

Impact Assessment Report, Finland Summary of the Environmental

Through the Baltic Sea A Natural Gas Pipeline Nord Stream 2



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Summary of the Environmental Impact Assessment Report, Finland

Nord Stream 2 plans to build a new pipeline through the Baltic Sea, which can transport natural gas from the world's largest reserves in Russia directly to EU's consumer market. The twin 1,200-kilometre subsea pipelines will have the capacity to supply about 55 billion cubic metres of gas per year. The pipelines are scheduled o be laid during 2018 and 2019, and to be operational in 2020. Besides pipelay, the construction activities include munitions clearance, rock placement and crossing nstallations. The environmental impacts of the pipeline in the Finnish section have been assessed and are presented in the national EIA Report. The assessment results are summarised in this leaflet.



The results of the environmental impact assessment indicate that the impacts caused b the Nord Stream 2 pipeline will be mostly negligible or minor within the Finnish EEZ. Most of the potential impacts will be local

and short-termed, occurring solely during the construction period. The pipeline project was assessed to be environmentally viable; however special attention must be paid to planning and implementing adequate mitigation measures during construction activities.

Climate and air quality

The total carbon dioxide (CO₂) and nitrogen oxides (NO_x) emissions of the Nord Stream 2 project during construction and operation of the pipeline in Finland assessed to be approximately 3 per cent, sulphur dioxide (SO₂) emissions under 1 per cent and particulates emissions 2 per cent of the total emissions occurring annually from existing vessel traffic in the Baltic Sea. Offshore activities are assessed to cause approximately 97-99 per cent of the project emissions and only a small percentage of the emissions would derive from onshore activities. Of the offshore activities, pipe laying is assessed to be the most significant contributor, comprising 28-34 per cent of offshore total emissions.

Seabed sediments and water quality

Mathematical modeling has been carried out to assess the extent of sediment spreading and sedimentation caused by the construction activities. The total amount of suspended sediments due to offshore construction works is assessed to be relatively small. Re-sedimentation of suspended sediments is assessed to be at most a few millimetres and will occur only near the construction site. Seabed sediment spreading during construction is assessed to be comparable to the natural processes that occur over the seabed during storms. Suspended sediments also alter water quality. These changes are assessed to be temporary and occur in the water layer closest to the seabed and relatively near to the activity. A slight increase in the concentration of suspended solids during munitions clearance will be detected beyond the project area. The concentration level of dissolved contaminants mobilised to the seawater due to construction activities is assessed to be low if detectable at all. Suspended phosphorus is assessed to not have any effects on the eutrophication status of the Gulf of Finland.

Benthic environment

The presence of benthos in the offshore areas of the Gulf of Finland is mostly dependent on the oxygen concentration near the seabed. As a result of permanent anoxic conditions, there is virtually no life on the seabed in the western parts of the pipeline route. Consequently, construction activities (mainly rock placement, munitions clearance and to a lesser extent anchor-handling) is assessed to lead to defaunation or interference with benthic communities only in a small portion of the pipeline route (in the shallower areas). Benthic communities underneath the pipelines and support structures will be permanently lost but only a very minor proportion of the benthic life will be affected. Any other adverse impacts on benthos are assessed to be local and of short duration because the communities are able to recover.

Marine mammals

here are three resident marine mammal species ir the Gulf of Finland: grey seals, ringed seals and harbour porpoises. The population of grey seals is abundant and has been increasing over the last decades. The population of ringed seals in the Gulf of Finland has been declining over the last decades and at the moment it is considered to be in a poor state. The harbour porpoise is a very occasional visitor in Finnish waters. Munitions clearance by detonation produces high underwater noise peaks that are uncommon in the normal sea environment. Noise levels can be far-reaching and cause adverse impacts on marine mammals.

Other project activities (e.g. rock placement and

Background and methods for impact assessment



The environmental baseline has been prepared on the basis of peer-reviewed scientific literature, other EIAs, technical reports and data as well as the knowledge and experience gained from Nord Stream, for example, from long-term environmental monitoring of the construction and operation of the pipelines. Nord Stream 2 has conducted several offshore environmental and technical surveys to collect information on the marine baseline along the pipeline route. Mathematical modelling has been applied to predict sediment dispersion and underwater noise propagation caused by the offshore construction activities. Citizen surveys in Finland and a public opinion survey in Estonia have been carried out in order to gather information on people's opinions of the project.

pipelay) generate much less underwater noise. The use of mitigation measures will ensure that the occurrence of blast injuries and hearing losses will be reduced in the proximity of munitions clearance. Additionally, Nord Stream 2 is currently investigating alternative clearance methods that would allow limiting or removing the potential adverse impacts no impacts are foreseen on birds. caused by munitions detonation.

Avoidance reactions of fish in relation to construction activities are assessed to be temporary and not to have an impact on fish communities. Munitions clearance by detonation may kill some individual fish close to the clearance site; however, this is not assessed to have an impact on fish stocks. Suspended sediments and released contaminants are not likely to affect sprat eggs and larvae survival (due to the low value of individual sprat eggs in the context of overall sprat stock).

According to available data, no significant feeding or conservation objective ("Kallbådan Islets and

resting areas have been identified in the vicinity of the planned Nord Stream 2 pipeline in the Finnish EEZ. Areas of shallow water are located more than 5 kilometres from the planned pipeline route, and all Important Bird Areas (IBAs) are located more than 8 kilometres away from the pipeline route. Therefore,

Protected areas

Most of the protected areas are located at a distance of 8 kilometres or more from the Nord Stream 2 pipeline. Only one protected area, a Natura 2000 site called the "Sea Area South of Sandkallan", is located closer than 2 kilometres from the pipeline route. According to the Natura assessment screening and the results of the sediment spreading modelling, the Nord Stream 2 project will not have adverse impacts on the protection objective (habitat type "reefs") of the site in question. Munitions clearance by in-situ detonation may have negative impacts on the nearest protected sites with seal species as a



Waters"). Therefore, a detailed Natura assessment will be carried out for the permit application. This assessment will be based on the latest munitions survey data and on the study of mitigation measures withstand minor or even moderate changes. applicable to clearance activities. Additionally, a Natura assessment screening will be carried out for three other sites as a precautionary measure.

Biodiversitv

The biodiversity status in the Baltic Sea and in the Gulf of Finlad has been assessed to be "unacceptable level" (HELCOM 2010). The Nord Stream 2 project will not affect the majority of the biodiversity components (e.g. species, habitats and ecosystem). Direct mechanical disturbance on the seabed and impacts caused by sediment dispersion have very limited impacts on any life form in the Gulf of Finland. The same applies to the amount of space occupied by the pipelines in shallow waters (which can be seen as a measure of potential impacts on biodiversity). Underwater noise from detonations may have negative population level impacts on seals (Gulf of Finland ringed seal population). Only one link (Gulf of Finland ringed

seal) in the chain of biodiversity is assessed to be affected, while the other links remain unaffected. Therefore, the system as a whole is likely to

Ship traffic

Potential impacts on ship traffic during the construction phase are mitigated with Notices to Mariners and safety zones around project vessels. However, there are two locations where special mitigation measures are planned to ensure the smooth running of third party ship traffic: 1) Traffic Separation Scheme (TSS) Off Kalbådagrund – an assisting tug will be stationed at the shoal near the TSS, 2) TSS Off Porkkala Lighthouse - further discussion and planning with the Finnish Transport Agency will be carried out.

Commercial fishery

Only a fraction of the fishing area is impacted by construction vessels for short periods of time and, as the pipelay vessel moves about 2.5 kilometres per day, it does not pose a hindrance to fishing at any location for more than a day. During the

operation phase, there will be freespanning pipeline Scientific heritage sections which may cause some hindrance to trawling. However, the pipelines do not make the project area untrawlable as the prevailing trawling method in the area is mid-water trawling.

Existing and planned infrastructure and future use of the Finnish EEZ

o existing Nord Stream pipelines and twenty-four existing cables cross the Nord Stream 2 pipeline route. Planned infrastructure that would cross the Nord Stream 2 pipeline route are one gas pipeline (Balticconnector) and two telecommunications cables. Except pipelines and cables, all other existing or planned infrastructure is located at least 10 kilometres from the Nord Stream 2 pipelines. By adopting mitigation measures for impacts on pipelines and cables, there are no impacts assessed from construction activities. If new infrastructure is planned in the future in the nearby areas of the pipeline, consultations with Nord Stream 2 will be necessary





Sedimentation caused by construction activities is assessed to be so low that negative effects on benthos monitoring stations are unlikely. Similarly, turbidity changes are so short in duration that the representativeness of the water sampling stations would not be compromised. Therefore, no impacts are envisaged to occur on scientific heritage.

Cultural heritage

Due to the mitigation measures applied, there are no impacts assessed to occur on submerged historical wrecks during the construction and operation of the pipelines. World War II historical sites are assessed to be partially affected because some relatively small parts of the antisubmarine-net (barrage) might fall under the pipeline.

Social impacts

The assessed social impacts include possible impacts on tourism and living conditions as well as



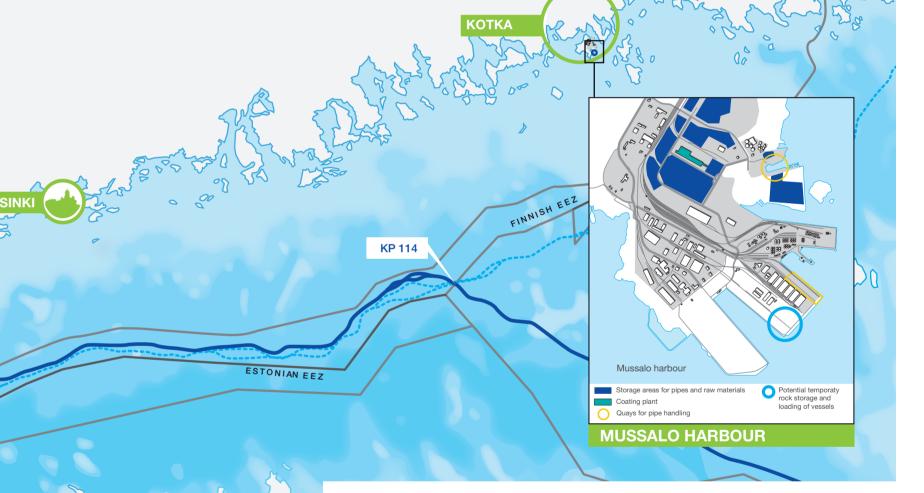
people's fears and aspirations. Social impacts that originate from offshore activities are assessed that the same quarries used during the Nord to be very limited, except for a certain degree of concerns that exist among the residents in coastal area, for example the status of the Baltic Sea and possible political dimensions of the project. It is assessed that the impacts will begin to diminish during the construction phase and towards the operation phase in the event that no unintended impacts occur. No social impacts from offshore operations on recreation, tourism, and the living environment are otherwise assessed to occur.

mpacts on the Kotka region

The project activities are estimated to have a slightly positive impact on land use in Kotka, since Impacts on the Hanko region existing infrastructure in the Mussalo Harbour and Wasco will utilise existing harbour and industrial area will be used. A slight increase in emissions to air is not expected to deteriorate general air quality in the Kotka region or cause exceedances of guideline limit values. Overall noise levels due to onshore activities in Kotka Mussalo are estimated to be below the noise guideline values. Quarrying activities have

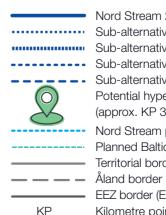
been assessed on the basis of the assumption Stream project in the Kotka region would also be used for Nord Stream 2. Rock transport from guarries to Mussalo Harbour will increase heav traffic, especially on Road 355. Merituulentie It is assessed that the Kotka region will benefit economically from the project activities since a large number of new jobs and additional busines will be generated by project related activities for the duration of the project in an area of high unemployment. Some impacts are assessed to relate to residential amenity and traffic safety due to noise, heavy traffic and dust.

infrastructure in Koverhar, Hanko, for storage yard In Hanko, economic development has been slow in recent years. Construction activities are not assessed to affect the Hanko region. However, they will induce a small increase in business and job opportunities.



Legend:

TALLINN



Nord Stream 2 route Sub-alternative ALT E1 Sub-alternative ALT E2 ----- Sub-alternative ALT W1 ---- Sub-alternative ALT W2 Potential hyperbaric tie-in (approx. KP 300) Nord Stream pipeline Planned Balticconnector pipeline ------ Territorial border EEZ border (Exclusive Economic Zone) Kilometre point in the pipeline route

Transboundary Impacts

The majority of the impacts from the Nord Stream 2 Potential cumulative impacts with the planned the borders of the Finnish EEZ. The focus in the transboundary impacts assessment was on the potential impacts on water quality and from underwater noise during construction phase, and during the same time period. If the construction concerns for example about the possible negative impacts on environment and marine life that have been expressed in Estonia. Sediment spreading and related contaminant dispersion was found not to have any impact on neighboring countries due to the short duration and low concentrations. Underwater noise from munitions clearance is assessed to have impacts on the Gulf of Finland ringed seal population (with the impact extending into Estonia and Russia). Fisheries in neighboring countries are assessed to be affected by the project activities same way as Finnish fisheries. This is due to fishing rights within EU that allow fishing vessels from other EU member states to fish in the Finnish EEZ.

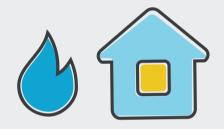
Cumulative Impacts

construction or operation phase will remain within Balticconnector pipeline and existing Nord Stream pipeline have been assessed in the EIA. The Nord Stream 2 and Balticconnector pipelines are planned to be constructed approximately periods overlap, increased ship traffic in the same area would also increase the associated risks. The existence of both the Nord Stream 2 and Nord Stream pipelines is assessed to cause an additional hindrance to commercial fishery due to the freespans of four pipelines in the Finnish EEZ. However, mid-water trawling is the prevailing trawling method in these waters, not bottomtrawling. When considering the potential future use of the Finnish EEZ, the future use of the Finnish EEZ, the existence of Nord Stream 2 pipelines means that it is probable that consultation with Nord Stream 2 will be necessary. However, it is assessed that the existence of pipelines will not prevent future projects, but may have an impact on the planning and technical design of such projects.

New Pipeline for Europe's Energy Future

Access to natural gas is becoming increasingly critical for the EU as global demand rises and its own gas resources deplete. With Nord Stream 2, the EU can secure additional gas resources in the long term in order to ensure global industrial competitiveness and meet domestic demand.

Natural gas offers a cost-effective and sustainable se +25 per cent in the coming two decades (equal way to achieve emissions reduction targets. It makes a good partner to a further build-out of renewables. Due to its role as an efficient, abundant and clean pathway to a low-carbon future, the demand for natural gas in Europe is projected to remain mostly stable over the coming 20 years. Europe's domestic natural gas production is in decline, especially in Norway, the Netherlands and the UK. At the same time, gas exports from Northern Africa will be increasingly constrained by own local consumption, while new gas from the Caspian region is projected to deliver only small amounts to the EU. This leaves an import gap of 120 bcm of EU's gas supply to be compensated over the next two decades – more if countries supplied from this European market are factored in. This gas can be covered by either gas from the global LNG market or Russian gas. The share LNG, gas from Nord Stream 2 will ensure a combetween them will be set by the market. Nord Stream 2 can cover up to 55 bcm of this gap enough for 26.5 million households for one year. However, the LNG market is typically subject to cycle shifts, as its global market is clearly focused reasonably priced energy if it is not to relocate on Asia, where very little pipeline capacity exists. The global demand for gas is projected to increa-



to about 1,000 bcm), therefore LNG availability and price for Europe will be under pressure – a risk to the European industry and consumers that cannot be resolved without sufficient available pipeline capacity. Nord Stream 2 helps mitigate these risks in Europe by providing capacities connecting to secure gas reserves readily available in Northern Russia. The new gas supply will drive the development of new interconnectors between member states to ensure that gas can flow freely across Europe to meet market needs. Russia has been a reliable partner in supplying gas to Europe for five decades. The strategic expansion of the connection from Russia to the European market is therefore important to secure the supply of natural gas to the EU over the long term. Together with other suppliers and transport options, such as petitive supply. The project aligns with the goals the EU has for its energy system – to provide secure, affordable and sustainable energy supply to Europeans. EU industry in particular needs production to other regions.

Frequently Asked Questions



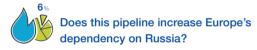
Does natural gas support the climate goals and the shift to renewable energy?

Gas can help the EU to meet its climate targets. It is the cleanest fossil fuel with the lowest CO₂ emissions and can provide flexible, reliable, storable energy to supplement renewable production. Using natural gas to generate power instead of coal cuts down CO₂ emissions by 50 per cent. If the additional gas that could reach Europe through Nord Stream 2 were used to replace coal, import route, but it can only cover part of the adit could save 14 per cent of the EU's entire CO₂ emissions from power generation. Converting coal-fired generation to gas – at the same time as continuing to build the renewables we need In the end, European gas companies will buy gas - would be a significant contribution to fighting climate change. The National Energy and Climate companies sourcing their gas based on the best Strategy of Finland recognizes also the role of gas economic offer is at the heart of the EU's goal for in the transition towards a carbon neutral society. a liberalised internal energy market.



Will the pipeline make other transport systems reduntant?

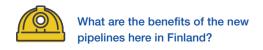
Nord Stream 2 complements the existing natural Nord Stream 2 clearly meets the three core goals gas import routes to the EU. As domestic production declines, more gas imports are needed, which require reliable import systems connecting to ample available resources. The project will supplement existing pipelines and other routes such as LNG deliveries. Increasing choice between different suppliers and different supply routes will boost competition. The market will decide which Nord Stream 2 related activities will bring additiogas to favour and gas importers will make use of the available infrastructure options in the most efficient way. This will be based on the most eco- co, Nord Stream 2's partner for concrete weight nomic offer, benefitting European consumers. The coating, storage and logistics of the pipes, will affordable prices.



Russian gas provides currently around one third of the gas needed in the EU – in total energy terms that's only about 6 per cent of the energy used in the EU. As EU domestic gas production declines, more gas will need to be imported. While Russia will continue to be an important supplier, these additional imports will need to come from a range of sources. Nord Stream 2 will provide an additional ditional needs. Once gas reaches the EU energy market, different gas suppliers compete fairly with each other, as well as with other forms of energy. where they find the best deal. The concept of

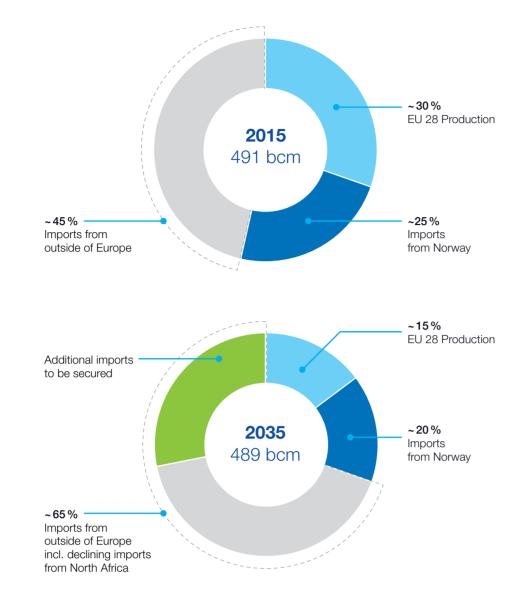


of EU energy policy: It's competitive, secure and sustainable



nal business and jobs to Finland in Hanko and especially in the Kotka region. For example, Wasend result will be more secure supplies, at more employ up to 300 persons directly and some 100 persons indirectly in its operations for the duration of the project.

Europe is Facing an Import Gap as Demand Exceeds Supply



Source: based on Prognos 2017

Total demand includes all gas sourced from European market. FL countries plus Switzerland and western imports by Ukraine.

Facts and Figures

1.200 km

is the total length of

378 km

Finnish section.

thereof are within the

12 m · · · · ·

24,000 kg

will be 12 me

Desian pressu

220/

200/

177.5

bar gauge

Each pipe joint

24 tonnes with concrete coating

the Pipeline.

120 bcm of additional imports need to be secured for the EU in the next two decades. owing to decreasing production and ower output from other exporters to Europe. Nord Stream 2 will have capacity to transport 55 bcm of natural ga per year, enough to Utilisation of the existing Nord Stream pipeline has supply some

increased every year since 26 million it opened in 2011, reachin 80 per cent capacity in 2016. European households.



up to 41mm The pipelines will have a

constant internal diameter of 1.153 millimetres (48 inches) and a wall thickness of up to 41 millimetres without conrete weight coating.



countries - Russia, Finland, Sweden, Denmark and Germa

Ē₽

2035

184m

Depth of the

nish sector



Offshore Construction Activities

In order to install the pipelines on the seabed, a number of construction activities are necessary. Hereunder, a brief description of the offshore project activities that will ake place in Finland, is presented.

lunitions clearance

corridors on both sides of the pipelines will be surveved for munitions. Where munitions are found. they will be identified. The pipeline route has been ptimised to avoid munitions to the extent possible. However, some of the munitions will have to be of the pipeline. The most common way to clear munitions is to detonate them in-situ utilising a donor charge. Nord Stream 2 will perform a study on alternative methods and mitigation techniques to Crossing installations reduce the impacts from munitions clearance.

Rock placement

thereby providing support and covering for sec-

tions of the pipeline in order to ensure its long-term The Nord Stream 2 pipeline installation and security integrity. Rock placement is required for freespan correction, gravel basement at the potential hyperbaric tie-in location and for crossings with other pipelines. Rock material will potentially be supplied from the Kotka region and will be transported by ship to designated locations along the pipeline cleared to ensure the safe installation and operation route. Rock material will be placed precisely on the seabed using a fall pipe. Rock placement activities will be carried out prior to and after pipelay.

National EIA and Permitting Procedure and

Construction Time Schedule in Finland

The Nord Stream 2 pipeline will cross telecommunications and power cables as well as gas pipelines. Cables will be protected by concrete support Rock will be placed locally at designated locations, mattresses prior to pipelay. Rock placement will be used to prevent interaction between pipelines. Nord Stream 2 will be in contact with cable and pipeline **Pre-commissioning** owners to agree on the detailed crossing method.

Pipelay

In the pipelay process of the two pipelines, individual pipe joints will be transported from Mussalo, Kotka and Koverhar Hanko, by pipe supply vessels are: to the lay barge, welded together on-board and lowered as a continuous string onto the seabed from the lay barge. The average speed of the pipelav vessel is 2-3 kilometres per day. A dynamically positioned (DP) lay barge is planned to be used in the Finnish EEZ from the Russian border at pipeline kilometre point (KP) 114 to south of Hanko (approximately KP 350). Either an anchored or a DP lay barge is intended to be used in the Finnish FEZ from south of Hanko to the Swedish FEZ_A DP lav barge uses thrusters for positioning, whereas an anchored lav barge is positioned by anchors which are moved by anchor handling tugs according to planned anchor patterns. As the basis of this assessment, an anchored lav barge is assumed to be used in the western section of the Finnish EEZ. A remotely operated vehicle (ROV) will be used for continuous touchdown monitoring at critical points such as pipelay start-up and laydown, during the crossing of rock supports and at pipeline and cable Commissio crossings. Approximately 300 days (150 days per pipeline) of pipelay operations will be carried out in place after pre-commissioning and until the pipethe Finnish EEZ. However, pipelav is estimated to take place over a total of approximately 9 months.

Transport of pipes, rock and other material The project includes the following offshore transport activities:

- Mussalo, Kotka to interim storage vard in Koverhar. Hanko.
- Transport of rock material for rock placement from gas will not be able to react with the atmospheric Mussalo. Kotka to designated rock placement
- locations along the pipeline route Transport of fuel and other materials to pipe lav
- barge(s) and support vessels.

After installation, the Nord Stream 2 pipeline will undergo a series of activities that prepare the pipeline system for use. These activities include cleaning, gauging and testing/leak detection. Two options for pre-commissioning are under investigation. These

> Option 1: "Dry" pre-commissioning without pressure testing, using alternative testing methods and without hyperbaric (underwater) tie-ins. Under this option, the pipeline will not be water-filled, and there will be neither water intake from the Finnish EEZ nor water discharges to the Finnish EEZ. The estimated amount of rock to be used decrease from 110,000 m³ to 80,000 m³, constituting app roximately 5 per cent of the total rock volume in

Option 2: Standard "Wet" pre-commissioning operations as implemented for Nord Stream. including a hyperbaric tie-in in the Finnish EEZ at KP 300. Each of the two pipelines will be filled with approximately 1.300,000 m³ of seawater to be taken from the hyperbaric tie-in locations Pressure test water will be discharged in Russia

the Finnish EEZ

Commissioning comprises all activities that take lines commence natural gas transport, including filling the pipelines with natural gas. Prior to the activity of gas-in, all pre-commissioning activities must be completed successfully and the pipeline filled with dry air that is close to atmospheric pressure After pre-commissioning, the pipelines will contain > Transport of concrete weight-coated pipes from dry air. Nitrogen gas, as an inert buffer, is then inserted into the pipelines immediately prior to natura gas-filling. This ensures that the inflowing natural air and create unwanted mixtures inside the pipeline as the nitrogen gas will act as a buffer between the atmospheric air and the natural gas. Commissioning will then proceed with filling the pipelines with natural gas from the connected landfall facilities.

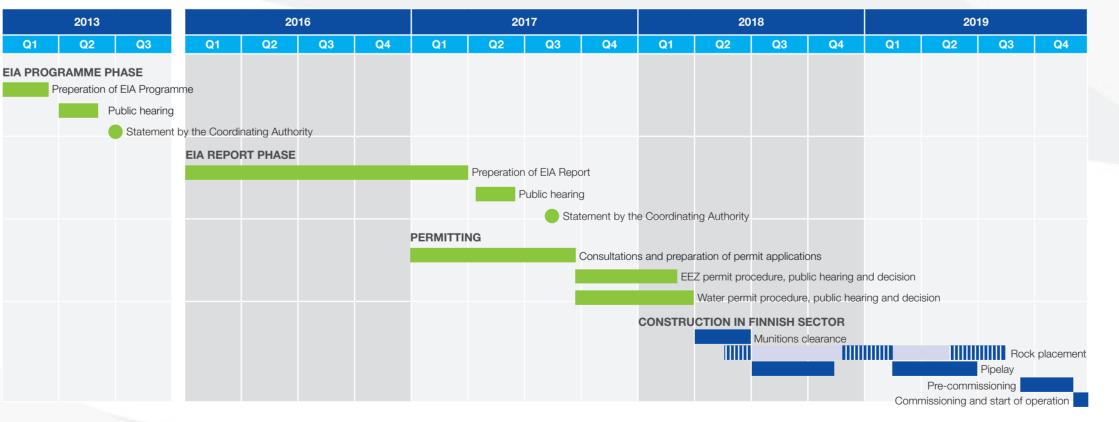


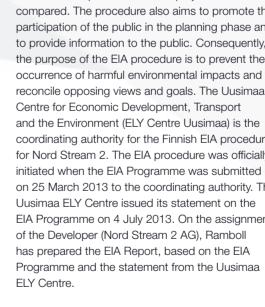
Assessed Alternatives

Nord Stream 2 route The pipeline route (Nord Stream 2 route) in the Finnish section is located entirely in the Finnish EEZ, which is considered international waters, and does not enter territorial waters. To the east, the route enters from Russian territorial waters and, to the west, continues into the Swedish EEZ. The closest distance from the route to Finnish territorial waters is 0.6 kilometres and the closest distance to the Estonian EEZ 1.8 is kilometres. Within the Finnish section, the pipeline route is located north of the Nord Stream pipelines for the most part. The total length of the pipeline route within the Finnish EEZ is approximately 378 kilometres.

Sub-alternatives

EIA & Permitting Construction Activities







In the Finnish EEZ there are two sections where two alternative routes were considered for the pipeline

> The eastern section is located south of Porkkala approximately 700 m shorter than ALT E1. The seabed profile along ALT E2 is more irregular and. Non-implementation works as well as the estimated number of long freespans is greater than for ALT E1. ALT E2 is located closer to the Nord Stream pipelines than ALT E1. When considering the future use of the EEZ, the cumulative impact with Nord Stream

pipeline may be slightly lower in sub-alternative ALT F2

> Another section where the route divides into two alternative routes is located in the northern Baltic Proper in the western part of the Finnish EEZ (sub-alternatives ALT W1 and ALT W2), ALT W2, the southern sub-alternative, is approximately 2.8–3.1 kilometres shorter than ALT W1. The rock volume required for ALT W1 intervention works as well as the number of long freespans are greater than for ALT W2, due to the uneven seabed, ALT W2 is located closer to the Nord Stream pipelines than ALT W1. When considering the future use of the EEZ, the cumulative impact with Nord Stream pipeline may be slightly lower in sub-alternative ALT W2.

Construction alternatives

The two pre-commissioning alternatives, without or with hydrotest ("Dry" and "Wet") have been assesin the Gulf of Finland (sub-alternatives ALT E1 and sed. See the description of these alternative meth-ALT E2). ALT E2, the southern sub-alternative, is ods in the "Offshore construction activities" section.

therefore, the rock volume required for intervention An EIA must also include a non-implementation (or zero-) alternative describing a situation in which the planned project is not implemented in the Finnish EEZ. Non-implementation would lead to no environmental or social impacts from the project, neither adverse nor beneficial

Ancillary **Activities**

Nord Stream 2's ancillary activities include both onshore and offshore activities as follows:

Concrete weight coating plant in Kotka

The pipes, which are manufactured in Russia and managing and monitoring potential gas leaks and pre-coated with polyethylene plastic, will be coated with a concrete and iron ore mix in Wasco Coatings Finland Oy's Kotka plant in order to double their weight to increase stability of the pipeline for the Nord Stream 2 pipeline system will be on the seabed. Kotka will receive approximately 110,000 line pipes from Russia starting from Q3/2016. The operations will continue approximately until end of 2018.

Storage yards for weight-coated pipes

Wasco will store the concrete weight-coated pipe in interim storage yards in Mussalo, Kotka and Koverhar, Hanko. It will transport pipes by pipe transhipment vessels from Mussalo to Koverhar.

Extraction, transport and storage of rock material

Operation of the Pipeline System

Nord Stream 2 AG is the owner and operator of the pipeline system. The system is designed to have an operating life of at least 50 years. An operations concept and security system will be developed to ensure the safe operation of the pipelines, including avoiding over-pressurisation ensuring material protection.

The protection, control and monitoring strategy based on manned landfall facilities in Russia and Germany. These will be supervised by the Main Control Centre (MCC) in Switzerland and a back up facility, the Back-Up Control Centre (BUCC), also located in Switzerland.



Environmental Impact Assessment Procedure

National procedure

The environmental impact assessment procedure aims to increase and enhance environmental inforcoordinating authority for the Finnish EIA procedure express their views on the project and its impacts.

for Nord Stream 2. The EIA procedure was official initiated when the EIA Programme was submitted International procedure Uusimaa ELY Centre issued its statement on the of the Developer (Nord Stream 2 AG), Ramboll has prepared the EIA Report, based on the EIA

The EIA procedure must be conducted before the authorities will make any decisions to officially approve a proposed project. Hence, the EIA procemation for decision-making and planning. For this dure is not a decision-making process, and permits purpose, the project's environmental impacts are for a project are granted separately in accordance assessed and possible different project alternatives with relevant legislation. The EIA procedure provides compared. The procedure also aims to promote the authorities, other stakeholders and the public variparticipation of the public in the planning phase and ous ways to participate in the procedure. Informato provide information to the public. Consequently, tion on the Nord Stream 2 project has been shared the purpose of the EIA procedure is to prevent the during several meetings and is publicly available occurrence of harmful environmental impacts and to on the project's website (www.nord-stream2.com) reconcile opposing views and goals. The Uusimaa The EIA procedure is conducted in an interactive Centre for Economic Development, Transport manner to provide the authorities, other stakeholand the Environment (ELY Centre Uusimaa) is the ders and the public an opportunity to discuss and

on 25 March 2013 to the coordinating authority. The Finland is a signatory to the Convention on EIA in a Transboundary Context ("Espoo Convention"), EIA Programme on 4 July 2013. On the assignment which promotes international cooperation and public engagement when the environmental impact of a planned activity is expected to cross a border. The Espoo Convention lays down the general obligation of countries ("Parties of Origin") to notify and consult one another ("Affected Parties") on all major projects that are likely to have a significant adverse vironmental impact across state boundaries. For he Nord Stream 2 project, the parties of origin are Russia, Finland, Sweden, Denmark and Germany, and the affected parties are Russia, Finland, Estonia, Sweden, Latvia, Lithuania, Poland, Denmark and Germany. Russia has signed but not ratified the agreement. To comply with the Espoo Convention, Nord Stream 2 AG will issue a description of the roject and its potential transboundary effects (a so-called "Espoo Report") to all potentially affected countries. International consultation will take place at the same time as national EIA consultation.

Key Mitigation Measures

Nord Stream 2 AG is committed to designing, planning and implementing the peline project with the least impact on the environment as is reasonably racticable. One of the most important factors during optimisation of the pipeline oute has been avoidance of uneven seabed, thereby reducing the number of ocations where seabed intervention works are necessary.

chnical solutions

Use of a dynamically positioned lay barge in the heavily mined areas of the Gulf of Finland to minimise impacts from munitions clearance. Controlled rock placement utilising a fall pipe and instrumented discharge head located near the seabed to ensure precise placement of

rock material.

- Deployment of acoustic deterrent devices for marine mammals prior to munitions clearance detonations to drive animals away from the detonation zone
- Stationing of marine mammal and bird observers on munitions clearance vessels.
- In addition to the munitions clearance methods and mitigation techniques described above. which were successfully implemented for the Nord Stream Project, Nord Stream 2 will perform a study of alternative clearance methods and mitigation techniques to reduce the mpact associated with underwater noise from **Contractor audits:** n-situ detonation
- Construction activities, such as pipelay and rock placement, are not planned in winter ice conditions to prevent impacts on seals during the breeding season

Ship traffic

Information on project vessels' plans and schedules will be provided to the Finnish Transport Agency for Notices to Mariners

- > Specific consultation will be held and procedu res will be agreed with the pipelay contractor and relevant authorities at TSS Off Kallbåda grund and TSS Off Porkkala Lighthouse.
- > The Finnish authorities will be notified of un planned events during pipeline operation

Underwater cultural heritage:

- > The Nord Stream 2 project is committed to imadverse impacts on cultural heritage occur from project activities. In general, a 50 m minimum safety distance should be assigned to each cultural heritage site.
- > In those areas where an anchored lay barge is planned to be used, an anchor corridor survey will be completed to identify, verify and catalo que potential cultural heritage objects. Anchor patterns will be designed and approved prior to construction in consultation with national cultural heritage agencies.

- > Nord Stream 2 will periodically audit its contractors (including ancillary activities) to ensure that they operate in accordance with their environmental permit
- > A waste management strategy and plan will be developed and implemented for waste generated offshore. Contractor waste management plans and supporting procedures will be developed and implemented for each vessel.

The rock material is assumed to be extracted from existing quarries in the Kotka region. The rock will be transported by trucks from the quarries to interim storage in Mussalo, Kotka. Rock transport is assessed to take place for approximately 18 months