POLAND'S FUEL AND ENERGY SECTORS

PAI Polish Information and Foreign Investment Agency
www.paiz.gov.pl

1. Characteristics of the Polish energy market

- The demand for energy in Poland has been growing since 2001. In 2004 it reached the level of 3,839.8 peta joules (PJ). Before 2001 the demand for primary energy (energy contained in primary energy sources) had fallen due to restructuring and modernization processes in the Polish economy, the weakening pace of economic growth and cost-cutting efforts launched in the face of the increasing prices of primary energy sources.
- Poland has substantial resources of electrical energy sources. However, it is self-sufficient only as far as the supply of solid fuels (coal and lignite) is concerned. Poland also possesses certain resources of hydrocarbon fuels; natural gas from domestic deposits accounts for more than a third of its total consumption, whereas crude oil extracted in Poland accounts for 4% of the total domestic consumption of this raw material.
- Entities operating on the Polish electricity market can be divided into four groups: producers, electricity transmitting enterprises, distribution firms and trading companies.
- In 2005 the production of electricity in Poland totalled 156.9 TWh and increased tangibly (by 1.8%) after several years of stagnation. The upward trend in the production of electricity started in 2003. The biggest producer is BOT Górnictwo i Energetyka S.A.
- Coal and lignite are the raw materials that have the highest share in the production of electricity in Poland. In 2005 coal and lignite supplied 91% of electricity generated in Poland.
- Electricity is transmitted over the lines of the company PSE – Operator.

2. Consumption of energy in Poland – profile and trends

- The demand for energy in Poland has been growing since 2001. In 2004 it reached the level of 3,839.8 PJ. Before 2001 the demand for primary energy (energy contained in the primary energy sources) had fallen due to restructuring and modernization processes in the Polish economy, the weakening pace of economic growth, and cost-cutting efforts launched in the face of the increasing prices of the primary energy sources.
- The continuing rise in the demand for energy is attributable to the clearly faster pace of economic growth in Poland.
- The profile of consumption of primary energy in Poland has not changed significantly over the years. Coal still remains the main source of primary energy (in 2004 it accounted for 62.9% of the total consumption of energy), but the share of crude oil (23.2% in 2003) and natural gas (13%) is increasing.
- The energy policy pursued in Poland seeks to ensure the certainty and security of supplies of energy raw materials.

CONSUMPTION OF PRIMARY ENERGY (PJ)

1997	1998	1999	2000	2001	2002	2003	2004
4,255.6	4,051.5	3,929.8	3,870.3	3,917.8	3,786.7	3,939.8	3,839.8

Source: Central Statistical Office (GUS)

3. Polish energy resources

- Poland has substantial resources of electrical energy sources. However, it is self-sufficient only as far as the supply of solid fuels (coal and lignite) is concerned. Poland also possesses certain resources of hydrocarbon fuels; natural gas from domestic deposits accounts for more than a third of its total consumption, whereas crude oil extracted in Poland accounts for 4% of the total domestic consumption of this raw material.
- The country's recoverable reserves of coal exceed 35 billion tonnes, whereas the developed reserves amount to 17 billion tonnes. If the present level of extraction is maintained the developed coal reserves will be exhausted in about 150 years from now, and recoverable reserves in about 44 years.
- Poland is the largest producer of hard coal in Europe. It is in 9th place in lignite and is the EU's 5th largest supplier of coal (10% of total deliveries). Poland's reserves of lignite are only 15% developed.

PRODUCTION OF ENERGY RAW MATERIALS IN POLAND AND SHARE IN DOMESTIC PROCESSING IN 2004 (MILLION TONNES)

	Coal	Lignite	Crude oil	Natural gas (hm^3)
Production	101	61.2	0.88	5,630
Domestic consumption	82.20	60.92	18.12	15,542
Import	2.32	0.00	17.31	9,445
Share of domestically produced energy raw materials in the processing of such materials (%)	97.60	100.00	5.00	38.10

Source: GUS, 4BOSS estimates

ENERGY MAP OF POLAND

Source: Polish Ministry of Economy

4. The Polish electricity market

- More than 106 TWh of electricity was sold on the Polish market in 2004. Domestically produced electricity accounted for 95.1% of the total sales. In 2005 the consumption of electricity in Poland was 144.837 TWh, an increase of 0.5% (769 GWh) gross consumption over 2004.

- The value of sold electricity and services connected with the supply of electricity was PLN 20.99 billion (EUR 5.2 billion) in 2005.
- There are close to 15.6 million recipients of low-voltage electricity in Poland, according to data from the Polish Power Transmission and Distribution Association (PTPiREE). Households and farms account for 14.1 million recipients. The main buyers of electricity are large industrial enterprises (in 2004 they consumed 51.9% of electricity sold). The number has decreased.
- Per capita consumption of electricity in Poland was nearly 3.43 MWh in 2004. By comparison, in 2002 the global per capita consumption index was 2.5 MWh, and the same index for Europe was 5.5 MWh.

5. Entities operating on the Polish electricity market

- Entities operating on the Polish electricity market may be divided into four groups: producers, electricity transmitting enterprises, distribution firms and trading companies.
- Electricity is generated by 19 power stations and 51 thermal electric power plants (these two groups of producers are referred to as system producers). In the latter group of plants electricity is a by-product of the heat-generating process. Energy is produced also by several dozen industrial plants and a host of smaller enterprises: factory power and heat generating facilities, water and wind power plants, which all play a local role exclusively.
- Poland's only enterprise that transmits high-voltage electricity and uses high-voltage power lines (400 kV - 750 kV) is the Polish Power Grid Company Operator S.A. (PSE Operator S.A.) established as part of PSE Holding in June 2004. In 2004 the Polish power grid owned by PSE Holding was 12,953 km long.
- PSE Holding sells electricity to distribution firms, i.e. regional power engineering enterprises. There are 24 enterprises at present. Besides the distribution firms there are also several trading companies on the market, which have licenses to buy and sell electricity.

6. Production of electricity in Poland

- In 2005 the production of electricity in Poland totalled 156.9 TWh and increased tangibly (by 1.8%) after several years of stagnation. The upward trend in the production of electricity started in 2003.
- Gross consumption of electric energy in 2005 was 144.8 TWG, out of which Polish households consumed 26 TWG.
- In 2005 Poland exported 10% (or 14.290 TWh) of the electricity generated by its power plants, i.e. 14.4% more than in 2004. In 2005 the import of electricity was 3.119 TWh.
- The combined installed capacity of Poland's power plants was 34,673 MW (34.7 GW) as of the end of 2005, and increased slightly for the second year in a row. For many years the production capacity of domestic power plants has been 30% higher than the domestic consumption of electricity. This difference between the production capacity and the level of demand is greater than the average for EU countries (about 25%).
- In 2005 Poland had a share of 1.0% in the global generation of power in hard coal equivalent, and a share of 4.3% in the Europe's production of electricity. Poland was the 8th largest producer of electricity in Europe in 2005.

7. Profile of electricity production in Poland

- Coal and lignite are the raw materials that have the highest share in the production of electricity in Poland. In 2005 power plants burning coal and lignite supplied 91% of electricity generated in Poland.
- The most important role in the generation of electricity in Poland is played by 70 system producers (19 power plants and 51 thermal electric power plants). Their share in the total production of electricity in Poland exceeds 92%.
- Electricity is also produced by some 180 small industrial power generating plants and independent heat generating facilities, 115 pumped-storage power stations and small water power plants. However, the share of all these facilities in the total domestic production of electricity is only slightly higher than 7%.
- The main problem of the Polish power industry is the higher cost of generating electricity (which can be blamed on the wide use of solid fuels) than that of the power industries in most other EU countries, and the necessity to allocate huge amounts to investment projects related to environmental protection.

PROFILE OF ELECTRICITY BUYERS IN 2004

Category of electricity recipients	Number of recipients	Deliveries (GWh)	% of total deliveries
Recipients of high-voltage electricity	267	18,435	18.9
Recipients of medium-voltage electricity	26,914	32,388	33.1
Recipients of low-voltage electricity	15,634,537	46,937	48

Source: PTPiREE

TRANSMISSION LINES IN POLAND IN 2005

Number of lines	1	60	155	14
Voltage (kV)	750	400	220	110
Length (km)	114	4,908	7,896	35

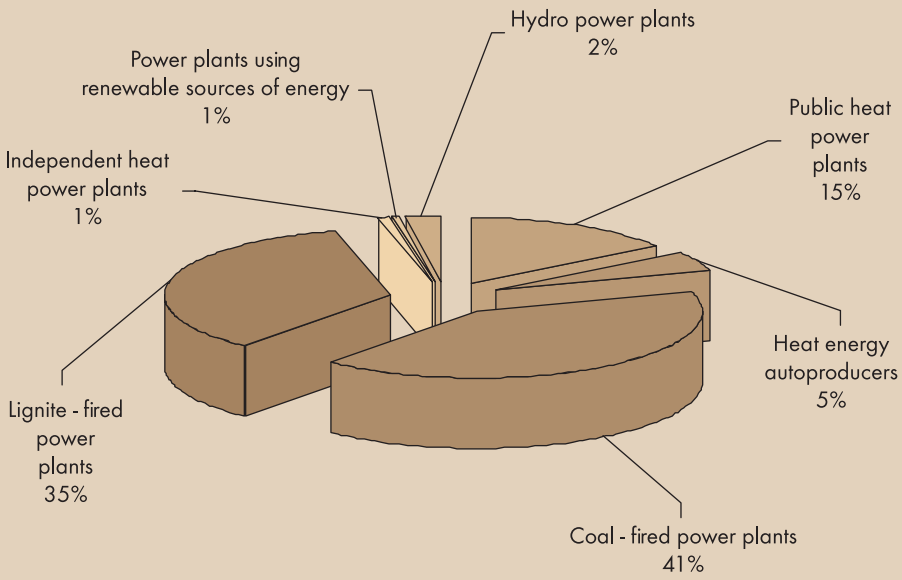
Source: PSE-Operator

PRODUCTION OF ELECTRICITY IN POLAND (TWH)

1990	1995	2000	2001	2002	2003	2004	2005
136.0	139.0	145.0	146.0	144.0	151.8	154.1	156.9

Source: GUS, Information Centre on Energy Market (CIRE)

PROFILE OF ELECTRICITY PRODUCTION BY ENERGY SOURCE IN 2005



Source: Energy Market Agency (ARE)

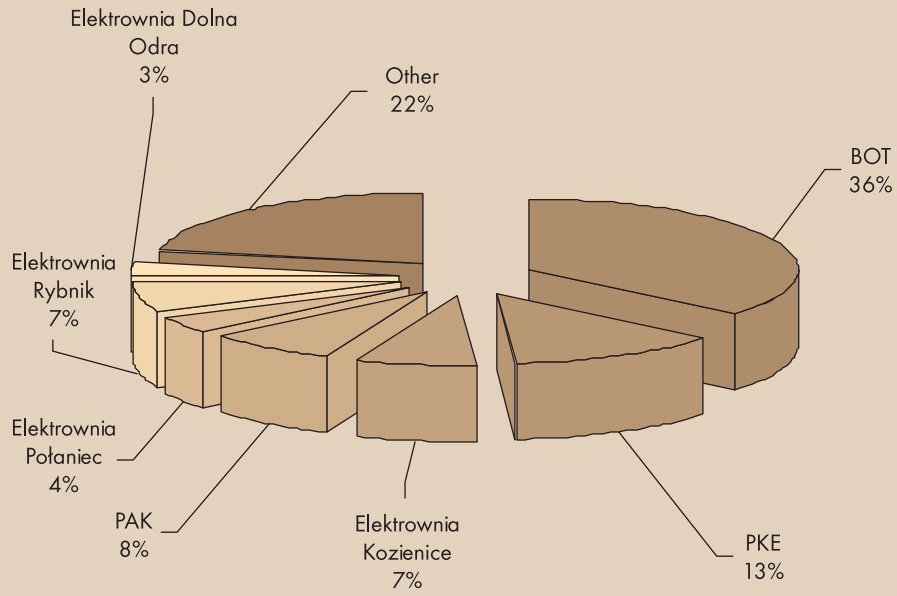
8. Poland's largest producers of electricity

- Poland's largest producer of electricity is the holding company BOT Górnictwo i Energetyka S.A. (BOT), formed in April 2004. The holding company comprises 6 entities: BOT Górnictwo i Energetyka S.A., power plants Elektrownia Bełchatów S.A., Elektrownia Opole S.A. and Elektrownia Turów S.A., lignite mines Kopalnia Węgla Brunatnego Bełchatów S.A. and Kopalnia Węgla Brunatnego Turów S.A. The combined installed capacity of the BOT holding is 8 GW, which accounts for 24.8% of the total installed capacity of Poland's power generating plants. In 2005 the companies forming the BOT holding had a share of 36% in the total domestic production of electricity.
- The 2nd largest producer of electricity in Poland is Południowy Koncern Energetyczny (PKE), which comprises 6 power plants. In 2005 the concern's share in the domestic production of electricity exceeded 13%. PKE also had a share of 16% in the generation of heat on the local market (southern part of Poland).
- Poland's leading professional producers of electricity also include the following power plants: Elektrownia Kozienice (capacity 2.8 GW), Zespół Elektrowni Pątnów-Adamów-Konin (PAK – 2.3 GW), Elektrownia Połaniec S.A. (Grupa Electrabel), Elektrownia Rybnik, Elektrownia Dolna Odra, and Elektrownia Opole.

9. Alternative sources of electricity in Poland

- In 2004 the share of renewable energy sources in the production of electricity in Poland was just over 2%.
- The plan for the development of the Polish power industry, which takes into account the requirements stemming from the ratification of the Energy Charter Treaty and Protocol and the protocol of accession to EU, envisages that 7.5% of electricity produced in Poland in 2010 will be obtained from renewable sources. In 2020 renewable sources should account for 14% of electricity purchased by the energy distribution firms in Poland. Since May 2004 the distribution firms have been obligated to gradually increase the use of energy obtained from renewable sources. Every producer supplying 10 kW of such energy issues a certificate confirming its origin.
- The most frequently used source of renewable energy in Poland is biomass. Poland has good conditions for developing the production of biomass (e.g. that obtained from willow trees) as well as biofuels (from rapeseed oil) and bioethanol (obtained chiefly from potato starch).
- Poland also has substantial geothermal resources. They are estimated at 100 PJ to 200 PJ. Currently, there are 5 geothermal heating plants in Poland, which supply thermal energy to residential buildings.
- The wind power industry attracts the special attention of investors, including foreign investors. As of the end of 2004, there were 101 wind power plants in Poland, whose combined installed capacity was 67.5 MW (according to data from the European Centre of Wind Energy). The production of electricity based on renewable resources is not a profitable activity in Poland yet, but investors developing such production are entitled to special subsidies.

POLAND'S LARGEST PRODUCERS OF ELECTRICITY IN 2005
157 MLN TWH = TOTAL PRODUCTION OF ELECTRICITY



Source: ARE, ING Bank

POTENTIAL ACREAGE OF ENERGY CROPS IN SELECTED EUROPEAN COUNTRIES IN 2005 (MILLION HECTARES)

Country	Total acreage of energy crops	Crops serving the production of biodiesel	Crops serving the production of bioethanol
France	3.00	1.50	1.50
Poland	3.00	1.50	1.50
Germany	3.00	1.50	1.50
Spain	2.00	1.00	1.00
Italy	1.00	0.50	0.50
Hungary	0.80	0.40	0.40

Source: Connemann Report, 1998

10. Biofuels in Poland

- Poland will have to adopt EU regulations for biofuels (EU Directive 2003/30/EC) stating that by 2020, 23% of fuel must derive from renewable sources of energy.
- According to the directive, all EU members must achieve 2% of biocomponents in fuels in 2005, increasing it each year by 0.75%. In 2010 the share of biofuels should be at the level of 5.75%.
- The Polish Ministry of Economy estimates that Poland will reach 1.5% share of biofuels in 2006, as against the level of 2.75% set by the EU directive for 2006.
- According to analyses by the Central Statistical Office (GUS), the Ministry of Finance, and the Energy Market Agency (ARE), the share of biofuels in consumed fuels in transport in 2004 in Poland was 0.30%, and in 2005 0.50%. The goal of 1.50% is set for the year 2006, and 2.3% for 2007.

PRODUCTION AND TRADE OF BIOCOMPONENTS IN POLAND IN 2005 (M^3)

	Methyl ester from rapeseed oil	Bioethanol
Production	72,575	110,793
Volume sold	57,637	115,226
in Poland	2,411	75,810
abroad	55,226	39,416

Source: Biopaliwa szansą dla rolnictwa. Conference of the Commission of National Economy, Warsaw 2006

- Currently, there is only one company producing methyl ester from rapeseed oil in Poland, which is Rafineria Trzebinia, part of the PKN Orlen Group. In 2005 it produced around 73.1 million litres of esters (64,300 tonnes), out of which only 19.4 mln litres (17,100 tonnes) was consumed in Poland, with the rest earmarked for export (mainly to Germany).
- 45 more companies are willing to produce esters in the nearest future.

- There are 11 ongoing investment projects, which should bring 200,000-250,000 tonnes of production capacity of esters earmarked for the production of biofuel to the market in 2007. It would then constitute around 1.3-1.4% of the domestic consumption of diesel oil.
- There are around 20 registered bioethanol producers, e.g. Kompania Spirytusowa Wratislavia Polmos Wroclaw S.A., PKN Orlen, Lotos Group (Glimar refinery), Skotan, Elstar Oils, Brasco, Petrochemia-Blachownia, and others.
- The Biofuels Act was passed in July 2006. New regulations will come into force in 2007.

11. Transmission and distribution of electricity in Poland

- PSE - Operator S.A. is a Polish transmission system operator which has been established within the structure of the PSE holding as a legally unbundled company, according to the requirements of Directive 2003/54/EC. On 1 July 2004 it commenced its activities as a Polish transmission system operator on the basis of its transmission licence and by taking over the obligations in this respect from PSE S.A. PSE - Operator S.A. holds a license for transmission and distribution of electricity in the territory of Poland via networks consisting of 750 kV, 400 kV, 220 kV and 110 kV lines.
- The distribution firms supply electricity to tariff recipients in the areas that they service. In 2005 there were 24 such distribution firms. In accordance with the currently implemented programme of the Ministry of the Treasury for the consolidation and privatization of the energy distribution sector, successive power engineering enterprises merged or launched integration efforts in 2004. As a result of such efforts, in Poland there were 8 major electricity distribution firms in 2005.
- At present, Poland's largest distributors of electricity, in terms of sales and market shares, are Koncern Energetyczny ENERGA, ENEA, EnergiaPro, L-6, Ł-2, ENION, Vatenfall and Stoen.

Source: CIRE

MARKET SHARES AND VOLUME OF SALES OF ELECTRICITY DISTRIBUTION COMPANIES IN POLAND IN 2005

Company	Volume of sales (TWh)	Share (%)	Number of customers (mln)	Share (%)
Koncern Energetyczny ENERGA SA	18	17.1	2.71	17.3
ENEA SA	15.23	14.5	2.26	14.4
EnergiaPro Koncern Energetyczny SA	12.31	11.7	1.56	10
L-6 (ZEORK, ZE Białystok, ZE Warszawa-Teren, Lubelskie ZE, Zamojska Korporacja Energetyczna, Rzeszowski ZE)	19.62	8.6	3.78	24.1
ENION SA	16.83	16	2.34	14.9
Ł-2 (Łódzki ZE and Zakład Energetyczny Łódź-Teren)	6.93	6.6	1.08	6.9
STOEN SA	5.98	5.7	0.83	5.3
Vattenfall Distribution Poland S.A.	10.44	9.9	1.1	7
Total	**105.35**	**100**	**15.66**	**100**

Source: Energy Regulatory Office (URE)

12. The Polish heating energy market

- The sales of heating energy from steam and hot water in Poland have been stable in recent years, oscillating around 560–570 PJ annually. The annual differences in the level of sales depend on the number of days on which the temperature falls below 10°C. In 2005 about 201 PJ of heating energy sold was used for municipal heating. About 198.2 PJ of this energy was used to heat residential buildings in urban areas, and 3.4 PJ in rural areas.
- The number of customers buying heating energy from institutional producers is smaller than that of the buyers of electricity. In 2005 there were about 11.8 million such customers.
- The value of heating energy (from steam and hot water) sold in Poland in 2005 was PLN 8.2 billion (EUR 2.0 billion). The volume of thermal energy's sales decreased by 1.5% and the value of its sales increased by 1.6% (in current prices).

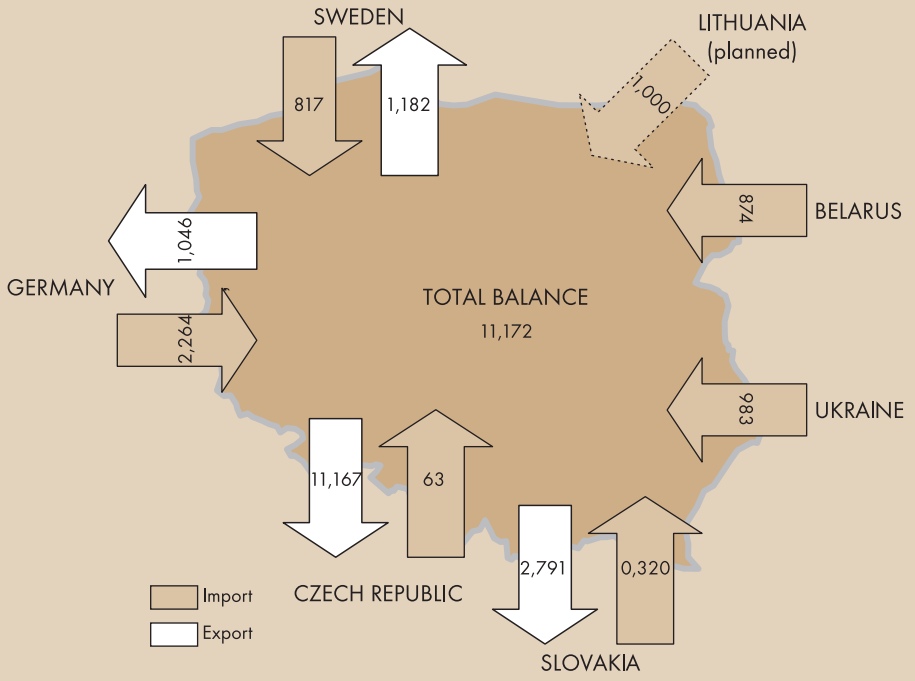
13. Production of thermal energy in Poland

- The combined installed capacity of Polish heat generating plants was 35.2 GW in 2004. However, their attainable capacity was lower, at 34.4 GW.
- There are around 9,000 enterprises in Poland whose business is related to heat engineering, according to data from the Energy Market Agency (ARE). Most of these enterprises are small local boiler houses. In February 2006 there were 1,294 enterprises that had licences to pursue activities connected with heat engineering, issued by the Energy Regulatory Office (URE). The requirement to obtain such licences applies to all producers (as well as distribution and trading firms) of more than 5 MW of energy.
- Coal is the main fuel used in the generation of thermal energy (79% of supplied heat). Different types of hydrocarbon fuels are also used for the purpose of producing heat (14% share).

14. Producers and distributors of thermal energy in Poland

- In 2005 there were 534 enterprises in Poland which had URE licences to generate and distribute heat.
- The heat distribution network had a combined length of about 24,000 km, of which 17,000 km was accounted for by the transmission system.
- The largest sellers of heat supplied through the heat distribution network were:
  - Stołeczne Przedsiębiorstwo Energetyki Cieplnej S.A. (SPEC) in Warsaw; its heat distribution system is among the world's largest systems of this type. SPEC supplies heat to nearly 19,000 buildings with the total capacity of over 230 million cubic metres,
  - Zespół Elektrociepłowni w Łodzi S.A., in Łódź, which comprises 3 thermal electric power plants (with the capacity to produce 2,560 MW of thermal energy and 280 MW of electricity), and a heat distribution network management enterprise,

POLISH IMPORTS AND EXPORTS OF ELECTRICITY IN 2005 (GWH)



Source: URE

PRODUCTION AND SALES OF HEATING ENERGY FROM STEAM AND HOT WATER (PJ)

2000	2001	2002	2003	2004	2005	Jan.-Dec. 2005 (Jan.-Dec. 2004 = 100)
558.45	577.68	563.70	577.28	559.9	551.3	99.98

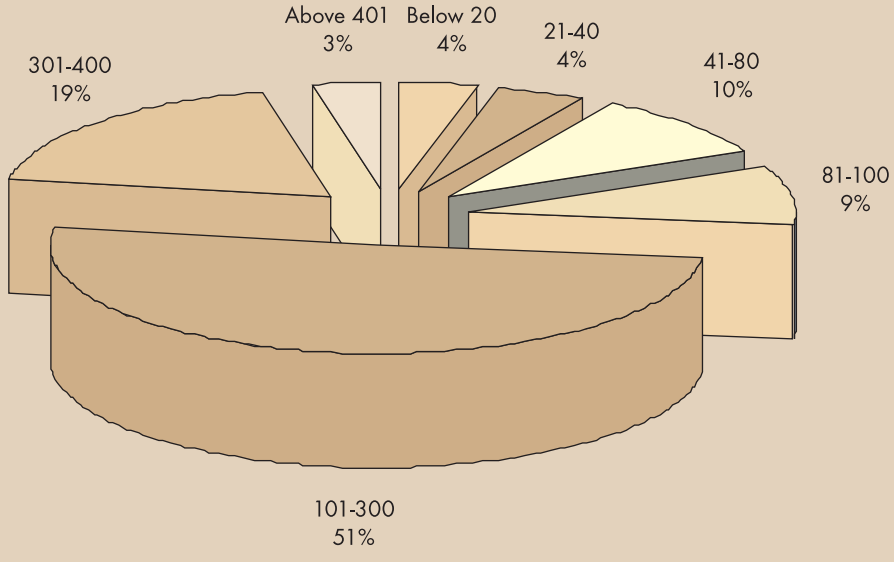
Source: GUS

PROFILE OF FUELS CONSUMED IN THE HEAT ENGINEERING SECTOR IN 2003* (%)

Coal	Heavy heating oil	High-methane gas	Biomass	Nitro-genrich gas	Lignite	Light heating oil	Other fuels
7.9	8.5	3.5	1.7	1.4	1.3	0.6	4.0

* Surveys conducted on a sample of 894 enterprises
Source: GUS

PROFILE OF HEAT GENERATING PLANTS IN POLAND IN 2004 BY INSTALLED CAPACITY IN MW



Source: ARE

- Elektrociepłownie Kujawskie Spółka z o.o. in Inowrocław, whose production capacity exceeds 700 MW,
- Miejskie Przedsiębiorstwo Energetyki Cieplnej S.A. (MPEC) in Cracow, which is owned by Electricité de France Internationale,
- Miejskie Przedsiębiorstwo Energetyki Cieplnej S.A. in Wrocław,
- Gdańskie Przedsiębiorstwo Energetyki Cieplnej Spółka z o.o. (GPEC), which operates in Gdańsk, Gdynia and Sopot and which is controlled by Stadtwerke Leipzig, a municipal firm from Leipzig, which holds 75% of the company's shares.

15. Liberalisation of the Polish energy market

- Basic rules for functioning of the energy market in Poland are set forth in the Energy Law from 1997, which is currently being amended, and secondary legislation under the Energy Law. The Polish regulator is the Energy Regulatory Office (URE).
- Poland's European Union accession in May 2004 started the real integration of the Polish energy market with the Internal Energy Market. The implementation of Directives 2003/54/EC and 2003/55/EC hastened this process.
- The energy sector will be fully liberalised only when each and every participant has equal access to the energy network. The right to choose an energy provider is a basic principle of the competitive market. This rule is known as TPA – third-party access.
- In 2004 all customers excluding households could purchase energy from whichever supplier (TPA rule).
- In 2005 only 35 firms took advantage of TPA, though 1.6 million Polish companies were entitled to do so.
- Full market opening will take place on 1 July 2007, when TPA will also apply to households.
- Sales of energy on the Power Exchange have not been well developed in Poland because of long-term supply contracts between generators and PSE Holding.
- There are still many unsolved issues in Poland hindering full liberalization of the energy market: long-term contracts, legal unbundling of distribution system operators (the chairman of URE has recently appointed transmission operators), poor economic and technical standing of many customers, especially large ones, cross-border trade, and unclear tariffs and instructions.

16. Principles of turnover in electricity in Poland

- There are 3 segments of turnover in electricity in Poland:
  - long-term contracts between producers and PSE S.A.; through the wholesale tariff, these contracts also apply to distribution companies;
  - transactions directly between producers and distribution firms on the electricity exchange (without the participation of PSE Holding);
  - balancing transactions through which PSE Holding harmonises the supply of electricity determined by the 2 previous systems with the current demand (during different hours of the day).
- At present about 70% of the demand for electricity in Poland is met under long-term contracts. This unfavourable situation, which hampers the development of a free electricity market, will change when restructuring of long-term contracts is complete.
- The process of liberalisation of the Polish electricity market started in 1998. Market participants are gradually winning the right of access to the power grid, which depends on the volume of their purchases. On 1 July 2004 all commercial customers were granted the right to choose the suppliers of electricity and gas. Households will such obtain this right as from 1 January 2007.
- In 2005 there were 20 companies that conduct significant activity in this field, although around 386 held licences for this type of trade.

17. Tendencies and forecasts on the electricity market

- Domestic consumption of electricity is expected to grow until the end of the present decade. Although the installed capacity of Poland's power plants currently exceeds the level of their output they will be able to meet the growing demand for electricity only if they allocate substantial amounts to investments (approximately EUR 10 billion).
- The Polish electricity market is expected to grow at a rate of 1.7% annually.
- Market liquidity is expected to increase as some of the long-term contracts are expiring towards the end of 2006. The long-lasting will expire in 2027.
- It may prove possible for Poland to continue to develop the production of energy based predominantly on coal, provided that the price relations between raw materials on the world market remain favourable.
- The Polish electric energy sector is facing the challenge of implementing the European Union directive (2003/30/EC) that obligates member states to obtain 10% of energy from renewable sources by 2010. It should be noted that a number of initiatives and proposals seeking to solve this problem appeared in Poland in 2004. These included new projects to build wind power plants and projects to assemble installations enabling the Polish power plants and thermal electric power stations to burn biomass. It seems that the development of production of biofuels (based on rapeseed oil and potato starch) also offers some chances for the resolution of the problem.
- As a consequence of EU membership, Poland will need to continue over the next years to rapidly implement liberalisation, enforce stricter environmental regulations, and resolve cross-border trade issues.

18. Foreign investors in the Polish power engineering sector

- 29 foreign companies invested close to USD 3.2 billion in the Polish power, gas and water supply sector in 1991-2004. This amount accounts for 4.0% of the accumulated value of foreign direct investment in Poland. Successive foreign investments, worth a total of USD 1.2 billion, can be expected in the power, gas and water supply sector shortly, according to declarations made by investors.
- The largest foreign investor in the Polish power engineering sector is the Swedish concern Vattenfall, which has invested USD 1,029.2 million. Vattenfall has invested both in the sub-sector of energy production (a 75% stake in Zespół Elektrociepłowni Warszawskich) and in the sub-sector of energy distribution (a 75% stake in Górnośląskie Zakłady Elektroenergetyczne).
- The 2nd largest foreign investor in the Polish power engineering sector is the concern Electricité de France Internationale, with USD 600 million. It has a controlling stake in the following power plants and thermal electric power plants: Elektrownia Rybnik S.A., Elektrociepłownia Kraków S.A., Kogeneracja Wrocław S.A., and Zespół Elektrociepłowni Wybrzeże S.A. in Gdańsk. It also has a minority stake in the thermal electric power plant Elektrociepłownia Toruń S.A.
- In the electricity distribution sector investments worth USD 400 million have been made by the German group RWE Plus AG, which is now the owner of STOEN S.A. in Warsaw.

MAJOR INVESTORS IN THE POLISH POWER, GAS AND WATER SUPPLY SECTOR (AS OF THE END OF 2004)

Investor	Capital invested (USD million)	Country of registration	Activities	Comments
Vattenfall AB	1,029.2	Sweden	Production and distribution of electricity Steam and hot water supply	75% stake in Elektrociepłownie Warszawskie S.A. 75% stake in Górnośląski Zakład Elektroenergetyczny S.A.
Electricité de France Internationale (EDF)	600.0	France	Production and distribution of electricity Steam and hot water supply	Elektrociepłownia Kraków S.A., Cracow; Zespół Elektrociepłowni „Wybrzeże" S.A., Gdańsk; Elektrownia Rybnik S.A., Rybnik; Zespół Elektrociepłowni Wrocławskich KOGENERACJA S.A., Wrocław; 45% stake in Elektrociepłownia Toruń S.A.; EDF Polska Sp. z o.o., Warsaw
RWE Plus AG	400.0	Germany	Production and distribution of electricity	Stoen S.A., Warsaw
Electrabel S.A.	232.9	Belgium	Production and distribution of electricity	99.6% stake in Elektrownia im. T. Kościuszki S.A., Połaniec; Electrabel Polska Sp. z o.o., Katowice
Dalkia Termika S.A.	201.4	France	Manufacture of gas distribution of gaseous fuels through mains Steam and hot water supply	Dalkia Polska S.A., Warsaw; Dalkia Poznań ZEC S.A.; Dalkia Zielona Góra Sp. z o.o.; Dalkia Sopot Sp. z o.o.; Dalkia Facility Management Sp. z o.o., Warsaw
Enron Poland Investment B.V.	137.6	The Netherlands	Steam and hot water supply Production and distribution of electricity	Elektrociepłownia Nowa Sarzyna Sp. z o.o. – Nowa Sarzyna (Podkarpackie Province)
SNET	100.0	France	Steam and hot water supply	63.64% stake in Elektrociepłownia Białystok S.A.
Swepol Link AB	75.0	Sweden	Production and distribution of electricity	SwePol Link (Poland) Sp. z o.o.
MVV Energie AG	44.6	Germany	Steam and hot water supply	MVV Polska Sp. z o.o., Warsaw; MVV EPS Polska Sp. z o.o., MVV Skarżysko-Kamienna; 32% stake in Szczecińska Energetyka Cieplna Sp. z o.o., Szczecin
EnBW Energie Baden-Wurtenberg AG	44.5	Germany	Steam and hot water supply	33.1% stake in Miejskie Przedsiębiorstwo Energetyki Cieplnej Wrocław Sp. z o.o.

Source: Polish Information and Foreign Investment Agency (PAIiIZ)

19. The Polish market for liquid fuels

- In 2004 the sales of liquid fuels on the Polish market were almost 18.1 million tonnes, including 10.9 million tonnes of engine fuels, more than 5 million tonnes of heating oil, and 2.1 million tonnes of liquefied petroleum gas (LPG).
- In 2004 liquid fuels worth EUR 8.3 billion were sold in Poland.
- The profile of sales of liquid fuels has for many years been dominated by domestically produced fuels, with a share of 77% - 97% in the total deliveries of liquid fuels to the Polish market. On the other hand, sales of liquefied petroleum gas have been dominated by imports, which account for 87% of the total deliveries of LPG to the Polish market.

CONSUMPTION OF FUELS IN POLAND (MILLION TONNES)

	2000	2001	2002	2003	2004
Engine petrol	5.17	4.75	4.31	4.21	4.19
Diesel oil	6.00	5.74	5.10	5.91	6.83
Light heating oil	4.42	5.29	5.93	5.01	4.99
LPG	1.16	1.34	1.65	2.02	2.10
Total	**17.31**	**17.12**	**16.99**	**17.15**	**18.11**

Source: GUS

- Poland has almost depleted of its own oil fields, therefore in 2004 around 95% of crude oil came from imports, mainly from Russia.

20. Production of liquid fuels in Poland

- In 2004 Polish oil refineries processed 18.1 million tonnes of crude oil, an increase of 3.9%

PRODUCTION OF SELECTED GOODS SUPPLIED BY THE OIL REFINING SEGMENT (MILLION TONNES)

Type of fuel	2000	2001	2002	2003	2004	Jan.-Dec. 2004 (Jan.-Dec. 2003=100)
Processed crude oil	18.08	18.11	17.88	17.46	18.12	103.7
Production of engine petrol	4.41	4.29	4.02	4.04	4.08	100.9
Production of diesel oil	5.55	4.91	4.18	4.59	5.17	112.6
Production of heating oil	5.92	6.34	5.58	5.67	4.52	79.7

Source: GUS

over 2003. The quantity of crude oil processed in Poland continued to grow from the early 1990s until 2002. Since 2002 it has been falling slowly. In 2004 the quantity of processed crude oil fell by about 1%.

- The period 2001–2004 saw essential changes in the profile of output of processed oil products. The production of goods supplied by the oil refining segment (engine fuels and light heating oil included) decreased, whereas the production of petrochemical goods increased.
- The decline in the production of liquid fuels was caused by the decreasing demand for these fuels on the Polish market and by the rising demand for petrochemical goods on the part of the domestic chemical industry.

21. Characteristics of the Polish oil and oil refining industry

- As a result of integration processes that occurred in 2001–2004, Polish oil refineries now belong to two petrochemical groups. They are:
  - the Polish oil concern Polski Koncern Naftowy Orlen S.A. (PKN Orlen) in Płock, which includes some 116 companies, with 3 oil refineries: Rafineria Płock, Rafineria Trzebinia S.A. and Rafineria Jedlicze S.A.;
  - the capital group Grupa Kapitałowa Lotos S.A. (GK Lotos) in Gdańsk, which comprises 5 oil refineries: Rafineria Gdańsk S.A., Rafineria Czechowice S.A., Rafineria Glimar S.A. in Gorlice, and Rafineria Jasło S.A., as well as the Petrobaltic oil prospecting and mining company.
- Only two refineries are of significant size, those in Płock (owned by PKN Orlen) and Gdańsk (owned by GK Lotos).
- PKN Orlen is the number one company in the Polish processing industry. In 2004 the concern had a 68.2% share in the domestic production of liquid fuels, and a 58% share in the total deliveries of liquid fuels to the Polish market. PKN Orlen's shares are quoted on the Warsaw Stock Exchange.
- GK Lotos supplied 1/3 of all liquid fuels produced in Poland in 2004 and controlled around 30% of the liquid fuels market. GK Lotos has increased the processing capacity of the Gdańsk oil refinery to 6 million tonnes annually in 2005 from 4.5 million tonnes in 2004.
- Total refinery intake rebounded strongly in 2004, up 7.5% or 1.3 Mt to nearly 19 Mt.
- Prior to 2001, refinery utilization in Poland had stabilized at above 90%, which is high by regional standards.

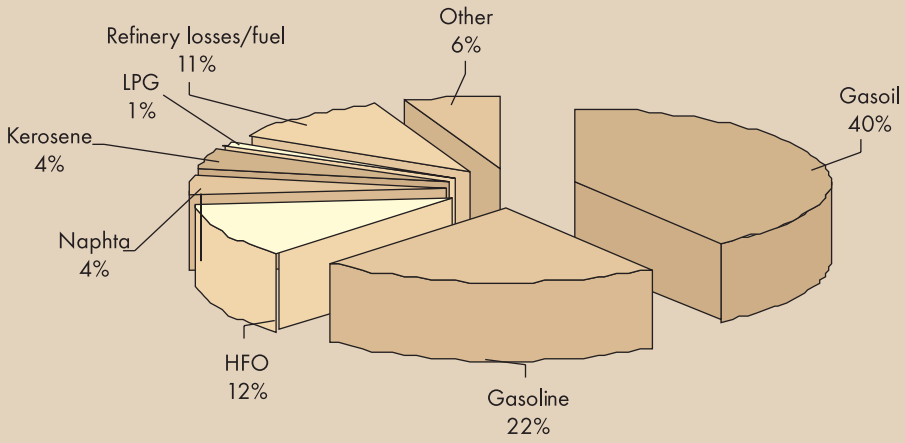
22. Characteristics of the Polish oil refining industry

OIL PROCESSED IN POLAND (MILLION TONNES)

	2002	2003	2004	Jan.-Dec. 2004 (Jan.-Dec. 2003=100)
PKN group jointly	13.00	12.30	12.65	102.8
of which PKN Orlen	12.47	11.72	12.19	104.0
Lotos group jointly	4.70	5.10	5.45	106.8

Source: Nafta Polska S.A.

REFINERY PRODUCT YIELDS IN 2004



Source: Nafta Polska S.A., PKN Orlen, GK Lotos

23. Distribution of engine fuels in Poland

- The wholesale trade in engine fuels is dominated by the two oil refining-petrochemical groups, PKN Orlen and GK Lotos, whose combined share in the domestic sales of these fuels is 88%. The rest (12%) is accounted for by independent import firms, including foreign companies.
- The retail market for engine fuels is fragmented, and divided among four main groups of petrol stations: the chain operated by the PKN Orlen group (28.1% of all filling stations in 2004), the chain operated by GK Lotos (6%), chains operated by foreign concerns (13.6%), filling stations run by independent operators (51.7%), and hypermarkets (0.6%).
- The largest chain is operated by PKN Orlen. Currently, it comprises 1,927 petrol stations, out of which 1,324 are owned by the concern and 588 are affiliates. PKN Orlen is also the owner of 480 filling stations in Germany and 330 in the Czech Republic (through shares in Benzina a.s.)
- In 2005 the largest chains of petrol stations operated by foreign concerns in Poland belonged to British Petroleum (287 stations, including stations in the acquired chain Aral), Shell (228, including those taken over with the DEA chain), and Statoil (220, including those taken over with the Preem chain).

PETROL STATIONS OPERATING IN POLAND (AS OF END OF THE EACH YEAR)

	2000	2001	2002	2003	2004	2005
Total, including:	6,582	6,631	6,692	7,201	7,490	7,644
PKN Group	2,077	2,041	1,933	1,903	1,906	1,927
GK LOTOS	275	314	333	336	368	362
Foreign concerns	703	776	826	862	936	962
Independent operators	3,527	3,500	3,600	4,100	4,250	4,334
Petrol stations affiliated with hypermarkets	N/A	3	11	19	32	59

Source: Nafta Polska S.A., Polish Chamber of Liquid Fuels, PKN Orlen

24. Transport in the oil sector

- Crude oil is transported to Poland via pipelines and across Poland via crude oil and product pipelines, railways and tanker trucks.
- There are 3 crude oil pipelines running across Poland: Druzhba (through to Germany's Schwedt and Leuna refineries, it supplies the Płock refinery), Friendship (Płock - Adamów) and Pomerania (Płock - Gdańsk). All are operated by Przedsiębiorstwo Eksploatacji Rurociągów Naftowych (PERN).
- Fuel from the Płock refinery is transported to 6 storage bases, in Mościska, Emilianów, Nowa Wieś Wielka, Rejowiec, Koluszki and Boronów.
- There will be a possible extension of the Odessa - Brody crude oil pipeline to Płock in a couple of years.
- There are four product pipelines running across Poland, east, west or south-west from Płock, of total length 830 km. There are no product pipelines to the north to Gdańsk refinery. Three are operated by PERN (Płock - Nowa Wieś Wielka - Rejowiec, Płock - Mościska - Emilianów, Płock – Koluszki - Boronów) and one by PKN Orlen (Płock - Ostrów Wielkopolski).
- Storage is run by the state owned operator Naftobazy (leader), PKN Orlen, Lotos GK and others.
- Naftoport is Poland's largest operator in loading/discharging of imported or sea-exported oil. The loading capacity of this company on the Baltic coast is 23 million tonnes of crude and petroleum products per year.
- Poland's logistics sector remains widely state owned: the State Treasury holds 100% of Nafta Polska S.A., which holds 100% of Naftobazy, and 100% of PERN, which has a controlling stake in Naftoport.
- There is currently a proposal to create an integrated logistics operator (ZOL) based upon assets of Naftobazy, but also including a stake in PERN.

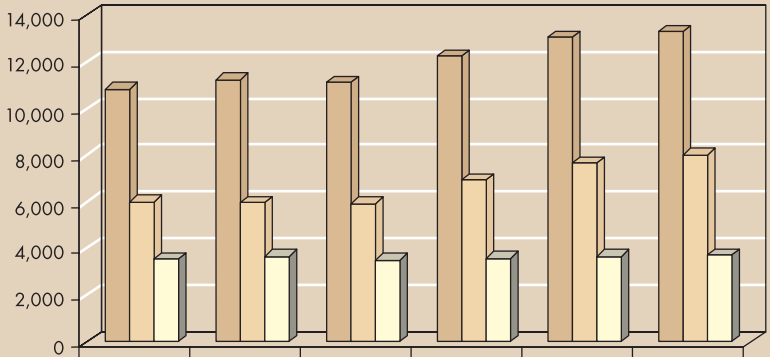
25. The Polish market for natural gas

- In 2005 the sales of natural gas in Poland were almost 13.6 billion m^3 (in terms of high-methane gas) and grew by 3.3% in comparison with 2004.
- The value of the Polish gas market was about EUR 2 billion.
- Natural gas in Poland is used by more than 19,800 industrial buyers, 163,000 buyers from the sector of trade and services, and more than 6 million households. In recent years the fastest growth has been observable in the number of buyers from industry.

26. Supply of natural gas in Poland

- Poland's national gas company is the capital group Polish Oil and Gas Company (PGNiG). Through its subsidiary companies, PGNiG produces, processes, transmits and distributes gaseous fuels, and also prospects for and extracts oil and gas deposits, and imports, constructs and uses gas-carrying and distributing systems.
- Domestic production in 2005 was 4,951 bln m^3, up from 4,326.7 bln m^3 in 2004.

SALES OF NATURAL GAS (MILLION PM^3*)



	2000	2001	2002	2003	2004	2005
Total sales, including:	10,867	11,284	11,156	12,288	13,072	13,350
Gas sold to industrial enterprises	6,047	5,998	5,953	6,968	7,700	8,041
Gas sold to households	3,563	3,705	3,531	3,616	3,700	3,735

* pm^3 = units standing for high-methane gas

Source: Polish Oil and Gas Company (PGNiG)

PRODUCTION OF NATURAL GAS IN POLAND, INCLUDING LIQUEFIED NATURAL GAS (HM^3)

2000	2001	2002	2003	2004	2005	Jan.-Dec. 2005 (Jan.-Dec. 2004 = 100)
4,955.8	5,178.8	5,207.0	5,315.0	5,630.1	5,741.7	101.9

Source: GUS

- Natural gas extracted and produced in Poland as a result of technological processes accounted for 31% of the domestic consumption of natural gas in 2005. This means that the demand for natural gas in Poland is met chiefly through imports.
- Imported natural gas is carried into Poland by several pipelines. The most important of them is the Yamal gas pipeline, which runs from Russia, via Belarus and Poland, to Germany. At present, the first of its two planned parallel lines, which is already functioning, can carry 10 billion m^3 of natural gas. The pipeline will reach its target carrying capacity of 30 billion m^3 in 2005. Poland currently draws about 3 billion m^3 of gas from the pipeline. The rest is received by Germany.
- Gas imports in 2005 totalled 9.7 bln m^3 and increased by 3.8% in comparison with 2004.
- PGNiG prepared early in 2005 a plan for the issue of shares and proposals concerning the profile of share holdings. Around 15%-20% of the company's shares, worth at least EUR 350 million, were offered for sale.

27. Natural gas distribution

- PGNiG, supplying gas via high-capacity pipelines, services big industrial companies.
- Gas distribution activity is conducted in Poland by six major gas distributors (DSG, GSG, KSG, MSG, PSG and WSG), which are 100% owned by PGNiG, and other independent gas distribution companies, 6 of which serviced more than 100 consumers in 2005.
- Gas distribution companies buy gas from PGNiG and provide gas supply and sales support services to small and medium-sized companies and households. They are responsible for operation, maintenance and expansion of the distribution networks.
- In 2005 the distribution networks comprised about 102,000 km of gas pipelines located mostly in industrialised urban areas of the country (84.5% of total gas-line system in Poland).
- On 1 July 2004 the gas distribution companies implemented functional unbundling of the distribution system operators, which now have the status of separate branches disclosed in the National Court Register.
- By 2007, the distribution system operator is supposed to be spun off, and later the distribution activities of the gas distribution companies are to be spun off from their turnover activities.

28. Economic role of liquefied gas and its distribution

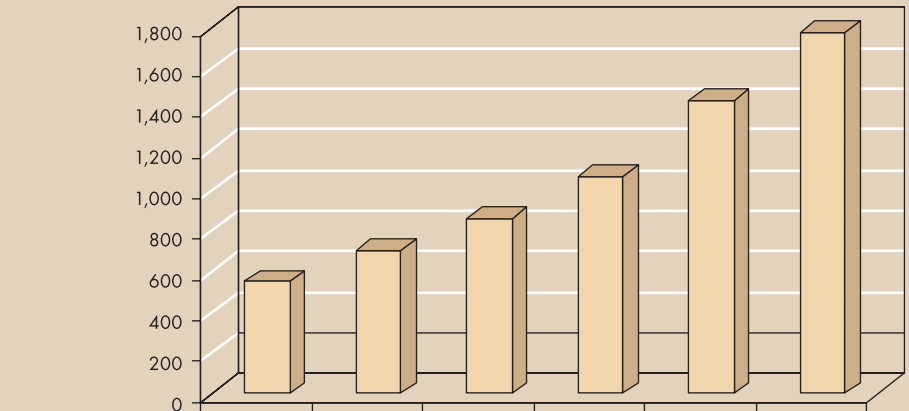
- According to the Polish Liquefied Gas Organisation (POGP), sales of liquefied propane -butane gas in Poland reached the level of 2,430,000 tonnes in 2005 (up from 2,100,000 tonnes in 2004). In comparison with 2004 the sales of liquefied petroleum gas (LPG) on the Polish market rose by 15.7%. Liquefied gas is used in heating installations (225,000 tonnes in 2005, 210,000 tonnes in 2004); municipal economy (bottled gas – 430,000 tonnes in 2005, 450,000 tonnes in 2004); and as a fuel for motor vehicles (1,775,000 tonnes in 2005).

- Autogas constitutes the most rapidly growing segment of the liquefied gas market. In 2005 the sales of autogas jumped by 23%. Since 1991 its sales have grown more than tenfold. With the level of sales exceeding a million tonnes (a new record set in 2003), Poland is Europe's largest market for liquefied gas.
- At the end of 2005 Poland had about 1.7 million (1.4 million in 2004) cars adapted to use gas as a fuel (8% of all registered cars).
- In 2005 there were 6,600 filling stations in Poland (5,900 in 2004), which had autogas on offer. Approximately half of these stations sell LPG exclusively.

29. Environmental protection vs. fuel production

- Motor vehicles are one of the main potential dangers for the environment. Each vehicle is the source of sulphur dioxide, carbon monoxide and dioxide, nitrogen monoxide, hydrocarbons emissions and other pollutants.
- In 2003 petroleum refining plants were responsible for air emissions equal to 2.3% of the total emissions of sulphur dioxide (30.95 giga grams), 0.02% of the total emissions of carbon monoxide (0.769 gg), and 1.0% of total emissions of nitrogen oxides (8.095 gg).
- Road transport contributed to 2.6% of total SO_2 emissions (35.6 gg), 7.1% of total CO emissions (235.3 gg), and 77.2% of NO_2 (624.1 gg).
- Poland has signed many international conventions and agreements regarding environmental protection which require the country to reduce the amount of emissions, such as:
  - EC, 1997a: Council Conclusions on a Community Strategy to Combat Acidification. Proposal for a Council Directive Relating to a Reduction of the Sulphur Content of Certain Liquid Fuels and Amending Directive 93/12/EEC, Document COM (97)88. Commission of the European Union, Brussels.

SALES OF AUTOGAS (THOUSAND TONNES)



	2000	2001	2002	2003	2004	2005
Sales of autogas (thousand tonnes)	550	700	860	1,070	1,440	1,775

Source: POGP

EU EMISSIONS STANDARDS FOR PASSENGER CARS (G/KM)

	Tier	Date	CO	HC	NOx	PM
Petrol (Gasoline)	EURO 3	01/01/2001	2.3	0.2	0.15	–
	EURO 4	01/01/2005	1.0	0.1	0.8	–
	EURO 5	01/01/2008	1.0	0.075	0.06	0.05
Diesel	EURO 3	01/01/2001	0.64	–	0.5	0.05
	EURO 4	01/01/2005	0.5	–	0.25	0.025
	EURO 5	01/01/2008	0.5	0.05	0.20	0.005

Source: Wrocław University of Technology

EU EMISSIONS STANDARDS FOR HEAVY VEHICLES (G/KM)

Tier	Date	CO	HC	NOx	PM
EURO 3	01/01/2001	2.1	0.66	5.0	0.1
EURO 4	01/01/2005	1.5	0.46	3.5	0.02
EURO 5	01/01/2008	0.5	0.33	2.5	0.014

Source: Wrocław University of Technology

FUEL QUALITY STANDARDS IN POLAND, CZECH REPUBLIC, HUNGARY, SLOVAKIA AND THE EU

Gasoline standards	Units	PL	CZ, HU, SK	UE	UE	UE
		2003	2003	from 2000	from 2005	from 2009
sulphur content	mg/kg, max.	150	150	150	50/10*	10
aromatics content	% obj. max	42	42	42	35	35
benzene content	% obj. max	1	1	1	1	1
olefins content	% obj. max	18	21/18**	18	18	18
Diesel standards	**Units**	**PL**	**CZ, HU, SK**	**UE**	**UE**	**UE**
		2003	2003	from 2000	from 2005	from 2009
sulphur content	mg/kg, max.	350	350	350	50/10*	10
polyaromatic content	% (m/m), max.	11	11	11	11	11
cetane number	minimum	51	51	51	51	51

* 10 ppm sulphur gasoline should be available in all regions
** Value of 21% relates to 91-octane unleaded fuel
Source: Nafta Polska, OECD, PKN ORLEN

- EC, 1997b: Proposal for a Directive of the European Parliament and the Council Amending Directive 88/77/EC of 3 December 1987 on the Approximation of the Laws of the Member States Relating to the Measures to be Taken Against the Emission of Gaseous and Particulate Pollutants from Diesel Engines for Use in Vehicles and the Emission of Gaseous Pollutants from Positive Ignition Engines Fuelled with Natural Gas or Liquefied Petroleum Gas for Use in Vehicles, Document COM(97)627. Commission of the European Union, Brussels.
- EURO emission standards (limits of emissions from gasoline, diesel).

- These requirements call for modification of technologies (in "purifying" emissions, exhaust after-treatment, production of special engine oils, e.g. low-ash engine oil and fuels) and machinery (manufacture of new engines), and contribute to the wider use of biofuels in the automotive industry.
- One of the key European projects is Target 2020, which envisages that by 2020 around 10% of cars will be fuelled with LPG, 5% with biogas and 5% with hydrogen.

30. Privatisation and ownership changes in the energy, gas and fuel sectors

- So far privatisation processes have been completed in 4 large Polish power plants – PAK, Połaniec, Rybnik and Skawina; 9 professional thermal electric power plants; and 2 power distribution firms, Górnośląski Zakład Energetyczny and STOEN in Warsaw. A 75% stake in the former company (now called Górnośląska Grupa Elektroenergetyczna in Gliwice) has been acquired by the Swedish concern Vattenfall AB, whereas an 85% stake in STOEN has been acquired by the German group RWE Plus.
- Since January 2003 a programme on ownership policy in the power engineering sector, prepared by the Ministry of the State Treasury, has been implemented in Poland. This programme provides for consolidation of the treasury-owned power engineering enterprises, which is designed to ensure them the benefits of synergy and large-scale production. The consolidated entities were to be privatized in 2005–2006.
- The programme calls for establishing four large energy concerns combining power plants and distribution companies: PGE (BOT - Bełchatów, Opole, Turów power plants, Turów and Bełchatów coal mines, ZEDO, PSE, Grupa Łódzka and Wschodnia), Group II (PKE, Stalowa Wola power plant, Enion and EnergiaPro), Group III (Energa Gdańsk, Zespół Elektrowni Ostrołęka), and Group IV (Enea, Kozienice power plant, Bogdanka coal mine).
- By mid-2007, PSE – Operator should be in the hands of the Polish State.

POLAND'S LARGEST PRIVATISED POWER PLANTS

Power plant	PAK	Elektrownia Połaniec S.A.	Elektrownia Rybnik	Elektrownia Skawina
Investor	Elektrim	Electrabel S.A.	EDF/EnRW	PSEG Global
Power generating capacity (GW)	2.3	1.8	1.78	0.6

Source: ARE

- Long-term contracts should be terminated in the nearest future thanks to the realisation of the state's consolidation programme.
- In accordance with the latest decisions, the holding company BOT Górnictwo i Energetyka S.A. is to be privatised through the sale of a minority stake on the Warsaw Stock Exchange in 2006. As far as the consolidated groups of companies from the electricity distribution sector are concerned, the public offering is to include 30% of the shares of each of these groups in the first stage of their privatisation.
- So far only transmission system operators in the energy (PSE-Operator S.A.) and gas (Gaz-System Sp. z o.o.) sectors have been separated. By 2007, distribution system operators are to be established in the energy and gas sectors.
- PGNiG prepared in early 2005 a plan for the issue of shares and proposals concerning the profile of shareholders. Around 15%-20% of the company's shares, worth at least EUR 350 million, were offered for sale.
- The Polish state has currently abandoned the idea to privatise and consolidate the two main oil refinery groups, PKN Orlen and Lotos Group. Instead, they should remain separate entities competing on the oil market.
- A logistics operator is supposed to come into existence through the combination of assets of Naftobazy and fuel pipelines of PERN.
- According to plans announced in November 2004, a stake of shares of GK Lotos was offered for sale on the Warsaw Stock Exchange in mid 2005.

31. Development prospects and forecasts for the energy, gas and fuel market in Poland

- According to forecasts, the domestic consumption of electricity in Poland is expected to grow until the end of the present decade. Although the installed capacity of Poland's power plants currently exceeds the level of output, they are expected to be able to meet the growing demand for electricity only if they allocate substantial amounts to investments (approximately EUR 10 billion).
- The Polish electricity market is expected to grow at a rate of 1.7% annually.
- Poland does not rule out participating in building nuclear power plants in Lithuania, which has recently been proposed by the Lithuanian government.
- Market liquidity is expected to increase as some of the long-term contracts are expiring towards the end of 2006. The long-lasting will expire in 2027.
- The beginning of activity in 2004 of the holding BOT Górnictwo i Energetyka SA brought about significant concentration on the energy market. The market share of the top 3 generation plants (BOT GiE SA, PKE SA, and EL Kozienice SA) increased to 62.1%.
- It may prove possible for Poland to continue to develop the production of energy based predominantly on coal, provided that the price relations between raw materials on the world market remain favourable.
- The Polish energy sector is also facing the challenge of implementing the European Union's directive (2003/30/EC) that obligates the member states to obtain 10% of energy from renewable sources by 2010. It should be noted that a number of initiatives and proposals seeking to solve this problem appeared in Poland in 2004. These included new projects to build wind power plants and projects to assemble installations enabling the Polish power plants and thermal electric power stations to burn biomass. It seems that the development of production of biofuels (based on rapeseed oil and potato starch) also offers some chances for the resolution of the problem.
- As a consequence of EU membership, Poland will need to continue over the next years to rapidly implement liberalisation, enforce stricter environmental regulations, and resolve cross-border trade issues.
- Forecasts for Poland predict rapid growth in the consumption of natural gas, which will be used on a wider scale in the energy sector as a fuel for new installations operating on the basis of combined technological cycles. It is estimated that Poland will need 14.3 billion m^3 of natural gas in 2010, and 19 billion m^3 in 2020.
- The main objective of changes in the organisation of the Polish gas supply system is to ensure energy security to Poland by means of diversifying the sources of gas deliveries. Poland's membership of the European Union is conducive to efforts launched in this respect. It should be noted that Poland, being situated between the largest producer of natural gas, Russia, and a large consumer of natural gas, Western Europe, has a gas supply system that plays, and will continue to play, a particularly significant role as a crucial element of European gas supply lines.

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ISBN 83-60049-39-4
Photos by: L. Łożyński, CorelDraw