Construction of LNG Regasification Terminal and External Port in Świnoujście
Everything you need to know about the LNG Regasification Terminal and External Port construction project in Świnoujście

The project involves construction of LNG Regasification Terminal, a plant for the off-take and re-gasification of Liquefied Natural Gas (LNG) supplied by sea to the port in Świnoujście. Elements of the project also include the new breakwater on the Baltic Sea, the port infrastructure to service LNG tankers and the connecting gas pipeline. The LNG technology applied throughout the world consists of transporting natural gas in liquefied form by special liquefied gas carriers to terminals where the raw material is subject to re-gasification (heating the LNG to transform it back into gas). The raw material is transported to customers in this form via the national gas pipeline network.

The construction of LNG Regasification Terminal and External Port in Świnoujście has been acknowledged by the Government of the Republic of Poland as a strategic investment project for the energy security of the country, enabling the off-take of offshore natural gas from practically any point in the world. This is the first project of its kind not only in Poland, but also in the Central and Western Europe, as well as in the Baltic Sea region. The completion of the construction work and commissioning is scheduled for 30 June 2014.

Components of LNG Regasification Terminal and External Port construction project in Świnoujście

The project is comprised of 4 components:
1. **LNG Regasification Terminal**, which is being constructed in Świnoujście (Warszów), on land zoned for port extension, on the right (i.e. eastern) bank of the Świna River. The terminal will be built on an area of 48 ha. It will comprise: LNG receiving facilities from a liquefied gas carrier, two 160,000 m³ cryogenic tanks, LNG re-gasification facilities along with gas transmission facilities to the gas pipeline connecting the terminal to the national transmission system.
2. **New breakwater on the Baltic Sea**, located to the east of the existing breakwater at the mouth of the Świna River as well as infrastructure enabling access to the new External Port: approach fairway, turning basin and groyne as an extension to the existing breakwater. The new breakwater will be approx. 3 km in length and made of steel, concrete and stone. Once the breakwater and groyne are built, it will create the entry to the new port, as well as after performing the necessary dredging works, provide the constructed port basin with sufficient parameters for the new jetty to be located there. This will be suitable for receiving arriving LNG tankers and – in the future – other port jetties.
Who will implement the investment project?

The project will be implemented by four investors:

- **GAZ–SYSTEM S.A.** – coordination over the entire project of the development of LNG Regasification Terminal, construction and then operation of the send-out gas line and transmission gas pipeline.

The significance of the project

The project of constructing LNG Regasification Terminal and External Port in Świnoujście will significantly impact the diversification of gas supplies to Poland. Thanks to this, importing the raw material from any point in the world will make Poland independent from single-source gas supplies. It is for this reason that on 19 August 2008 the Polish Council of Ministers of the Republic of Poland adopted a resolution in which this investment project was recognised as being strategic for the energy security of the nation. During the first stage of the operations of the LNG terminal the off-take of 5 bn m$^3$ of natural gas annually will be possible. During the next stage, depending on the demand for the raw material, it will be possible to increase the regasification capacity up to 7.5 bn m$^3$, which constitutes approx. 50% of the current annual demand for gas in Poland (the current consumption of Poland is approx. 14 bn m$^3$ of gas annually).

The key advantages of using the LNG facility include:

- **flexibility of supplies** – LNG has proven successful both as a method of diversifying the gas supplies for certain countries as well as covering peak gas demand,
- **efficiency** – during liquefaction of natural gas its capacity is reduced by approx. 600 times. This means that after re-gasification it is possible to obtain 60,000 m$^3$ of natural gas from 100 m$^3$ LNG,
- **ecology** – natural gas is an ecological fuel. During combustion, it emits much less pollution into the atmosphere than coal, petroleum or other fossil fuels,
- **security** – upon coming into contact with air, LNG evaporates and rarefies in the air. It is therefore much less harmful and a much safer fuel than petroleum or LPG.

For more information on the project please visit the following websites:

www.polskielng.pl • www.gaz-system.pl • www.ums.gov.pl • www.port.szczecin.pl

Please send your questions or enquiries to the following e-mail address:
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The Gas Transmission Operator
GAZ–SYSTEM S.A.

The Gas Transmission Operator GAZ–SYSTEM S.A. is a sole owner joint stock company of the State Treasury entered in the list of strategic enterprises for the Polish economy, responsible for the security of natural gas supplies via transmission networks.

The key task of GAZ–SYSTEM S.A. is the transport of gas fuels via the transmission network throughout the country, supplying distribution networks and end customers connected to the transmission system.

The Company is planning to have over 1,000 km of new gas transmission pipelines built by 2014. Strategic gas pipelines will be constructed in the northwestern and central Poland as well as in Lower Silesia.

GAZ–SYSTEM S.A. is also responsible for the performance of interconnectors. Apart from the development of the Lasów connection on the Polish–German border, the Company is also constructing a gas pipeline to the Czech Republic, which will be the second interconnector of Poland with the gas system of the European Union. GAZ–SYSTEM S.A. is analysing the possibility of building the Polish–Lithuanian and Polish–Slovakian gas pipelines. It is also conducting conceptual work connected with the construction of the Poland–Denmark connection.

Many of the strategic projects implemented by GAZ–SYSTEM S.A. have received funding from the European Union. The Company was awarded funding from the following EU programmes: EEPR (European Energy Programme for Recovery), TEN–E (Trans – European Networks – Energy), Operational Programme Innovative Economy and Operational Programme Infrastructure and Environment.

GAZ–SYSTEM S.A. is also the owner of Polish LNG S.A. which was appointed to construct and operate the liquefied natural gas terminal (LNG) in Świnoujście.

The scope of tasks of GAZ–SYSTEM S.A. in LNG Regasification Terminal and External Port construction project in Świnoujście (similarly to the remaining investors) is specified by the Act of the Sejm of the Republic of Poland dated 24 April 2009 on investments in the scope of LNG Regasification Terminal in Świnoujście.

Pursuant to Article 2, item 2:
"The Gas Transmission Operator GAZ–SYSTEM S.A. with its seat in Warsaw coordinates the process of implementation of the investment project in the sphere of the terminal, particularly:
1 devising the schedule of preparatory works and implementation of the investment-project in the sphere of the terminal;
2 supervising the tasks performed by the enterprises pursuant to schedule (...);
3 coordinating of the document and information exchange and flow between enterprises (...);
4 monitoring of the fulfillment of the investment project in the sphere of the terminal and preparing of reports and recommending of actions intended to streamline the performance process of the investment project in the sphere of the terminal."

Moreover, GAZ–SYSTEM S.A. is responsible for constructing and operating of the gas send-out pipeline next to the terminal under construction as well as the Świnoujście – Szczecin gas transmission pipeline. The project is co-financed by the European Energy Programme for Recovery (EEPR). The Company is also participating in the financing of the construction of the LNG terminal.

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Polskie LNG S.A.

Polskie LNG S.A. is a special purpose vehicle established in 2007 for the purpose of constructing and operating LNG Regasiﬁcation Terminal in Świnoujście, which is a significant element of the strategy for diversiﬁcation of gas supplies to Poland.

Work on the construction design of the LNG terminal in Świnoujście was completed in 2009. The terminal was designed by a consortium of companies under the direction of the Canadian Company SNC Lavalin Services Ltd. – compliant with European Union standards and pursuant to the most advanced technological solutions.

The agreement for construction of the liqueﬁed natural gas terminal in Świnoujście was signed on 15 July 2010 between the investor: Polskie LNG S.A. and the contractor: Saipem S.p.A. consortium of companies (Italy) – Saipem S.A. (France) – Techint Compagnia Technica Internazionale S.p.A. (Italy) – Snamprogetti Canada Inc. (Canada) – PBG S.A. (Poland) – PBG Export Sp. z o.o. (Poland). The task of the consortium of companies was to construct the LNG terminal in Świnoujście along with commissioning of the facility by 30 June 2014. The companies constituting the winning consortium have lengthy experience in constructing several dozen LNG terminals around the world, including, among others: Canaport LNG (Canada), Freeport (USA), Guandong Terminal (China), Pyeongtaek LNG (South Korea), Zeebrugge (Belgium), Bilbao (Spain), Marmara LNG (Turkey), Fos Cavaou LNG (France).

Polskie LNG – as the Employer – was responsible for preparing the construction site of the LNG terminal. The construction site was handed over to the contractor pursuant to the work schedule on 17 September 2010. At present, the Saipem–Techint–PBG consortium is responsible for the works conducted on the site. An agreement was signed on 10 June 2010 in Świnoujście for investor’s supervision on the construction of the LNG terminal with consortium of WS Atkins–Polska Sp. z o.o. (Poland) and Atkins Ltd. (Great Britain). The tasks of the company will include comprehensive supervisory services on behalf of the Employer. Polskie LNG is responsible for coverage of the main risks connected with the investment process including: construction all risks and erection all risks (CAR/EAR), risks in loss of cargo in domestic and international transport (CARGO) and advanced loss of proﬁt (ALOP/DSU/MDSU). The insurance agreement was signed on 8 November 2010 with the consortium of companies comprising of: PZU S.A., TUIR Warta S.A., STU Ergo Hestia S.A., Generali TU S.A., TUIR Allianz S.A. The total insurance cover amounts to 4.5 bn PLN.

The European LNG Training Centre was established by virtue of an agreement concluded in March 2010 between Polskie LNG S.A. and the Maritime University of Szczecin. This is the third centre of this type in Europe and the most advanced one (four state-of-the art simulators). Thanks to the Centre operating in the Western Pomeranian region, Poland will become a “breeding ground” for experts with world-class skills and competencies.

The LNG terminal construction project is co-ﬁnanced by the European Energy Programme for Recovery (EEPR).
The specifications of the external port infrastructure constructed by the Maritime Office in Szczecin are as follows:
- breakwater length: 2974.30 m,
- external port approach fairway length: 1742.10 m,
- width: 200 m,
- technical depth: 14.50 m,
- turning basin diameter (ellipse): 1,000 m and 630 m,
- groyne length that the existing eastern breakwater will be extended by: 255.80 m,
- volume of dredging works connected with the breakwater, groynes, turning basin and approach fairway: 8,610,000 m³.

Maritime Office in Szczecin
The Director of the Maritime Office in Szczecin is a regional maritime administration authority, operating pursuant to the Act of 21 March 1991 concerning the maritime areas of the Republic of Poland and maritime administration (Journal of Laws of 2003, No. 153, item 1502 as amended) and reports to the Minister for Maritime Economy.

The most important tasks of the Office include:
1 ensuring security and protection of ships and sea ports,
2 marine environment protection and resources thereof,
3 construction and maintenance of infrastructure structures ensuring access to ports and docks,
4 navigational signals and signs of seaways and anchorage in ports, marinas and on the coast,
5 construction, maintenance and protection of banks, sand dunes and protected forested areas in the technical zone,
6 preparation of sea use plans of marine internal waters, territorial sea and the Exclusive Economic Zone,
7 issuing qualification documents to members of marine ship crews.

Pursuant to, among others, the Resolution of the Council of Ministers No. 167/07 dated 20 September 2007, on establishing a long-term programme “Breakwater construction for the external port in Świnoujście” (amended under Resolution of the Council of Ministers No. 186/2009 dated 20 October 2009, establishing the programme for the years 2008–2013), the Maritime Office in Szczecin, since 2007, has been implementing the largest hydro-technical investment in its history, namely, the construction of the new external port infrastructure in Świnoujście. The investment is being financed from the State budget.

The contractor performing the investment is a consortium of companies selected under tender procedure: Boskalis International B.V., HOCHTIEF Construction AG, HOCHTIEF Polska Sp. z o.o., Per Aarsleff A/S, Aarsleff Spółka z o.o. and Korporacja Budowlana DORACO Sp. z o.o.

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Szczecin–Świnoujście Seaports Authority is a joint stock company with the majority ownership of the State Treasury. It manages two ports of fundamental significance for the Polish economy – in Szczecin and Świnoujście.

Both ports constitute one of the largest and, at the same time, universal port complexes on the Baltic Sea, located at the mouth of the Odra River. It is also one of the most important transport hubs in the south Baltic Sea region.

The tasks of the Szczecin and Świnoujście Seaports Authority include: management of real estate and port infrastructure, forecasting and planning of port developments, construction, modernisation, and maintenance of port infrastructure as well as obtaining real estate for port development requirements.

Within the LNG terminal and external port construction project in Świnoujście, Szczecin–Świnoujście Seaport Authority is fulfilling tasks within the scope of the port infrastructure, infrastructure necessary for the transmission of LNG on the marine part and the fire protection infrastructure. Moreover, dredging works will be carried out with a volume of approx. 2.4 million m³. The main task was entrusted to the contractor – a consortium of companies – Josef Möbius Bau–AG, Johann Bunte Bauunternehmung GmbH & Co. KG, E. Pihl & Son A.S. Supervision is carried out by the consortium of companies PUI EKO-INWEST S.A. and Dom Inżynierski Promis S.A. The building permit design and working plans and specifications was performed by Biuro Projektów Budownictwa Morskiego PROJMORS. Construction work started in July 2010. The contract is expected to be finalised in November 2012.

The investment project is co-financed by the European Energy Programme for Recovery (EEPR). This constitutes the beginning of the development programme of the external port, which is planned to fundamentally expand the service offer of the Szczecin and Świnoujście port complex.
Some interesting facts about LNG terminals around the world

There are already 67 re-gasification terminals of liquefied natural gas (LNG) in the world, of which 19 are in Europe.

Spain has the largest number of LNG terminals in Europe – as many as 6.

The temperature of liquefied natural gas in liquid form is $-163\, ^\circ\text{C}$.

LNG is a clean, ecological fuel which is CO$_2$ free.

The LNG terminal is safe for people as well as for the natural environment (for see waters and soil).

The modern construction technologies of LNG tanks (of the ‘full-containment’, double container’ types), special procedures and safety systems ensure the exceptionally high safety level of regasification terminals.
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