

FACTS

NEWSLETTER ABOUT THE NATURAL GAS PIPELINE THROUGH THE BALTIC SEA

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Nord Stream Secures Phase II Funding, and Receives Top Award for Its Financing Approach

The Phase II financing deal was sealed at an official signing ceremony in March

Financing for the entire Nord Stream Pipeline project is secured. On March 4, Nord Stream, together with its shareholders in the consortium, Gazprom, E.ON Ruhrgas AG, BASF/Wintershall GmbH, N.V. Nederlandse Gasunie, and GDF SUEZ announced the successful signing of Phase II financing at a press conference in Berlin. The financing for Phase II amounts to 2.5 billion euros.

"The completion of Phase II financing marks a major milestone in the project's evolution. With construction of Line 1 nearly complete, and with construction of Line 2 due to start in May, it is clear that lenders see Nord Stream as a solid project with a sound economic background," said Matthias Warnig, Managing Director of Nord Stream. During the press conference, Warnig thanked Nord Stream's shareholders and lenders for their continued support in bringing the company another step

closer to finalising the project. "The Nord Stream Pipeline is of huge importance to energy security in Europe, and Nord Stream is on track to deliver gas to Europe later this year," Warnig explained.

Positive Response

Total capital expenditures for the privately financed Nord Stream project amount to 7.4 billion euros. Thirty percent of the project financing comes from Nord Stream's shareholders, and the remaining 70 percent was raised from the bank market in two phases. Phase I, with total loans of 3.9 billion euros, was completed in March 2010 in a difficult financial market. Phase II financing began in fall of the same year. The debt financing for Phase II amounts to 2.5 billion euros, 1.75 billion of which are covered by the export credit agencies SACE and Euler Hermes as well as through Germany's untied loan guarantee scheme (UfK). Twenty-four banks are participating in

the deal. The positive response from lenders has meant that Nord Stream was 60 percent oversubscribed for the 2.5 billion euro Phase II funding. Nord Stream has RBS, Commerzbank and Société Générale acting as financial advisers. Unicredit have a limited advisory role in connection to the German government's untied loan programme. White & Case are acting as legal advisers to Nord Stream while Clifford Chance acts on behalf of the lenders.

The high interest in Nord Stream's Phase II financing attests to the continued strategic importance of the project, which brings Russian gas to the European market. Interest was also heightened by the progress made thus far in the construction of Line 1 of the twin pipeline system. Line 1 is scheduled for completion in April 2011, and will begin transporting gas at year's end. Line 2 will begin transporting gas in late 2012. In February, Nord Stream received

the European Mid-stream Gas Project of the Year award from the 2011 Project Finance Awards. These awards are organised by Euro-money Publications, who publish Project Finance Magazine. The awards recognise innovation, deal repeatability, best practice, problem solving, risk mitigation, value for money, and speed of delivery in financing.

Nord Stream was highlighted for raising 2.5 billion euros for Phase II financing toward the end of 2010, close on the heels of the 3.9 billion euros for Phase I, which were raised despite a very restricted lending climate when the deal first approached the market in 2009.

Since the banking crisis of 2008, all deals have been judged in the context of the lending climate at the time of finance close, and repeatability of deal structure in the new climate has been given a slightly higher weighting than in previous years.

Massive Plough Hard at Work Entrenching the Nord Stream Pipeline in Sweden

Ploughing for Line 1 was completed in Denmark at the end of February



The PL3 raises the pipeline into its roller boxes, and is then towed by the Far Samson creating a trench into which the pipeline is laid as the plough moves forward.

The world's largest pipeline plough, PL3, is being used to entrench the Nord Stream Pipeline system in the seabed in Swedish and Danish waters. Lowering the pipelines below seabed level using the PL3 ensures that they will remain stable throughout their 50-year lifetime. The PL3 arrived in the Baltic Sea at the beginning of February on the decks of the world's strongest trenching support vessel – the Far Samson. A total of 11 kilometres for Line 1 were ploughed in Danish waters by the end of February. Ploughing in Swedish waters has been taking place throughout March as the Far Samson follows the Castoro Sei while it lays the pipeline. Trenching in Sweden expected to be finished by the end of the month.

Subsea ploughs work much in the same way as their land-based farming equivalents, except in this case the PL3 plough raises the pipeline into its roller boxes using hydraulic grabs, and is then towed by Far Samson, creating a trench of pre-determined

length, depth and width into which the pipeline is laid as the plough progresses. Natural sediment movements from waves and currents will gradually fill the ploughed trench over time. The PL3 plough used for the Nord Stream project was developed and built in the UK between 2007 and 2009 by IHC Engineering Business (EB) for Saipem UK Ltd. The PL3 is one of the largest subsea ploughs EB has developed. The PL3 weighs 200 tonnes, is 22 metres long, and has 100-tonne capacity pipe

handling equipment at its front and back. Depending on the hardness of the seabed, it can plough up to 500 metres an hour, and it can excavate a trench up to 2.5 metres deep. The plough has its own control system, which is built into the bridge module of the Far Samson to increase productivity. As part of its environmental monitoring programme, Nord Stream monitors water quality and sediment spreading before, during and after ploughing. Water quality is monitored to ensure that tur-

bidity levels do not exceed the threshold values set by Swedish authorities in the permits. Prior to construction, Nord Stream conducted surveys to ensure its route was free of the remains of chemical warfare agents. However, given the history of the area, a remote risk of encountering chemical warfare agents during construction remains. To ensure the safety of the crew on board the Far Samson, the Admiral Danish Fleet provided advice during the planning phase and monitored activities on board.



The Far Samson is 121.5 metres long, 26 metres wide, and can carry up to 6,130 tonnes.

Far Samson: Ship of the Year 2009

The PL3 plough is towed by the Far Samson, a purpose-built vessel that was named Norway's "Ship of the Year 2009." The ship is the world's strongest trenching support vessel, with a bollard pull of 423 metric tonnes. Designed by Rolls-Royce and manufactured by STX Europe, the ship is capable of performing a multitude of tasks, including pipeline trenching. The vessel has enough deck space to accommodate the two largest ploughs in the world, and can switch between ploughs at sea. The vessel has a hybrid propulsion system and is extremely fuel efficient; its generator engines are equipped with catalytic converters which result in 95 percent nitrogen oxide reduction.

Work at German Landfall and Bay of Greifswald Completed on Schedule in December

Nord Stream adhered to the construction schedule set by German authorities



Offshore construction work involved in laying the gas pipelines at the German landfall was finished in December. Work is also progressing onshore.

Some 100 kilometres of the Nord Stream Pipeline have already been laid in German waters. A total of 54 kilometres of the second pipeline remains to be completed before reaching the border of the German Exclusive Economic Zone. This will be laid in the fall of 2011. That said, the pipelay work in the Bay of Greifswald is on schedule. Project Manager Dr. Georg Nowack is pleased with the timely completion of the construction work: "The schedule was an ambitious one, and we're proud that we were able to keep to it. In doing so, we were able to adhere to the deadlines set out in the approval from the Stralsund mining office."

Construction of Line 1 of Nord Stream's twin pipeline system began off the coast of the Swedish Island of Gotland at the start of April 2010. A short time later, on April 15, shore-based construction activities began in Germany. Construction in the Bay of Greifswald commenced one month later. A 500-meter-long cofferdam was built out into

the Baltic Sea. This was the beginning of the 27-kilometre trench that runs through the Bay via the Bay edge to Nordped. Both pipelines were pulled ashore in succession, and lie next to each other in the trench. Saipem's pipelay vessel, Castoro Dieci, began laying Line 1 at the end of June 2010. The pipeline was later pulled through the trench onto landfall in Lubmin on July 3. In doing so, the Nord Stream Pipeline had reached the European mainland – a key milestone for the project.

Pipelines Reach Land

In mid-July, Line 2 was also pulled onto the German mainland. At that point, the Castoro Dieci was anchored approximately 1 kilometre offshore. Onboard, the roughly 12-meter-long pipe segments were welded together to form the pipeline, which was then pulled ashore by a 100-tonne, heavy-duty draw winch. The pipeline was first floated through a stretch of cofferdam measuring 120 metres. Then it was pulled on giant rollers over the ground until it reached

its final position, some 250 metres past the shoreline. After the pipeline had reached its final position on land, the Castoro Dieci started laying northward, out into the Bay of Greifswald.

Ahead of Schedule

Pipelaying with the Castoro Dieci proceeded more quickly than expected. The vessel had finished laying both pipelines almost four weeks ahead of schedule at the start of October.

Making use of the four-week advantage, the project's main pipelay vessel, Castoro Sei reached German waters east of Rügen at the end of September. Within roughly two weeks, the remaining 54 kilometres of Line 1 had been laid from the end of the trench to the border of the German Exclusive Economic Zone (EEZ). The remaining 54 kilometres of the second pipeline will be laid in the fall of 2011. Currently, the German section of the pipeline project features 110 kilometres of pipeline – 82 kilometres of Line 1, and 28 kilometres of Line 2.

About 110 different vessels were deployed throughout the entire construction period last year. In the peak period from mid-May until July, as many as 50 vessels were in service simultaneously. In addition to the two pipelay vessels, the fleet included anchor tugs, pipe transporters, various special dredgers, survey ships, barges, crew vessels, and safety vessels.

Throughout construction, special attention was paid to reducing potential environmental impacts. The coastal areas near the German landfall are an important habitat for seabirds. In order to determine if bird populations were affected by the construction work, they will be monitored, and once the work has been completed, the regeneration of habitats and species will be examined. During trenching work at sea, and the piling of the cofferdam walls, water turbidity and underwater noise emissions were monitored. After the pipeline had been laid, the trench was backfilled, and the seafloor was returned to its original state.

IN BRIEF



EXPLORE THE GOLDEN ROUTE

The book, "The Golden Route" examines the trade factors that fueled the Nordic Seven Years' War (1563-1570), and the resulting naval battles between the Swedish and the Danish-Lübeck fleets. Research of the seabed around Visby in Sweden, where the Danish-Lübeck fleet sank, has helped to uncover new facts about the war, aiding the development of the book. Nord Stream supports HUMA, the organisation exploring the wreck sites of the fleet.

The ongoing research and preservation of the vulnerable cultural heritage of the Baltic Sea is important to Nord Stream, and therefore the company supported the writing of this book. To order a copy of this book free of charge in English, Swedish, German or Russian, please send an email to:

> contact@nord-stream.com

Construction on Track in Russia

Landfall facilities and pipeline pressure tests to be completed in June

To date, three milestones – shore pull of the two pipelines, installation of the dry linear section and installation of heavy equipment – have been achieved at the dry section of the Russian landfall at Portovaya Bay, near Vyborg. The initial section of the pipelines on the Russian shore is vitally important for the safe operation of the entire gas transport system. The pipes used here at the start of the pipelines are 41 millimeters thick to accommodate the higher pressure of 220 bar. The gas pressure reduces on its way through the pipeline to 170 bar at the landing point in Lubmin, Germany. The Nord Stream Pipeline starts 1.5 kilometres away from the Baltic Sea

shoreline at landfall facilities which include pig traps, and isolation and emergency shut down valves. Two anchor blocks for Line 1 and Line 2 will be buried nearby. During operations, the anchor blocks will be used to support the 2,200-tonne load of the pipelines on the offshore part. Two pipelines, each 1.1 kilometres long, have already been laid in a trench stretching from the landfall facilities to the coastline. The onshore facilities and the compressor station are being built by one contractor, Stroygazconsulting. In January 2011, Stroygazconsulting, completed installation of unique heavy equipment, including giant pig traps, top entry ball valves and gate valves, which isolate

the pig traps from the pipeline. Each gate valve weighs over 100 tonnes and is equipped with a unique control system. The valves will not require overhaul throughout the 50-year lifetime of the pipelines. The valves were produced by Italy-based PetrolValves. Current work at the landfall area includes installation of both pipelines, as well as assembling of telemetry and automation systems. After completion of landfall facilities, both pipelines on the dry section will be pressure tested for integrity. Dry and offshore sections of Line 1 will be connected in August 2011. Line 2 will be connected to onshore infrastructure in 2012 after its installation and pressure testing.

Two Sections of Line 1 Completed

In February, the Solitaire finished its work on Line 1

The world's largest pipelay vessel, the Allseas Solitaire completed its work on Line 1 of the Nord Stream twin pipeline system at the beginning of February. The first of the two natural gas pipelines is now two-thirds complete. The Solitaire started laying Line 1 in Russian waters on September 1, and continued working in the Finnish Exclusive Economic Zone beginning October 22, 2010. The pipelay vessel put down some 343 kilometres of Line 1 in the Gulf of Finland. During construc-



The Solitaire in Finnish waters.

tion in December and January, the crew of the Solitaire had to deal with working in challenging winter conditions. Despite some minor weather-related setbacks, the Solitaire completed its work on Line 1 as scheduled. While

working in Finnish waters, the vessel received pipe shipments from the marshalling yard in Hanko. The port experienced harsh cold weather conditions in January. To ensure the continual and safe transshipment of pipes to the Solitaire, manpower was doubled for each shift in Hanko to deal with the de-icing of pipes before they could be loaded onto carrier vessels. The Solitaire will be returning to the Baltic Sea in late spring 2011 to begin laying Line 2.

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