



Pipelines

The pipeline industry in Poland

Michał Bagniewski
02.12.2011

PGNiG S.A. www.pgnig.pl is the biggest Polish gas exploring and producing company.

It is the leader of gas distribution and import on the Polish market.

In the first 3 quarters of 2011, PGNiG:

- sold 10.2 billion m³ of gas (14,42 bln m³ in 2010)
- produced 3,2 billion m³ of gas (4,22 bln m³ in 2010)
- imported 8,1 billion m³ of gas (10,07 bln m³ in 2010)
- produced 344 thousand tonnes of crude oil (501 thousand tonnes in 2010)
- Distribution Segment consists of 6 companies serving 6.6 mln customers (2010). In 2009 delivered 9,28 billion m³ of gas through their high, medium and low pressure networks.



- Length of the distribution network: **117,4 thousand km.**
- PGNiG has the following no. of licencies: 82 for exploration, 215 for production of oil&gas and 9 for storage of gas.

PGNiG operates as a multi-branch company consisting of 37 production, trading and service companies. They are among others:

Drilling –Oil and Gas Exploration Companies:

OGEC Jasło www.pnig.jaslo.pl

OGEC Kraków www.ogec.krakow.pl

OGEC Nafta Piła www.nafta.com.pl (the first horizontal drilling in Poland, in 1973)

OGEC DIAMENT www.pn-diament.com.pl

ZRG Krosno www.zrg.krosno.pl

Geophysical servicing companies:

Geofizyka Kraków www.gk.com.pl

Geofizyka Toruń www.geofizyka.pl

Service and maintenance: **ZRUG Tarnów** www.zrug.tarnow.pl.

Engineering: **Gazoprojekt** – design works of pipelines and gas networks, gas/compressor stations, underground gas storages
www.gazoprojekt.pl

Fabrication of oil and gas production equipment: **Naftomet** www.naftomet.pl

Pipeline constructing companies:

Naftomontaż www.naftomontaz.com.pl

Gazobudowa www.gazobudowa.pl

Bud-Gaz

- Gas power plants investment co.: **PGNiG Energia S.A.** : www.energia.pgnig.pl
- Storage System Operator – **OSM PGNiG S.A.** is the owner of 100% underground stores. Present capacity: 1608 mln m³. To be increased to 3500 mln m³ in 2020.



- EuRoPol GAZ S.A.** www.europolgaz.com.pl Owner of the Polish part of the Transit Gas Pipeline System Joint Stock Co. (46% PGNiG shares). DN 1400 pipeline operated by Gaz-System S.A.
- Development, execution and operation of underground gas storage facilities: **Investgas S.A.** www.investgas.pl
- PGNiG Norway AS** www.pgnig.no is a partner in the Skarv development project. Participates in seven production licences on the NCS (Norwegian Continental Shelf)
- .. and many other operating in Denmark, Egypt, India, Yemen, Kazakhstan, Mozambique, Pakistan and Uganda

PERN „Przyjaźń” S.A.

- PERN „Przyjaźń” (Friendship) SA www.pern.com.pl is the leading crude oil supplier in Poland. Operates the network of crude oil pipelines, transporting Russian crude oil for the largest producers of fuels in Poland, as well as in Germany.



Crude oil pipelines.

Numbers indicate capacity in millions of tonnes per year.

PERN „Przyjaźń” S.A.

- PERN "Przyjaźń" S.A. has three storage depots which in total can hold as much as 3.0 million m³ of crude oil.



PERN „Przyjaźń” S.A.

- PERN "Przyjaźń" S.A. also owns a network of product pipelines, used for transporting liquid fuels produced by refineries.



- The total length of all the stretches amounts to c. 620 kilometers.
- PERN "Przyjaźń" S.A. has also been administering pipelines owned by PKN ORLEN S.A. The longest one is a fuel pipeline stretch from Płock to their bases in Ostrów Wielkopolski and Wrocław.



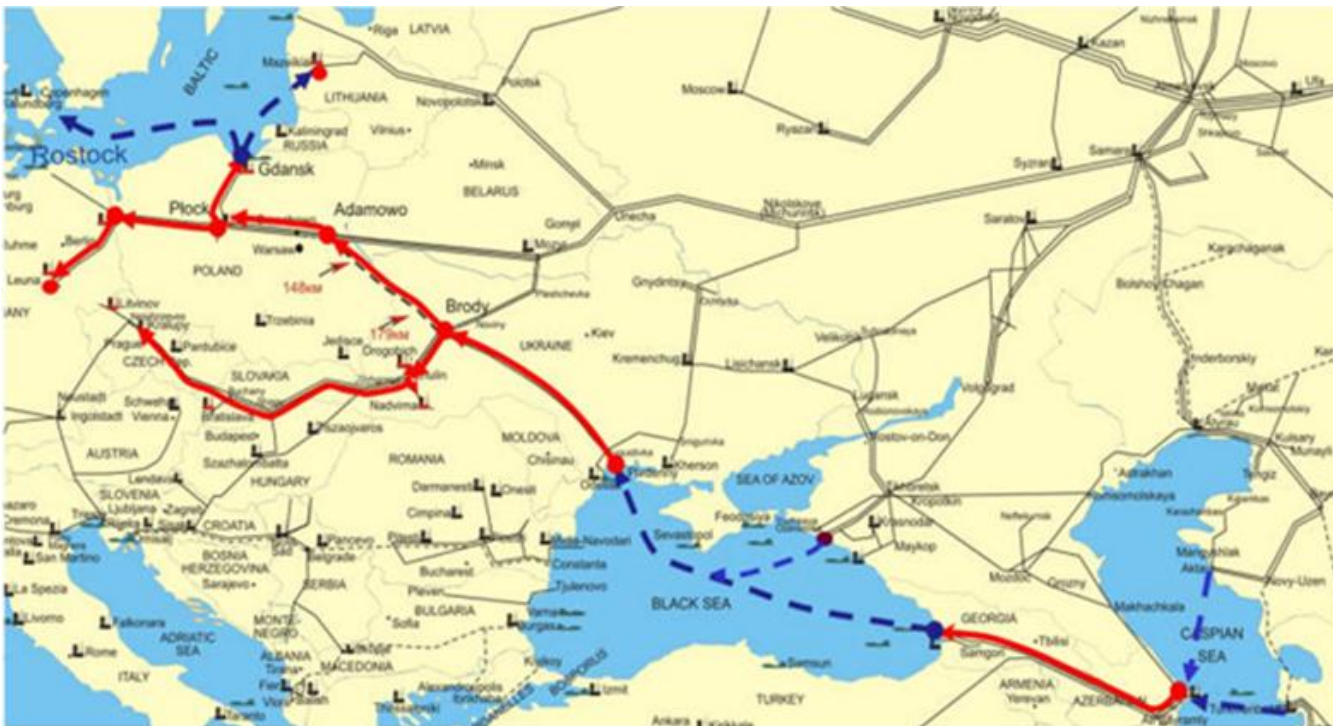
PERN „Przyjaźń” S.A

PERN „Przyjaźń” S.A. holds major packages of shares of the following companies:

- OLPP Operator Logistyczny Paliw Płynnych www.olpp.pl specialises in storage and transshipment of liquid fuels. The total storage capacity is 1,8 mln m³
- CDRiA Pipeline Services Ltd www.cdria.pl . Its services cover: pipeline and tank inspections, XYZ pipeline mapping, geometry inspection, pig tracking and development of intelligent inspection tools.
- SARMATIA Sp. z o.o. www.sarmatia.com.pl
- Naftoport Sp. z o.o. www.naftoport.pl



- **SARMATIA Sp. z o.o.** www.sarmatia.com.pl – International Pipeline Company is a coordinator of preparation and implementation of the EAOTC project under the Intergovernmental agreement on cooperation in energy sphere signed in 2007 by representatives of Azerbaijan, Georgia, Lithuania, Poland and Ukraine. Sarmatia is planned to be an owner of constructed infrastructure and an operator of the future EAOTC (East Asia Oil Transport Corridor) route.



- **NAFTOPOINT Sp. z o.o.** www.naftoport.pl is a company which deals in transshipment of crude oil and liquid fuels in Gdańsk Port with the potential of 34 million tonnes of goods a year.



- Serves the Polish and German refineries and the transit of petroleum from Russia and Kazakhstan to the ports of Western Europe, the United States and Far East.



Gas Transmission Operator GAZ-SYSTEM S.A. www.gaz-system.pl

GAZ-SYSTEM's key task is the transport of gas via the transmission network throughout the country to supply with gas the distribution networks and final customers connected to the transmission system.

This is realized by 6 regional branch offices and a foreign office in Brussels.

- Components of the transmission system (data on 31.12.2010):
 - over **9700 km** of transmission pipelines
 - 854 gas stations
 - 14 gas compressor stations
 - 57 network connection points
 - 23,8 bln m³ of gas transported

- The Capital Group of Gaz-System SA comprises the company Polskie LNG set up to build and operate the liquefied natural gas (LNG) terminal at Świnoujście.

Present gas transmission network



Ongoing investments



- Interconnection Poland-Lithuania (and the other Baltic States)



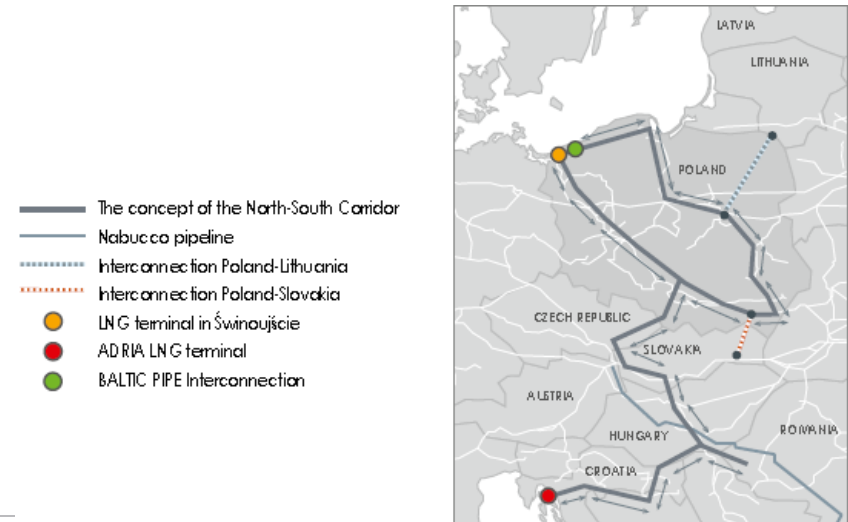
- Baltic pipe – a gas interconnection between the Polish and Danish natural gas transmission systems. Presently undergoing the pre-investment phase studies.



- Interconnection Poland-Slovakia (a component of the North-South Corridor)



- North-South Corridor concept



Gas import and re-gasification terminal

- The objective of the Polskie LNG Company www.polskielng.pl is to construct and operate the Liquefied Natural Gas terminal in Świnoujście. The LNG terminal shall be constructed approx. 750 metres away from the coastline and ready for operation in 2014.
- LNG storage capacity: 2x 160 000m³
- Nominal gas send-out capacity: 570 000m³/h (max.656 000m³/h) through pipeline DN 800 at MOP 8,4 MPa.



PKN Orlen SA comprises:

- 7 refineries processing crude oil into petroleum related products. 3 refineries are in Poland, 3 are operated by Orlen in Czech and 1 in Lithuania. The total deep processing capacity of the refineries reaches 31.7 million tonnes per annum.



- Retail network of approx. 2 600 outlets in 4 countries
- Branch companies:
 - OrlenGaz Sp. z o.o.** www.ornengaz.pl. LPG distributor and in Szczecin, the owner of one of the Polish LPG sea import terminals having storage capacity of 3x1500m³. There are two more LPG terminals: in Płock (receiving gas from PKN Orlen refinery) and one in Sokółka (gas from the Orlen Lietuva refinery in Możejki)
 - The other LPG terminals: in Gdansk is operated by Gaspol SA www.gaspol.pl a part of the Dutch SHV Energy, in Dorohusk - Tezet S.A., in Braniewo, Gołuchów, Małaszewicze – Novatek Polska, in Zamość – STATOIL, in Sosnowiec- Polski Gaz S.A., in Gdynia – Petrolinvest S.A., in Skandawa- Eurochem..etc.



ORLEN Group – Branch companies

- Orlen Upstream Sp. z o.o. www.ornenupstream.pl conducts oil and gas exploration, provides services related with exploiting oil and gas deposits, as well as geological exploration and research activity. The main projects are:
 - Lublin shale project,
 - Sierakow North-West Poland oil and gas project (in cooperation with PGNiG),
 - Lubelskie South-East region - 6 concessions for hydrocarbon resources identification
 - the Baltic offshore exploration project within the Latvian economic zone. Two concessions shared with Kuwait Energy Company (KEC). Project run by Orlen International Exploration & Production Co. www.orneninternational.com
- Orlen-Asfalt Sp. z o.o. www.ornen-asfalt.pl Supplies 70,000 tonnes of bitumens per year.
- Orlen Wir Sp. z o.o. www.ornenwir.pl repair of compressors, turbines, pumps, gears, centrifuges and other machinery
- Orlen Oil www.ornenoil.pl is responsible for comprehensive manufacturing and distribution of lubricants.
- Orlen Projekt S.A. www.ornenprojekt.pl engineering company. Design, construction and modernization of refining, chemical etc. installations
- and many other...

The group performs hydrocarbon exploration, production and processing and trading of products.

Grupa LOTOS manages the Gdańsk refinery. It also comprises such fuel distributing and storing companies as LOTOS Czechowice and LOTOS Jasło (both based in southern Poland). The annual sale of petroleum products amounts to 8.8 million tonnes.

Gdansk refinery processing volume reaches over 10 million tonnes a year.



There are 14 other subsidiaries using the LOTOS trademark, e.g.: UAB Lotos Baltija www.lotosbaltija.lt domiciled in Lithuania.

- **LOTOS Petrobaltic S.A.** has 8 licencies for exploration and production of oil and gas located in the eastern part of the Polish Off-shore Economic Zone.
- LOTOS Petrobaltic has formed its own Capital Group that comprises of 5 subsidiary and associate companies. **LOTOS Exploration & Production Norge AS** is to provide Petrobaltic and LOTOS Group with access to crude oil located within the Norwegian shelf in the North Sea and the Norwegian Sea (Yme).
- LOTOS Petrobaltic is also an owner of **AB Geonфта** that operates in the Lithuanian oil industry (Onshore crude oil production).
- Two companies owned by the Group (Aphrodite Offshore Services N.V. and Miliana Shipping Company Ltd.) are involved in the shipping business.
- In 2010 LOTOS Petrobaltic produced 186500 ton of crude oil.
- ENERGOBALTIC S.A. – owner of gas burning heat & power plant in Władysławowo supplied from 82,5 km long, 4.5”, 130 bar offshore gas pipeline.



ZRUG Zakład Remontowy Urządzeń Gazowniczych

Gas network construction and repair companies



www.zrug.tarnow.pl Pogórska Wola



www.zrug.com.pl Poznań



www.zrugzabrze.pl Zabrze



www.zrug.torun.pl Toruń



Heated water distribution installations

- $\frac{3}{4}$ of the apartments in urban areas in Poland are centrally heated.
- Half of them are supplied with warm water from the urban heat transfer networks.
- The total length of the heating water systems in Poland is **13500 km** (14723 km in Germany).
- There are 313 District Heating (DH) companies in Poland. In this number, 57 out of 209 Combined Heat and Power plants (CHP) supply DH networks.



Safeguarding life, property and the environment

www.dnv.com

