



Fact Sheet: Nord Stream 2 Pipeline Logistics

Nord Stream 2 AG | Nov-18

1. Logistics Concept

- > The aim of Nord Stream 2's logistics concept is to supply the materials needed in an efficient, timely and cost-effective manner, minimising impacts on the sensitive ecosystem of the Baltic Sea.
- > Low-emission means of transportation such as ships and trains are used with the shortest possible transportation routes. Local workforce, services and service providers around the Baltic Sea are used as much as possible.
- > The locations for Nord Stream 2's coating plants and storage yards were selected based on specific criteria regarding existing infrastructure, railroad connections and limited shipping distances to the pipelay vessels, respecting available port resources.
- > Approximately 250 million euros were invested into the required infrastructure upgrades in the selected ports around the Baltic Sea. Once the construction of the Nord Stream 2 Pipeline is completed, these investments will continue to benefit the ports involved in the project.

2. Main Logistics Partners

- > Nord Stream 2 contracted Wasco Coatings, part of the Malaysian-based energy group Wasco Energy, to provide concrete coating, storing and logistics services for the more than 2,400 kilometres of pipes needed for the project. Wasco is a reputable international pipeline service company with many years of experience and operations in 17 locations worldwide.
- > DB Cargo Deutschland AG, Russian Railways and the Finnish VR Transport ship the steel pipes by rail to the coating plants in Mukran, Germany and Kotka, Finland respectively.
- > The handling and transport of the pipes to storage yards in Koverhar and Hanko, Finland and Karlshamn, Sweden as well as storage activities are provided by Wasco's Danish pipe transport sub-contractor, Blue Water Shipping A/S.
- > At the end of the logistics chain, a pipelay contractor installs the two pipelines on the seabed. Nord Stream 2 has contracted three pipelay contractors to build the pipeline: Allseas, Saipem and MRTS, with Allseas covering the majority of the offshore works.



3. Logistics Hubs

- > To ensure that the pipeline is laid as efficiently as possible, four ports are serving as the project's logistics hubs. These choices were based on a comprehensive evaluation of existing infrastructure along with environmental and economic criteria with respect to available ports.
- > Kotka on the Finnish coast and Mukran on the island of Rügen, Germany, are used for the concrete weight coating of the pipes and as interim storage yards.
- > Koverhar Harbour in Hanko, Finland, and the Port of Karlshamn in Sweden serve as additional interim storage yards to ensure short transport distances to the pipeline route.
- > Participation in the Nord Stream 2 project provides a substantial impetus for the development of these four ports, boosting their regional economies and providing significant job opportunities. It also has indirect benefits for business development and employment at all four locations, as Wasco requires support services for its operations, such as pipe handling, maintenance and cleaning, among others. Additionally, these activities bring further business to other local service providers, such as hotels and restaurants.

4. Logistics Chain

Pipeline Production

- > Production of the approximately 200,000 pipes spans from plate production, pipe milling, welding, stretching, treatment of pipe ends (chamfering and bevelling) all the way to quality control.
- > After quality control, all pipes receive an internal anti-friction coating and an external anti-corrosion coating.
- > The pipes for both pipelines were produced by the German company EUROPIPE GmbH (41 percent) and the Russian companies United Metallurgical Company JSC/OMK (31 percent) and Chelyabinsk Pipe-Rolling Plant JSC/ChelPipe (28 percent).

Transportation

- > Once finished, the pipes were transported by rail to the concrete weight coating plants on the Baltic Sea coast: Kotka in Finland and Mukran in Germany. A small number of pipes were coated in ChelPipe's subcontractor's plant in Volzhsky, Russia. All pipe production has been completed in these mills.
- > The pipes from the pipe mills in Vyksa (OMK), Chelyabinsk (ChelPipe) and Mülheim an der Ruhr (EUROPIPE) were transported by train to Kotka and Mukran respectively, and from Chelyabinsk to Volzhsky (Pipeline Coating Technology, PCT).



Concrete Weight Coating and Storage

- > After concrete coating, the weight of each of the pipe segments increases to about 24 tonnes on average. The additional weight ensures stability of the pipeline on the seabed and also protects the pipeline against damage in the water, such as by bottom trawling equipment.
- > 101,800 pipes are to be concrete weight coated in Kotka, where Wasco began coating pipes in March 2017.
- > 16,800 pipes were coated by PCT in Volzhsky and were delivered directly to Koverhar in Hanko, Finland for storage by rail. PCT completed its scope in the summer of 2018.
- > A total of 83,500 pipes are to be coated in Mukran, where operations started in July 2017.

Transshipment and Storage

- > 46,000 of the pipes coated in Mukran are to be shipped to Karlshamn for interim storage. 38,200 are being transshipped directly to the pipelay vessels from Mukran.
- > Pipe deliveries from Mukran to Karlshamn began in Q3/2017. Karlshamn is also receiving a small number of pipes from the Kotka coating plant for storage. A total of 52,600 pipes are to be stored in the interim storage yard in Karlshamn before being transported to the pipelay vessel in the course of construction.
- > Out of Kotka, 44,900 pipes are to be transshipped to Hanko's Koverhar for interim storage, while 51,200 pipes are being transshipped directly to the pipelay vessels. Pipe deliveries to Koverhar started in Q3/2017.
- > In addition, 16,800 pipes were transported directly by rail to Koverhar from Russia. Rail deliveries to Koverhar began in July 2017. A total of 61,300 pipes are to be stored in Koverhar.

Pipe Laying

- > Special pipe carrier vessels transport the pipe segments to the pipelay vessels.
- > On board the pipelay vessels, the pipes are welded onto the pipeline and then lowered to the designated place on the seabed.



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About Nord Stream 2 AG

Nord Stream 2 is a planned pipeline through the Baltic Sea, which will transport natural gas over 1,200km from the world's largest gas reserves in Russia via the most efficient route to consumers in Europe. Nord Stream 2 will largely follow the route and design of the successful Nord Stream pipeline. With Europe's domestic gas production projected to halve in the next 20 years, Nord Stream 2's twin pipeline system will help Europe to meet its future gas import needs, with the capacity to transport 55 billion cubic metres of gas per year, enough to supply 26 million European households. This secure supply of natural gas with its low CO₂ emissions will also contribute to Europe's objective to have a more climate-friendly energy mix with gas substituting for coal in power generation and providing back-up for intermittent renewable sources of energy such as wind and solar power.

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