines immediately prior to filling it with natural gas. This acts as a buffer and ensures that the inflowing gas will not react with the atmospheric air and create unwanted mixtures inside the pipelines. Commissioning will then proceed by filling the pipelines with natural gas from the connected facilities.

Commissioning does not involve any specific activities in Denmark.



*The pipes set to be used during the pipelay in Danish waters are currently stored in Mukran, Germany.*



# Environmental Impact Assessment

The EIA report evaluates the potential impacts from the Nord Stream 2 project on physical-chemical, biological and socio-economic environment.

## Bathymetry and hydrography

Intervention works and presence of the pipelines on the seabed will contribute to local changes in bathymetry and potentially impact hydrographical processes crucial for the environment. The assessment of impacts on bathymetry and hydrography has been undertaken for Nord Stream 2 based on mathematical modelling of sediment spill, hydrographical processes and hydrographic monitoring of the already operational Nord Stream Pipeline. This has confirmed that Nord Stream 2 will not cause any depth-related changes in the local benthic communities or in the basic physical and chemical conditions of the surrounding areas. Similarly, the presence of the pipelines is not expected to cause changes in currents, water mixing or bulk flow. Therefore, no significant impacts on bathymetry and hydrography are anticipated.

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## Climate and air quality

The primary air quality pollutants related to the project activities in Danish waters arise from combustion of fuel on ships. The release of mono-nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), carbon dioxide (CO<sub>2</sub>) and particulate matter has been calculated for Nord Stream 2. Emissions will lead to a temporary reduction in air quality in the vicinity of the Nord Stream 2 vessels. However, the emissions will be dispersed and diluted prior to reaching inhabited areas, such that the emissions' impact on air quality in populated areas will not be quantifiable. The majority of emissions will occur during the construction phase and will therefore be temporary, while the remainder will be emitted from the maintenance vessels during the operational phase. Therefore, no significant impacts on climate and air quality are anticipated.

## Seabed sediments and water quality

The construction activities will cause the suspension of seabed sediments, dispersion and re-sedimentation. Mathematical modelling has shown that sediments will be temporary suspended in the water column, with the highest concentrations likely to occur within a few hundred meters from the route. Re-sedimentation is expected within several hours resulting in a layer of a



*Marine mammal species observed along the Nord Stream 2 route in the Danish waters include harbour porpoise and grey seal (pictured).*

few millimetres (in the worst case) which is comparable to the natural annual sedimentation rate in the project area. Analysis of seabed sediments along the Nord Stream 2 route has confirmed that Nord Stream 2 Pipeline will not alter the chemical composition, physical properties, or natural processes taking place on the seabed.

Construction activities may also result in release contaminants and nutrients (otherwise resting on the seabed) into the water column, thereby affecting water quality. However, the concentration of contaminants in the water will be below the level that has the potential to cause adverse effects in the biological environment in the areas where life is present. Furthermore, the calculated release of nitrogen and phosphorus is not expected to contribute to eutrophication of surrounding waters. Therefore, no significant impacts on seabed sediments and water quality are anticipated.

### **Benthic environment**

Colonisation of the benthic environment in Danish waters is limited by the levels of light penetration and oxygen conditions. The presence of benthic fauna is limited to the deeper northern parts of the route (i.e. Bornholm Deep) due to low oxygen content, while benthic flora is not found along any sections of the route in Danish waters due to the lack of sunlight. More favourable oxygen conditions in the shallower south-western parts of the route contribute to a more diverse and abundant benthic faunal community. Although construction activities may impact individual organisms, the benthic communities are expected to quickly recover once the impact ceases. During operation, the pipelines on the seabed will create a new hard-bottom surface where benthic fauna may settle if sufficient oxygen is present (known as a “reef effect”). However, the overall abundance and diversity of benthic populations in the area are not expected to be altered. Therefore, no significant impacts on the benthic environment are anticipated.

### **Plankton**

Zoo- and phytoplankton constitute important components of the Baltic Sea food chain. Growth and reproduction of phytoplankton depends on the availability of sunlight, which is roughly limited to the upper 20 metres of the water column (known as the “photic zone”). This makes impacts from Nord Stream 2 highly unlikely since the route is at the depth of more than 20 metres. Zooplankton is not dependent on photosynthesis but relies on the availability of food sources and ecophysiological tolerances. It has been assessed that the Nord Stream 2 project does not have the potential to impact the survival, growth rate or reproduction of zoo- and/or phytoplankton. Therefore, no significant impacts on plankton are anticipated.

Analysis of seabed sediments along the Nord Stream 2 route has confirmed that the pipeline will not alter the chemical composition, physical properties, or natural processes taking place on the seabed.







*Rønne Banke, as well as the coastal areas of Bornholm and Ertholmene serve as a foraging, breeding and staging grounds for a number of seabird species.*

Protected areas in the Baltic Sea comprise marine and coastal biotopes hosting a number of designated habitats and species. Within 20 kilometres from the pipeline route there is one Natura 2000 site and one, HELCOM Marine Protected Area.

### **Marine mammals**

Marine mammal species observed along the Nord Stream 2 route in the Danish waters include harbour porpoise and grey seal. Overall, the Danish part of the Baltic Sea has a relatively low abundance of harbour porpoises. There is a greater abundance of grey seals and a colony has been established on the island of Christiansø, located approximately 37 kilometres from the proposed route.

Marine mammals are highly vulnerable to noise, due to their sensitive auditory system. Modelling of rock placement, which will result in the highest underwater noise in Danish waters, has shown that noise levels will exceed the threshold for temporary hearing loss in the close vicinity of the noise source (within 80 metres). However, no permanent physical injuries, mortality, persistent behavioral reactions or lasting masking of other sounds are expected.

Suspended sediment and contaminants in the water column are not expected to have a noticeable impact on marine mammals. Therefore, no significant impacts on marine mammals are anticipated.

### **Fish**

The most common fish species along the Nord Stream 2 route in Danish waters are cod, sprat and herring. The route goes through the spawning and nursery areas of cod and sprat. Based on the modelling, the impacts on fish and fish spawning from suspended sediments, contaminants in the water column and underwater noise will be limited to the footprint of the physical disturbance. While some individuals may exhibit temporary avoidance behaviour and / or demersal larvae or eggs within the footprint of the project may be damaged, the areas which will be impacted are small compared to the surrounding habitats which support similar fish communities. Therefore, construction activities will not impact fish populations as a whole and the system is expected to naturally revert to its pre-impact state within a short time span, possibly even within the same spawning season. Therefore, no significant impacts on fish are anticipated.

## Birds

Rønne Banke, as well as the coastal areas of Bornholm and Ertholmene serve as a foraging, breeding and staging grounds for a number of seabird species, including gulls, auks, ducks, mergansers and coots. Based on the modelling, it has been assessed that suspended sediments and contaminants in the water column will neither impact foraging nor exert toxic effects on birds. Noise from construction activities and the presence of vessels has the potential to disturb birds during resting and/or foraging. However, impacts would occur for only a short amount of time (less than 24 hours) and be limited to a 1 to 2 kilometre radius around each vessel. Therefore, no significant impacts on birds are anticipated.

## Protected areas

Protected areas in the Baltic Sea comprise marine and coastal biotopes hosting a number of designated habitats and species. In Danish waters, the Nord Stream 2 route passes within approximately 18 kilometres from the nearest Natura 2000 site and HELCOM marine protected area Adlergrund and Rønne Banke. Impacts on protected areas have been assessed by considering the most vulnerable species, habitats or ecosystems for which a given protected area has been designated. A Natura 2000 screening has shown that there is no risk of significant impact on the designated habitats and thus no significant impact on the integrity of the Natura 2000 site in general. Two Important Bird Areas (IBAs) are also located in Danish waters. However, the assessment has shown that no impact on birds is expected in these areas. To conclude, no impacts on protected areas associated with the Nord Stream 2 are anticipated.

## Biodiversity

The biodiversity status of Danish waters in the Baltic Sea is classified by HELCOM as being impaired as a result of eutrophication, chemical status of the water and seabed sediments. Potential impacts on biodiversity from the Nord Stream 2 construction relate to changes in the food chain and in both abiotic and biotic compounds of the ecosystem, including introduction of non-indigenous species. It has been concluded that the impacts on the biological and physical-chemical environment will not combine to result neither in changes in biodiversity nor in the functioning of the ecosystem. Therefore, no significant impacts on biodiversity are expected.



*The most common fish species observed along the south-eastern route in the Danish waters are cod, sprat and herring.*

## Shortest distance from **Bornholm**

approximately  
**23 - 24 km**







*The locations of the construction vessels and size of the safety zones will be announced beforehand in Notices to Marines to increase awareness of the vessel traffic associated with Nord Stream 2.*

Experience from the existing Nord Stream Pipeline shows that fishermen can co-exist with the pipelines and to date, no gear has been reported lost or damaged.

### **Ship traffic**

The Nord Stream 2 route runs east and south of Bornholm, avoiding the heavily trafficked area Bornholmsgat. The only area with relatively high ship traffic intensity would be the traffic separation scheme Adlergrund at the border with the German EEZ, which has approximately 7,000 ships movements per year. During construction, temporary safety zones will be established around lay vessels and have the potential to impact ship traffic. However, the imposition of safety zones will be temporary at any given location as the construction vessels continuously move at a speed of approximately 3 kilometres per day. Furthermore, the locations of the construction vessels and size of the safety zones will be announced beforehand in Notices to Marines to increase awareness of the vessel traffic associated with Nord Stream 2. Therefore, no significant impacts on ship traffic are expected.

### **Commercial fishery**

Fishery is an important part of the Danish economy, with fishery vessels from Denmark and other parts of the EU periodically fishing in the country's waters. During construction, the establishment of safety zones around lay barges may impact fisheries, though the area which will be temporarily unavailable will be small. Information on the construction activities and the location of the lay barges will be regularly provided to the fishermen to help them plan their fishing activities. During operation, the presence of the pipelines on the seabed has the potential to affect bottom trawling. Although the pipelines do not prevent trawling, their presence requires adjustments to the trawling techniques to avoid damage to the trawling equipment. Experience from the existing Nord Stream Pipeline shows that fishermen can co-exist with the pipelines and to date, no gear has been reported lost or damaged. Therefore, no significant impacts on fishery are anticipated.





*Fishery is an important part of the Danish economy, with fishery vessels from Denmark and other parts of the EU periodically fishing in the country's waters.*

### Infrastructure

Existing and planned installations as well as raw material extraction and dumping areas are located in the Danish waters around Bornholm. The Nord Stream 2 route crosses two active telecom cables as well as the operating Nord Stream gas pipelines. However, implementation of standard industry practice during the crossing process and agreements with the owners of each installation prior to the start of construction will render any impacts highly unlikely.

Eight areas designated for extraction of raw materials, 12 areas reserved for potential future raw material extraction and one area for sediment dumping are located in Danish waters. Furthermore, two offshore wind farms are planned south and south-west of Bornholm. None of these existing or planned installations / areas are being crossed by the Nord Stream 2 route, and the construction and operation of the pipelines will not limit the use of these areas. To conclude, no significant impacts on infrastructure are anticipated since the construction and operation of the pipelines will not limit the use of these areas.

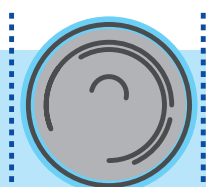
### Cultural heritage

Nord Stream 2 has carried out extensive investigation of the seabed to ensure that cultural heritage objects (CHOs) along the route will not be disturbed. This includes geophysical surveys, visual inspections, consultations with marine archaeologists and Danish authorities. The assessment of cultural heritage objects is currently ongoing. Potential impacts on CHOs may arise as result of physical disturbance during the construction of Nord Stream 2 and / or the presence of the pipelines on the seabed. However, safety zones will be established around identified CHOs to ensure that the Nord Stream 2 route avoids any areas of cultural value. Monitoring of CHOs in the vicinity of the existing Nord Stream Pipeline showed that the objects were not impacted by the presence of the pipeline. Therefore, no significant impacts on cultural heritage are expected.



*Assessment of cultural heritage objects along the Nord Stream 2 route is under away. Pictured above are the remnants of a 300-year old wreck salvaged in the Bay of Greifswald, Germany during the Nord Stream project.*

Ø 1,400 mm



Overall outer  
diameter

### Social impacts

Social impacts from the Nord Stream 2 project considered in the assessment include potential impacts on people and health as well as tourism and recreational activities. Bornholm and Ertholmene are the populated areas located closest to the Nord Stream 2 route, at a distance of approximately 24 kilometres and 37 kilometres respectively. At this distance, impacts from the construction of Nord Stream 2 (i. e. noise or light) are unlikely to cause a nuisance to people living on the islands, impact their health or hinder onshore recreational activities and tourism. Given the temporary and limited nature of safety zones around construction vessels, as well as the abundance of alternative areas, it is also unlikely that offshore recreational activities such as diving or fishing will be impacted by the construction of Nord Stream 2. In conclusion, no significant social impacts from the project are anticipated.

### Conventional and chemical munitions

There is a risk of encountering chemical munitions in Danish waters around Bornholm, especially in the eastern part including the Bornholm Basin which was used as a dumping ground for chemical munitions after World War II. Dedicated munition screening surveys along Nord Stream 2 route are under way. All munition finds are evaluated by munition experts in cooperation with the Danish authorities. The general approach is to avoid contact with munitions in Danish waters. Mitigation measures such as rerouting around identified munitions, preventing human contact with chemical agents and corresponding training for vessel staff will help to minimise potential impacts from munitions.

### Chemical warfare agents (CWA)

The shell cases of most chemical munitions contain corroded and chemical warfare agents (CWA) that have been released into the surrounding marine environment and subsequently accumulated in the seabed sediments. An analysis of seabed sediments has been performed to determine the presence of CWA. Degradation products of two major types of the CWA have been found. During construction, disturbance of the seabed has the potential to release CWA into the water column. However, the assessment has shown that the concentration of CWA or in the water column will remain far below the level at which a negative impact on the biological environment would be expected. Thus, no significant impacts from CWA are anticipated.



*Analysis of seabed sediments and benthic fauna during Nord Stream 2 baseline surveys has ensured a solid basis for environmental impact assessment.*



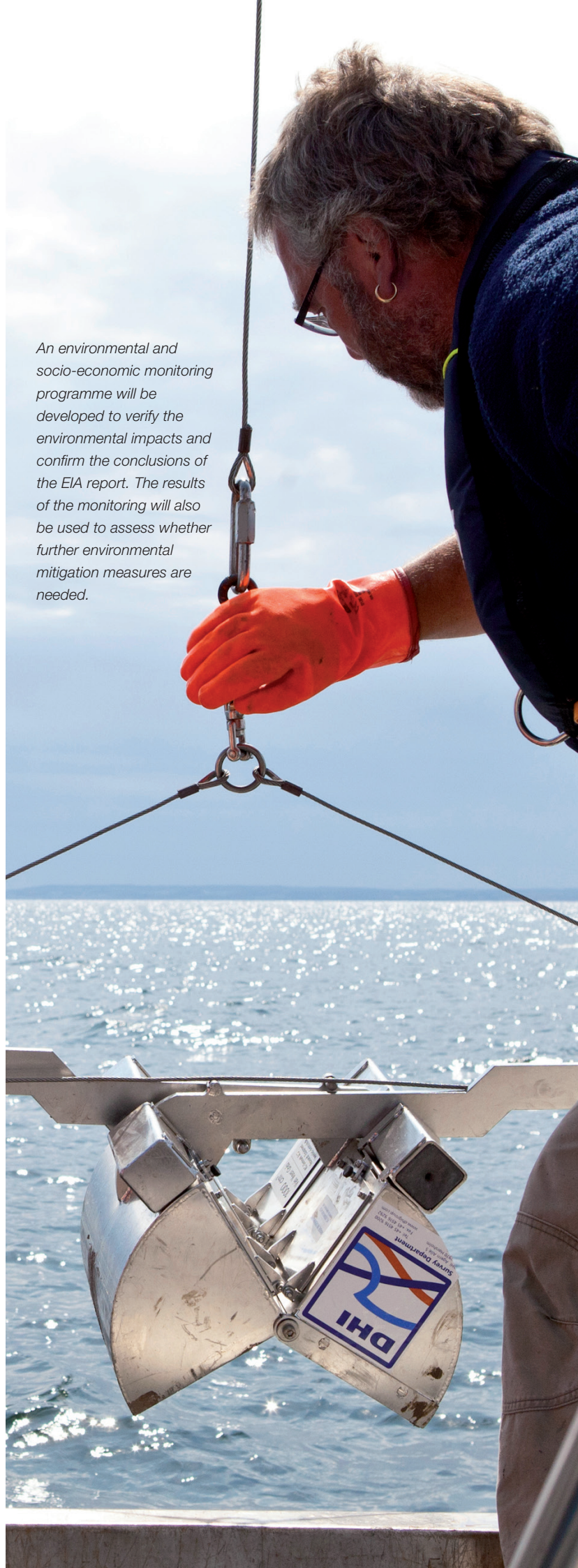
### Transboundary impacts

Activities within Denmark have the potential to impact Germany, Poland and Sweden. However, it has been concluded that the majority of the impacts are highly localised and thus unlikely to extend into the neighbouring countries. Impacts which may extend into neighbouring waters due to the proximity of the activity to the border, such as sediment spreading caused by pipe lay or seabed intervention works, will be temporary and highly localised. Hydrographic modelling has shown that the presence of the pipelines during operation will not have a significant impact on the hydrography of the Baltic Sea. Therefore, no significant transboundary impacts are anticipated.

### Cumulative impacts

The assessment of impacts arising from Nord Stream 2 in combination with the impacts from the other existing (Nord Stream Pipeline and several telecom cables) and/or planned projects has shown that the combined impacts on the physical, chemical, biological and socio-economic receptors will not be significant. For example, the presence of both the Nord Stream and Nord Stream 2 Pipeline may cause a hindrance to the fishermen in the area. However, due to natural embedment of the pipelines and the possibility to trawl between the two pipeline systems, no significant impacts on fisheries are anticipated. Only two planned projects, the Baltic Pipe Project and the extraction area south of Bornholm, were identified as having the potential to result in cumulative impacts with Nord Stream 2. There will be no temporal overlap in the construction of the two pipelines and/or development of the extraction area, and no cumulative impacts are anticipated. Therefore, construction and operation of the Nord Stream 2 Pipeline will not result in significant cumulative impacts.

*An environmental and socio-economic monitoring programme will be developed to verify the environmental impacts and confirm the conclusions of the EIA report. The results of the monitoring will also be used to assess whether further environmental mitigation measures are needed.*





# Operation of the Nord Stream 2 Pipeline

200,000



Total number of individual **pipe sections** (required for both pipelines)

Nord Stream 2 is the owner and the operator of the pipeline system.

*Regular inspections of the pipeline system and surveys along the route will ensure the safe operation of the pipelines.*

Nord Stream 2 AG will be the owner and operator of the pipeline system. An operations concept and security systems will be developed to ensure the safe operation of the pipelines, including avoiding over-pressurisation, managing and monitoring potential gas leaks, and ensuring material protection.

The protection, control and monitoring strategy for the Nord Stream 2 Pipeline will be based on manned landfall facilities in Russia and Germany. These will be supervised by a main control centre and a back-up facility, both located in Switzerland.



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