Nord Stream
The new gas supply route for Europe

ISSUE 15 / OCTOBER 2010

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IN BRIEF

MEETING IN BORNHOLM

Nord Stream held an information meeting on the Danish Island of Bornholm on September 22 to inform stakeholders about activities planned on the island over the next few months. The pipelay vessel Castoro Sei has entered German waters, where it picked up the first pipeline and will continue laying to kilometre point 1,141 south of Bornholm. Crew changes for the vessel will be carried out from Rønne airport. From late October, the Castoro Sei will be visible from the island when constructing the pipeline in Danish waters. Over 20 people attended the meeting, among them representatives of Rønne Lufthavn, the Fishermen's Association, the Bornholm Police, which is responsible for immigration issues, environmental non-governmental organisations, and the Municipality of Bornholm, along with citizens from the island. Nord Stream representatives gave a project update, and then answered questions from the group, which focused on the health and safety of the workers aboard the Castoro Sei, as well as the stability of the pipeline.

> www.nord-stream.com

Transporting 100 tonne components on the road across Europe requires thorough planning and special approvals.

World's Largest Valves Arrive

After a challenging journey, valves for the pipeline land in Germany

The world's heaviest and biggest gate valves arrived in Lubmin, Germany, for the Nord Stream Pipeline at the start of October. Four 102-tonne, 10-metre high, through-conduit valves were engineered and manufactured in Italy by PetrolValves S.r.l., a leading supplier of industrial valves for the petroleum and petrochemical sectors. The valves will be installed in Germany and Russia at each end of the two pipelines in front of each of the pipeline inspection gauges (pig) receivers in order to isolate the gas in the pipeline from the pig receiver when it is not in use. The valves were extensively tested in Italy before being transported to Germany and Russia on lorries specially made for such heavy loads. Such large components can only be transported at night, with special approvals and with a police escort, so planning began months ago. Even the strength of some bridges had to be re-confimed before permits to cross them were issued. The valves were moved by night because transporting oversize loads hinders normal traffic. Transport started near Milano, in Castellanza where the valves were made, then east toward Venice and north through Austria and Germany. Nord Stream also ordered 16 other valves for the project, 14 of which for the Russian landfall. They were transported by road to Lübeck and then by ferry to St. Petersburg. From there, they were moved by lorry to Portovaya. After installation the valves will be tested again in 2011 to ensure they are leak tight before gas is introduced into the pipeline. They will also be tested regularly during operation.

The 102-tonne valve is lifted onto a 26-metre-long lorry with 16 axels.

Smaller valves bound for Russia are loaded onto a ferry in Lübeck.

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CREDITS: P. 1: Nord Stream (1); P. 2 and 3: Infographic by KircherBurkhardt (1); P. 4: Nord Stream (3)

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FACTS

NEWSLETTER ABOUT THE NATURAL GAS PIPELINE THROUGH THE BALTIC SEA ISSUE 15 / OCTOBER 2010

Klaus Schmidt, Project Manager Logistics for Nord Stream and Ludwig von Müller, Logistics Engineering Consultant for Nord Stream.

Nord Stream Receives German Logistics Award for Its Tailor-Made Plan for the Baltic Sea

The eco-friendly logistics concept behind the pipeline was lauded by industry experts

FACTS: What does it mean for Nord Stream to have won this award?

Klaus Schmidt: The award confirms and acknowledges the task that Nord Stream has undertaken – constructing a pipeline with the highest level of efficiency and quality. It's a testament for Nord Stream because it says: This logistical plan is best practice and we've received a seal of approval for it from an independent body.

Ludwig von Müller: It's also an endorsement of a team that had to form quickly in 2006. In a short time, the team had developed a logistics concept that is as efficient as it is environmentally friendly. The concept has proven to work well in practice. The entire team can be proud of this, and also of winning the German Logistics Award.

Why is the Nord Stream win so special?

LvM: This is the first time that a construction project has been honoured. To date, recognition has always gone to companies for optimising their own logistics. I imagine that the topics of sustainable investment in the Baltic region and green logistics were pivotal factors of our win.

KS: It was certainly an advantage that the Nord Stream project is involved in the energy sector. It's exceptionally topical, and thus garnered a great deal of interest.

To what degree do the logistics of the project differ from those of other pipeline projects?

KS: The logistics of projects that I'm familiar with relate only to the transport of the pipes from A to B and the model for the laying. However, we considered the entire production chain, and assessed and optimised where it made sense. We looked not at national borders, but at the project as a whole to develop our concept. This is where we decided to include the concrete coating in the logistics supply chain (see pages 2-3). We had to have the basics in place to enable us to start construction of the pipeline in April 2010. In fact, our concept for pipe laying envisaged that at least 800 kilometres of pipe, or about two thirds of the first 1,224 kilometre pipeline had to be available at the start of construction to maintain our round-the-clock schedule.

Are you satisfied with how the logistics concept has worked in practice?

LvM: More than a third of the first pipeline has been laid. The quality of the pipes is good, and they are being delivered on time, which is essential for our logistical plan.

KS: I would also like to point out that all of our innovative ideas wouldn't have mattered if our management and shareholders hadn't had the courage to back them. You can be only as creative as the framework will allow.

DEUTSCHER LOGISTIK-PREIS 2010

Started in 1984, the German Logistics Award has become one of the most prestigious and important awards in the field of logistics in Germany. The award is granted by the non-profit German Logistics Association to companies that have successfully implemented an integrated logistical concept.

The German Logistics Association acts as a neutral platform to promote awareness for the importance of logistics in industry, science and the public arena.

The 2010 winner was announced on October 20 during the International German Logistics Congress in Berlin.

Past winners include:
2009 Würth-Group
2008 Deutsche Lufthansa AG and Fraport AG
2007 CLAAS, Harsewinkel

> www.bvl.de/en/

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Nord Stream Logistics Concept

> A pipeline is a major infrastructure project, and many materials are needed at the right place at the right time to ensure its smooth and timely construction. The backbone of the Nord Stream project is a thoroughly planned, environmentally-friendly logistics concept.

The complex Nord Stream logistics concept was first developed in 2006, four years prior to the start of construction of the first of the two 1,224-kilometre pipelines in April 2010. This seemingly early start was necessary not only to assess logistics locations along the Baltic Sea coast for technical feasibility, but also to develop infrastructure, and choose suppliers for raw materials as well as contractors for handling the transport and manufacture of pipes.

Five ports less than 100 nautical miles from the pipeline route were chosen to reduce transport distances, thereby minimising environmental impact. Kotka, Finland, and Mukran, Germany, are the logistics hubs for concrete weight coating and are also interim marshalling yards. The ports of Slite and Karlskrona, Sweden, and Hanko, Finland, serve as interim stockyards. From these five sites, 200,000 pipes will be transshipped to build the twin pipelines.

1 Pipes and Materials Delivered

Pipes reach Mukran and Kotka by rail and ship. Cement, magnetite, sand and aggregate are delivered for the concrete coating.

2 Concrete Weight Coating

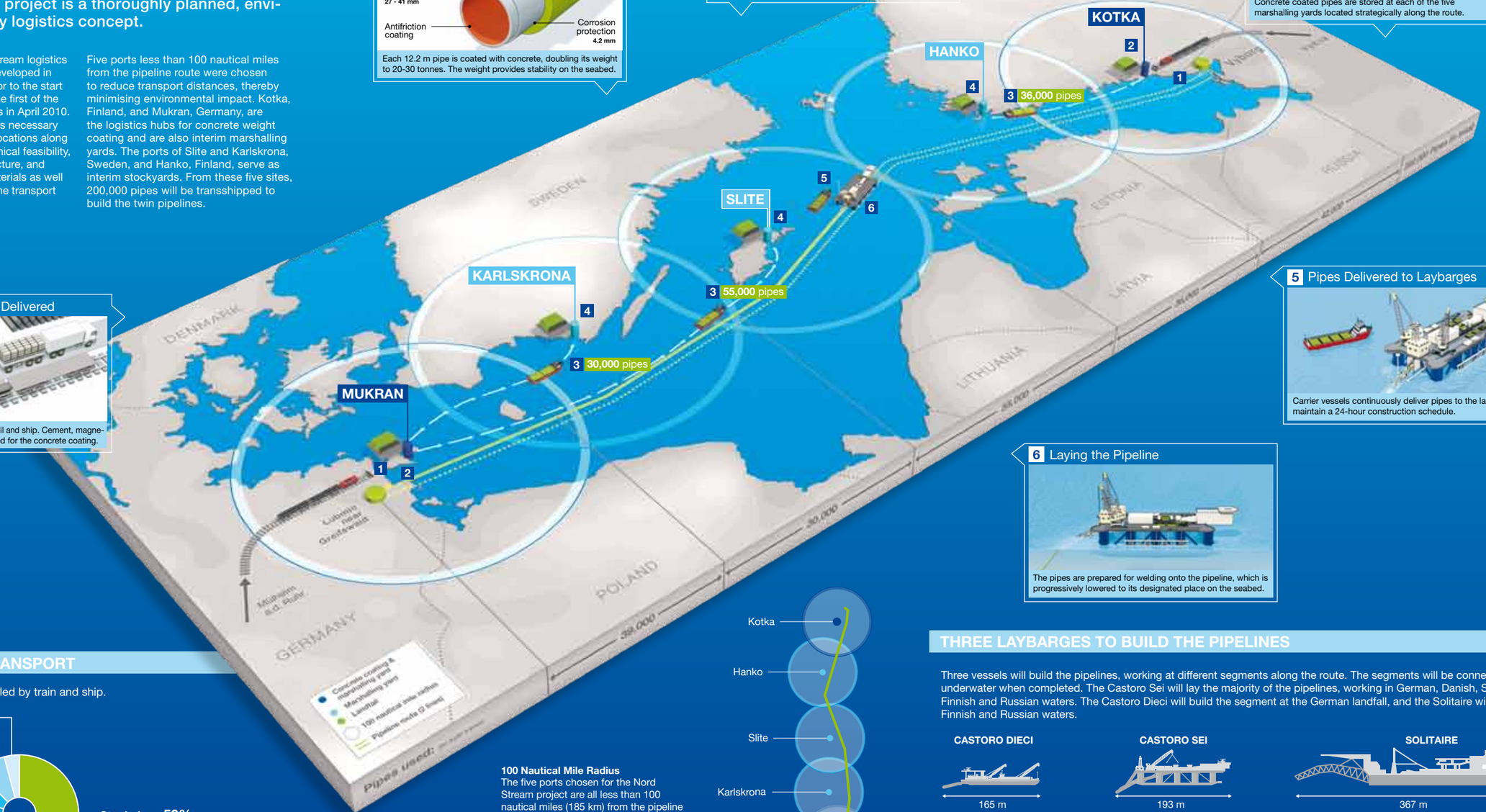
Each 12.2 m pipe is coated with concrete, doubling its weight to 20-30 tonnes. The weight provides stability on the seabed.

3 Transport to Marshalling Yards

After the steel pipes are concrete coated in Mukran and Kotka they are trans-shipped to interim marshalling yards.

4 Temporary Storage

Concrete coated pipes are stored at each of the five marshalling yards located strategically along the route.



5 Pipes Delivered to Laybarges

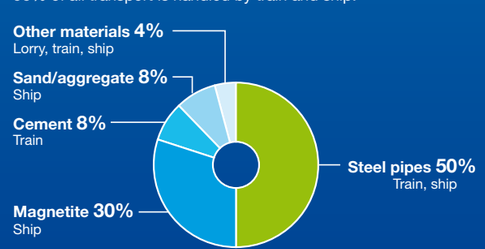
Carrier vessels continuously deliver pipes to the laybarges to maintain a 24-hour construction schedule.

6 Laying the Pipeline

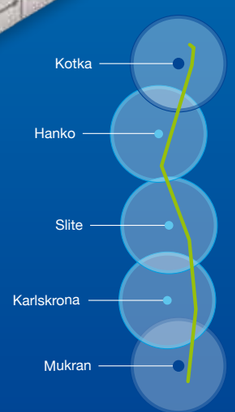
The pipes are prepared for welding onto the pipeline, which is progressively lowered to its designated place on the seabed.

ECO-FRIENDLY TRANSPORT

96% of all transport is handled by train and ship.



100 Nautical Mile Radius
The five ports chosen for the Nord Stream project are all less than 100 nautical miles (185 km) from the pipeline route. This ensures that carrier vessels delivering coated pipes to the laybarges can complete a round trip within a day. Minimising transport distances also reduces emissions.



THREE LAYBARGES TO BUILD THE PIPELINES

Three vessels will build the pipelines, working at different segments along the route. The segments will be connected underwater when completed. The Castoro Sei will lay the majority of the pipelines, working in German, Danish, Swedish, Finnish and Russian waters. The Castoro Dieci will build the segment at the German landfall, and the Solitaire will work in Finnish and Russian waters.

Infographic produced by KircherBurkhardt, 2010