Planned investments in new hard coal mines and coal fired power plants in Poland: energy security, energy efficiency and low emission for the long term

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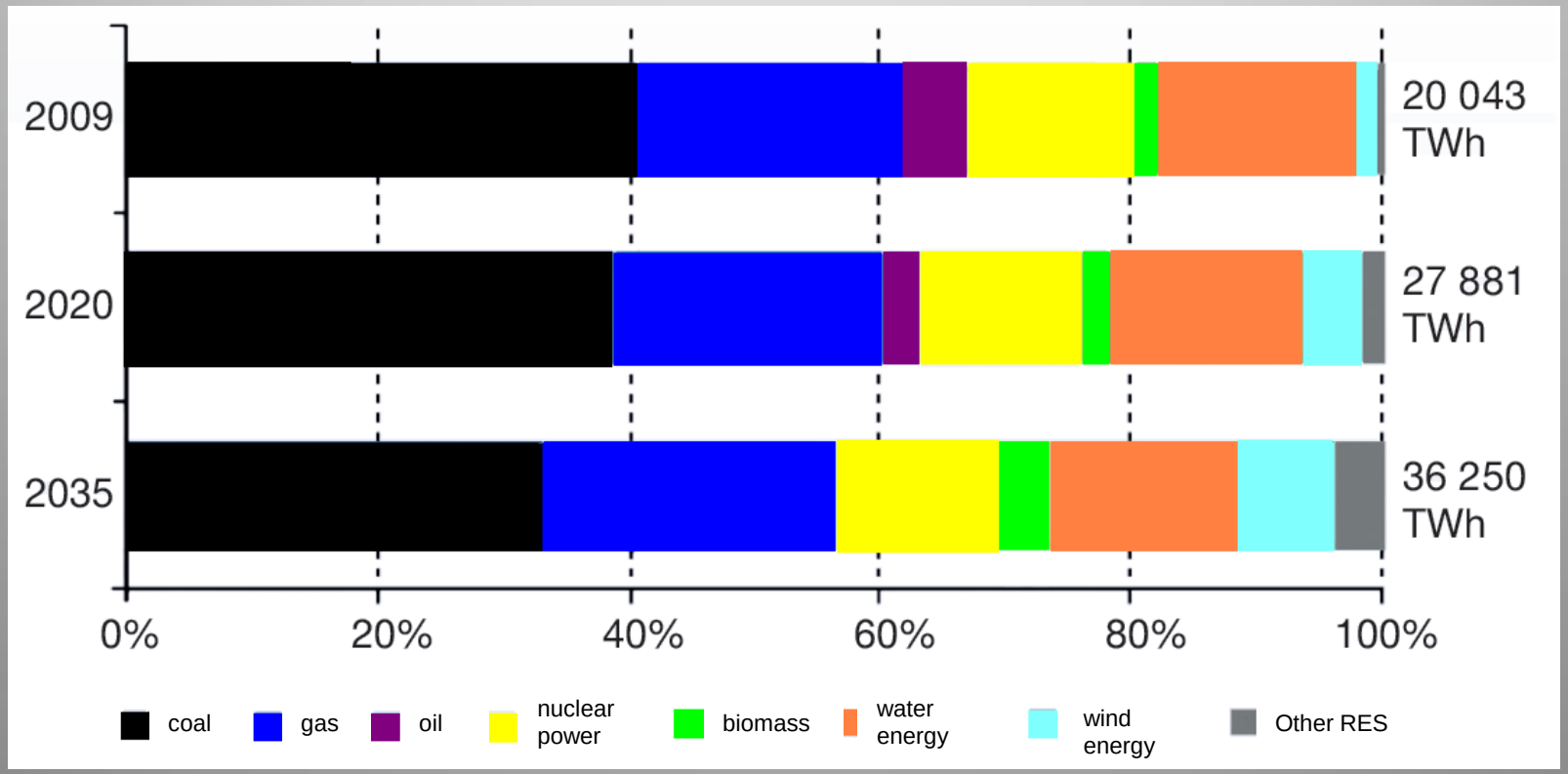
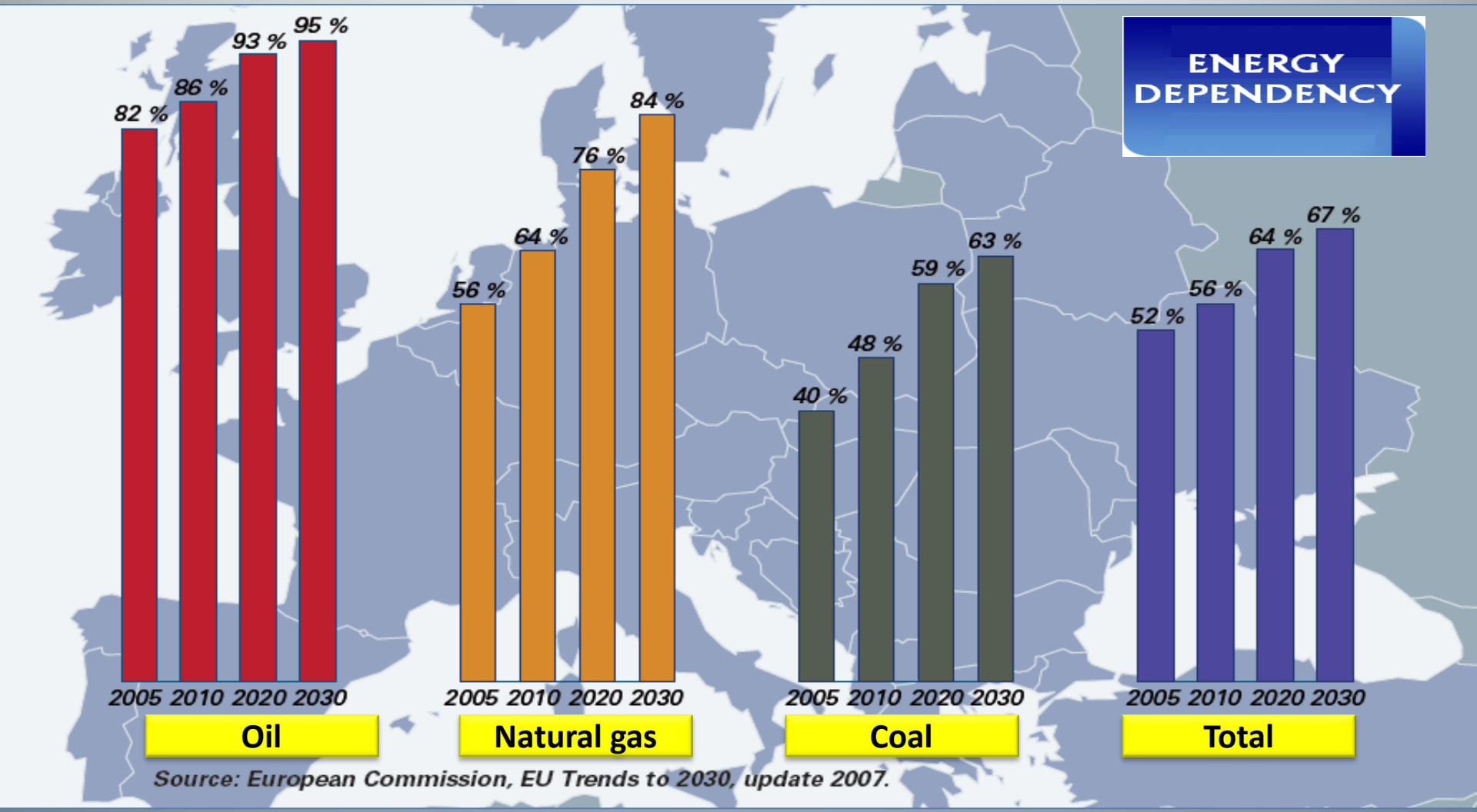
Forecast on global demand for energy and energy sources

Global production of electricity according to New Policies Scenario (up to 2035)

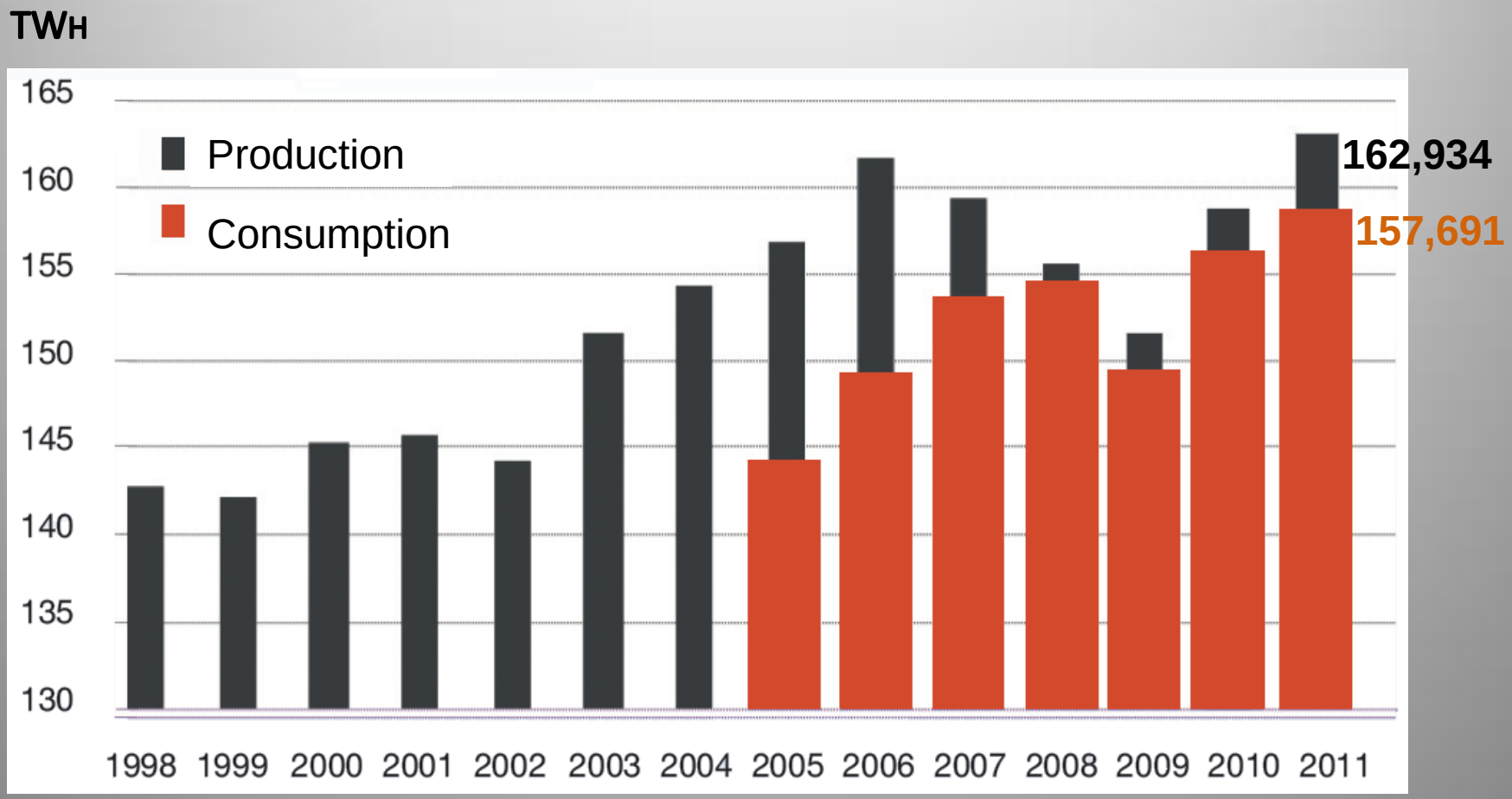


Source: IEA

UE dependency on fossil fuels import

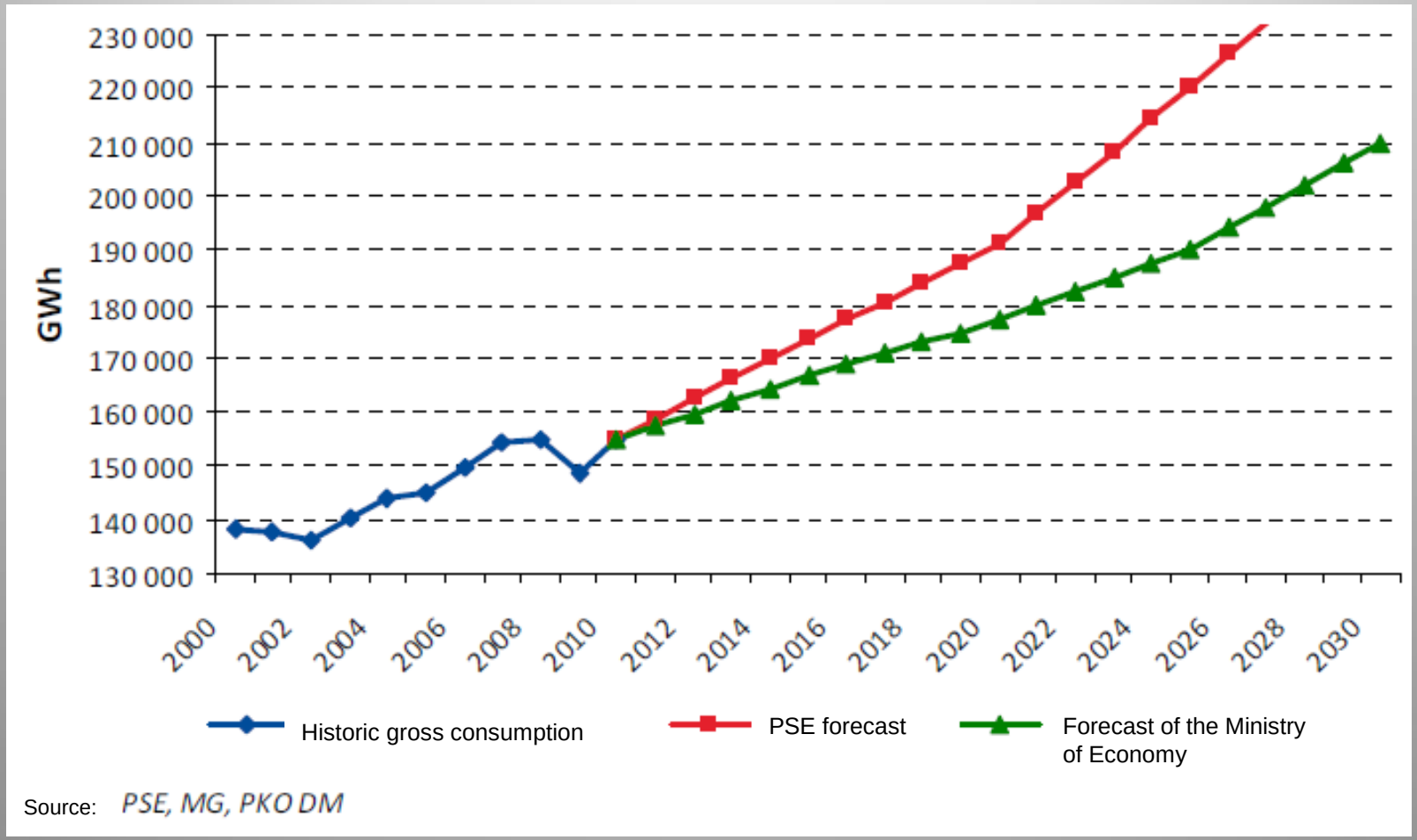


Production and consumption of electricity in Poland



Source: H. L. Gabryś, „Energetyka”, March - April 2012

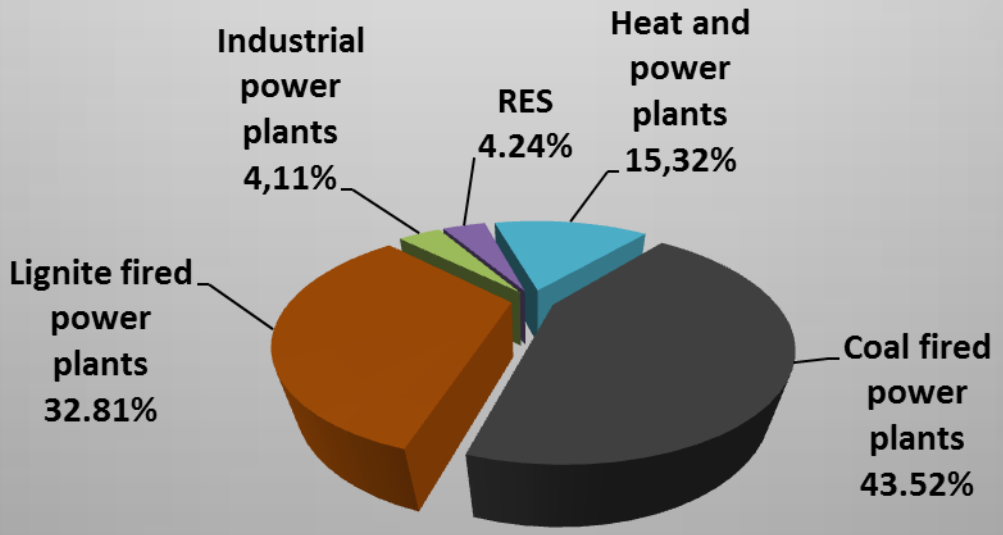
GROSS ENERGY CONSUMPTION FORECASTS



Source: *PSE, MG, PKO DM*

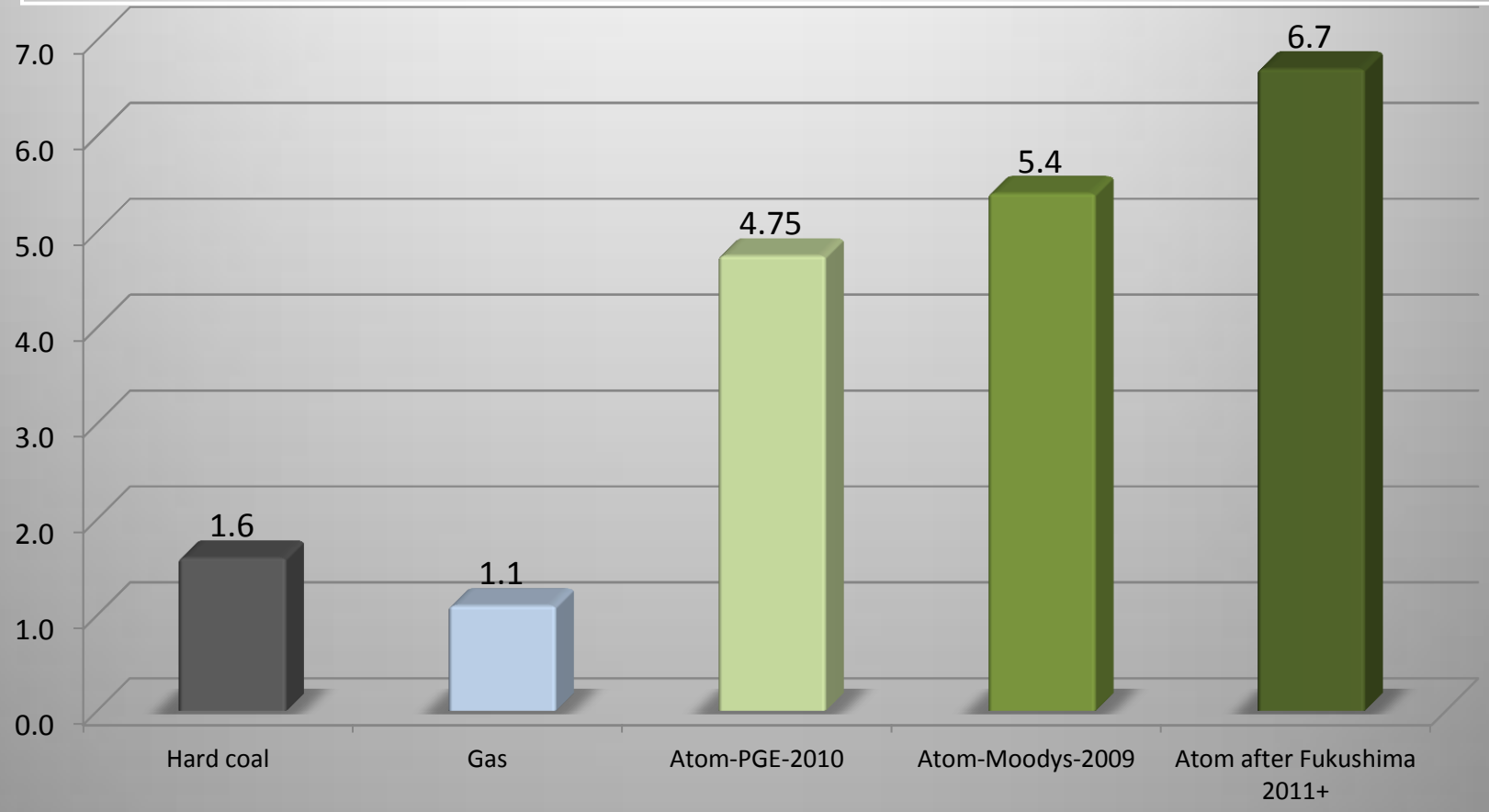
Characteristics of Polish energy sector in the year 2011

Structure of electricity production in Poland in 2011, %



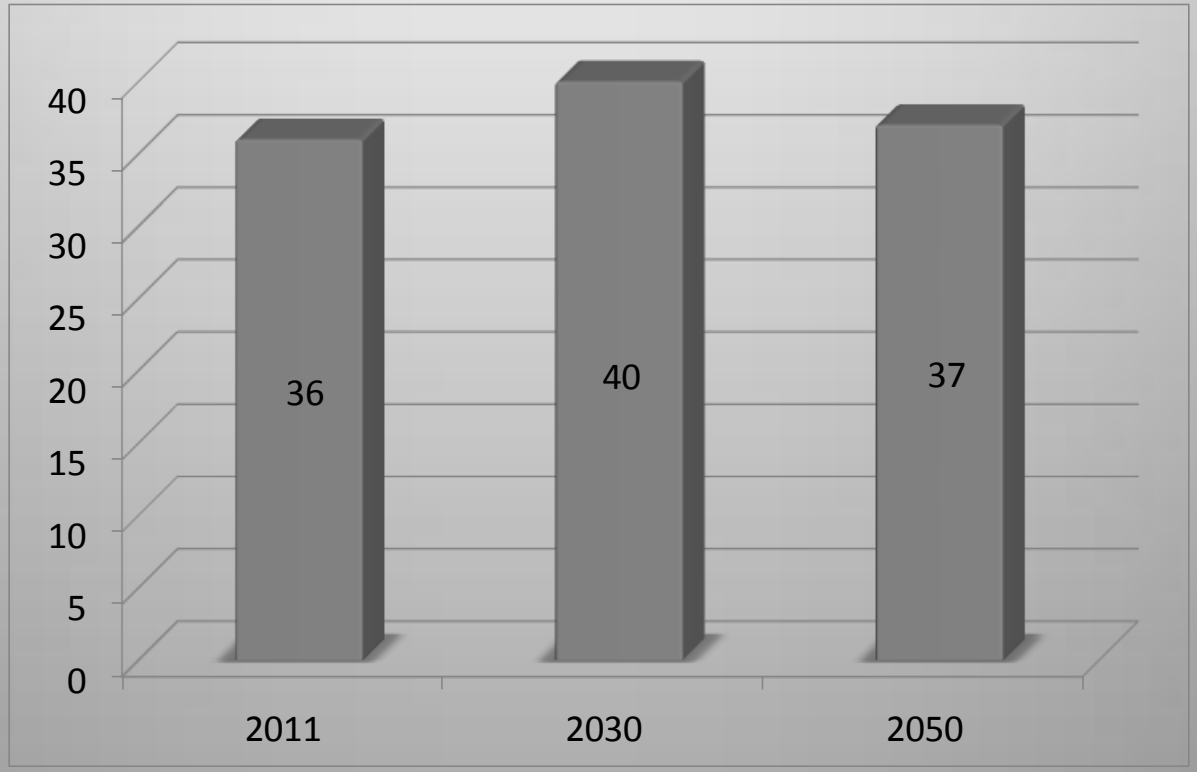
Source: H. L. Gabryś, „Energetyka", March – April 2012

COST OF POWER PLANT DEVELOPMENT IN MILLION EUROS PER MW



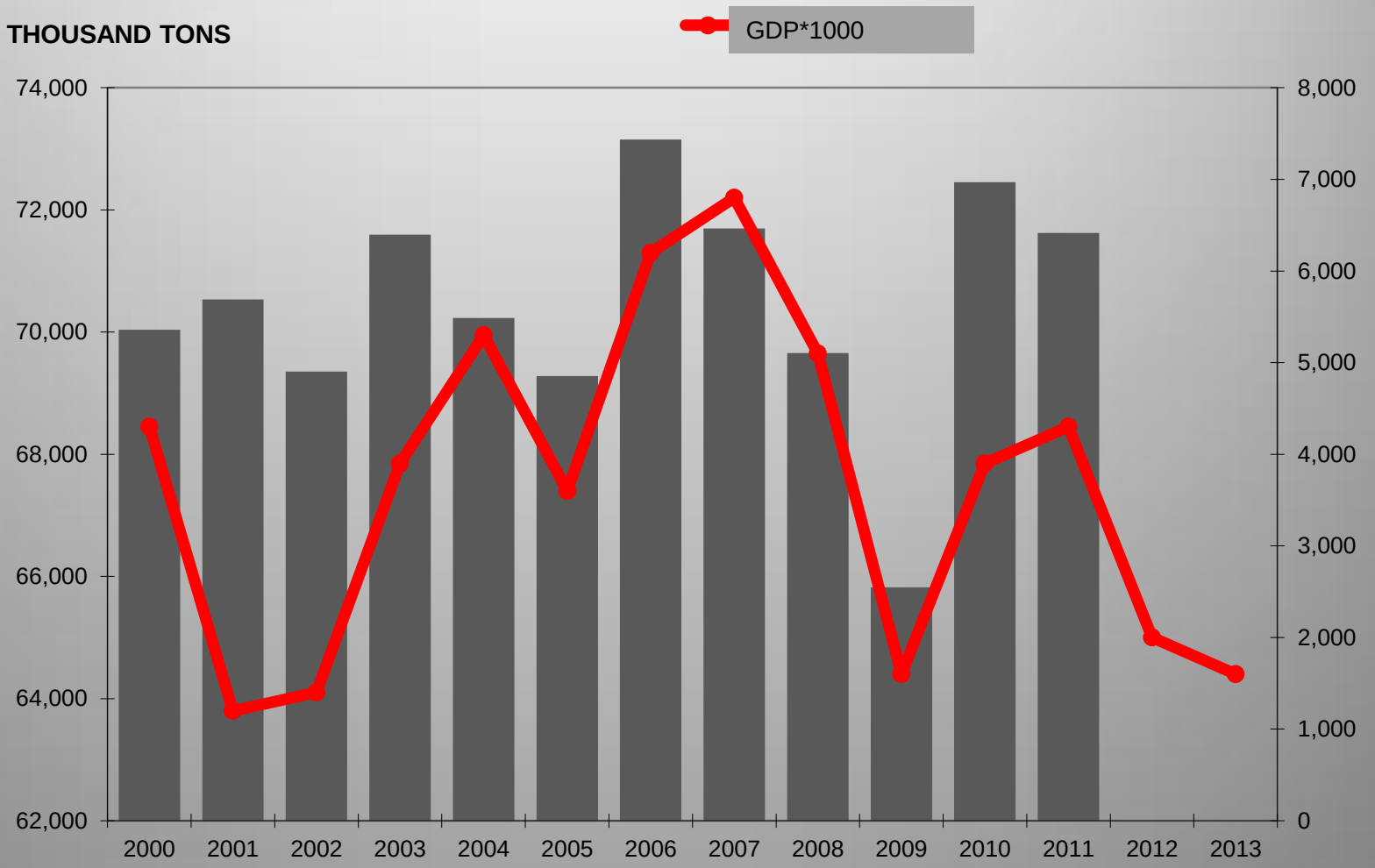
SOURCE: Prof. W. Mielczarski. Forecasts of production and consumption of electricity. September 2012.

DEMAND FOR STEAM HARD COAL [MILLION TONS]



SOURCE: Prof. W. Mielczarski. Forecasts of production and consumption of electricity. September 2012.

RELATION BETWEEN STEAM COAL CONSUMPTION AND GDP IN POLAND



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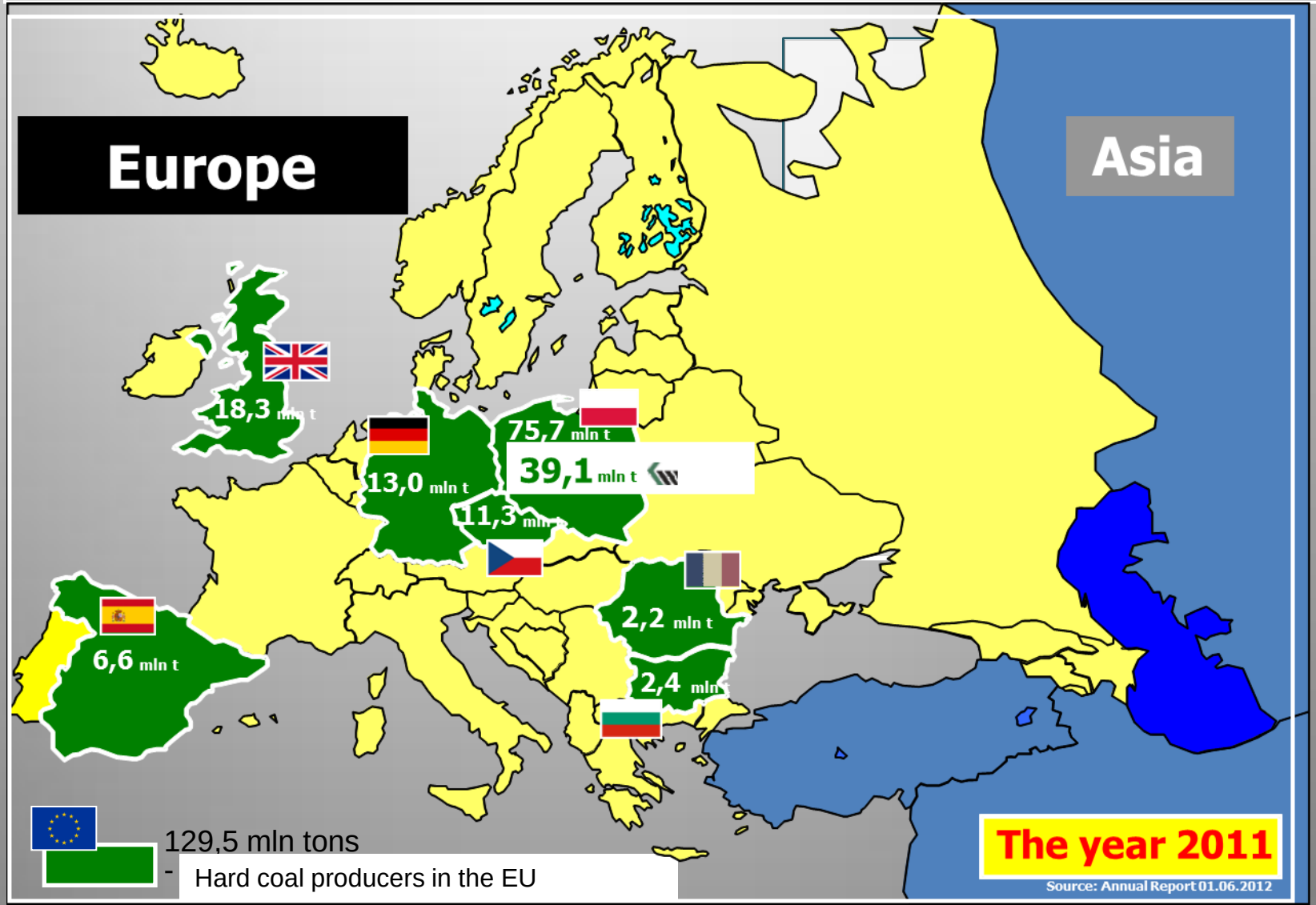
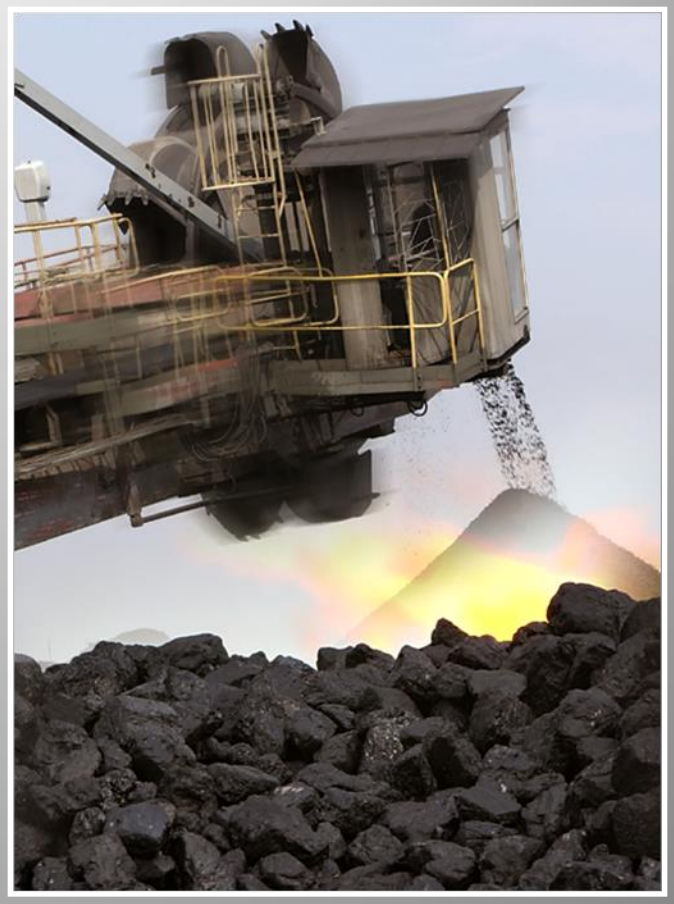
THE BIGGEST HARD COAL PRODUCER IN THE EUROPEAN UNION



CONSIDERABLE PRODUCTION POTENTIAL

- Annual production capacities : about 40 million tons
- 60 thousand employees
- Total annual revenue: over 13 billion Polish zlotys
- High investments: 1,3 billion zlotys (the year 2012), of which over 50% for OHS improvement
- Rationalization of production costs
- Repayment of more than 88% of liabilities inherited from the past coal companies which were transformed and united under KW S.A.
- Considerable financial assets (shares and stocks of other companies- tourist companies, heating companies, training, protection of property and mining services' companies- including majority shares and control packets)
- Effective management



Three business lines

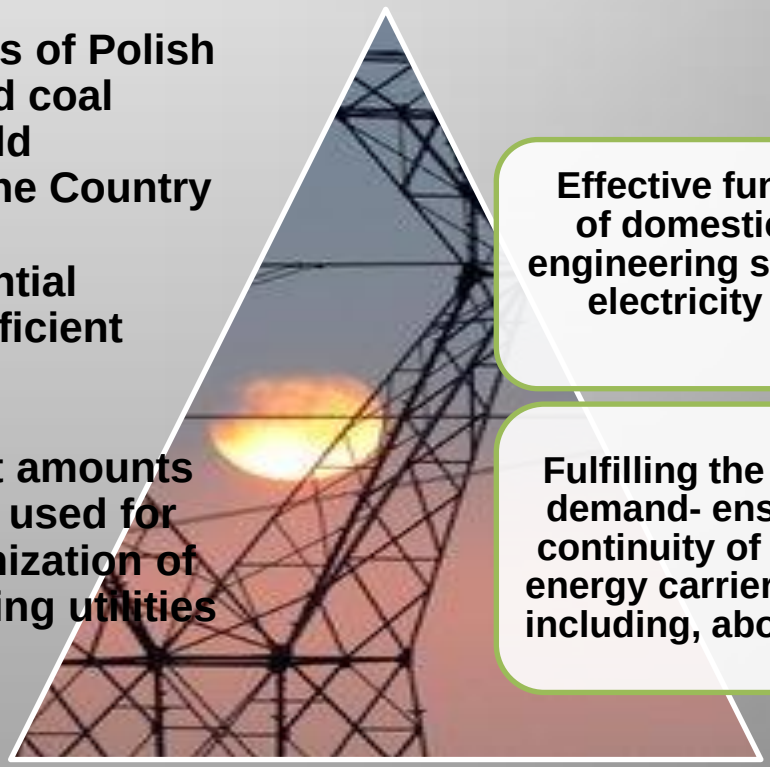
Increase of Company's value as a result of strategic initiatives' implementation:

- Development of a coal-fired power plant with the highest possible energy efficiency
- Development of a new hard coal mine in Lublin Coal Basin

CHALLANGES FACING THE POWER ENGINEERING AND COAL SECTOR IN POLAND

- **It is not possible for Poland to implement radical changes in fuel mix structure in the segment of energy generation in the short term period**
- **The structure of power capacities of Polish power engineering and rich hard coal resources decide that coal should guarantee the energy safety of the Country**
- **Currently, one of the most essential problems of KSE are old, low-efficient power capacities**
- **In the years to come, significant amounts of financial resources should be used for development of new and modernization of already existing power engineering utilities**

The pillars of energy safety of Poland

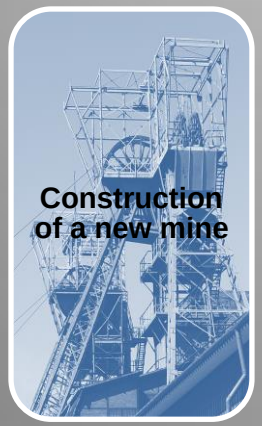


Effective functioning of domestic power engineering system and electricity market

Fulfilling the domestic demand- ensuring the continuity of domestic energy carriers supplies including, above all,coal

THE MOST IMPORTANT UNDERTAKINGS AS A GUARANTEE OF MAINTAINING THE COMPETITIVENESS OF KWSA'S COAL AND FUTURE OF POLISH MINING INDUSTRY

- Diversification of revenue
- Stable coal sale to the company which will be co-owned by KW S.A.
- Partial dependency from the coal market supply and demand fluctuations



- Ensuring the stability of production
- Increasing the resource base
- Improvement of economical efficiency of production

Development of global steam coal prices

- Influence on the financial standing of the Company
- Increase of KW S.A's competitiveness by development of new production capacities

Complimentary relation between the resurce(coal) and product

- Ensuring the additional market for coal - long term contracts guaranteeing profitability in the long term prospect
- The decrease of economical risk of the whole system related to the instability of the hard coal market

Development and construction of a new mine in the Lublin Coal Basin

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WHY IS IT WORTHWILE TO INVEST IN THE REGION OF LUBLIN?

BENEFITS FOR KW S.A.

- Rich and unexploited deposits: geological reserves of Lublin Coal Basin: 9 266 397 thousand tonxs (KW S.A.: 1 034 514 thousand tons)
- More favorable geological structure of LCB deposits: nearly horizontal coal seams beeding, favorable geological structure– less damages on the surface
- Lower costs of mining damages reparation: no previous mining operations, no main communication routes in the area of planned mining activities, lower level of urbanization of the area: Lublin voivodship: 85 people per km^2, Silesian voivodship: 138 people per km^2
- Lower level of natural hazards in the „Pawłów" deposit, which is planned to be exploited. It influences the level of safety of the miners.
- Opportunity of building a mine containing modern technological solutions and providing high daily production output – lower operational costs
- Goodwill of local authorities, which want to cooperate in the aim to develop their own region
- It is assumed that the costs of coal production will be low and comparable to the ones of LW „Bogdanka" SA.

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DEVELOPMENT AND CONSTRUCTION OF A NEW HARD COAL MINE

COMPLETED TASKS AND CONSTRUCTION PLANS

INITIAL CONCEPT OF ACHIEVING THE FIRST OUTPUT FROM THE LONGWALL

	Initial assumptions
Time of designing and construction	about 11 years
Estimated costs of investment	3,7 billion zlotys
Hard coal production	20,0 k t tons per day i.e. about 5 million tons per year
Employment	2 thousand people

The concept requires construction of a mine with one mining section and two main shafts, ventilation and input ones.

The production will be based on two highly efficient longwalls:
- length from 200m to 250m
- advances reaching up to 3 000 m

DEVELOPMENT OF THE „CZECZOTT” POWER PLANT

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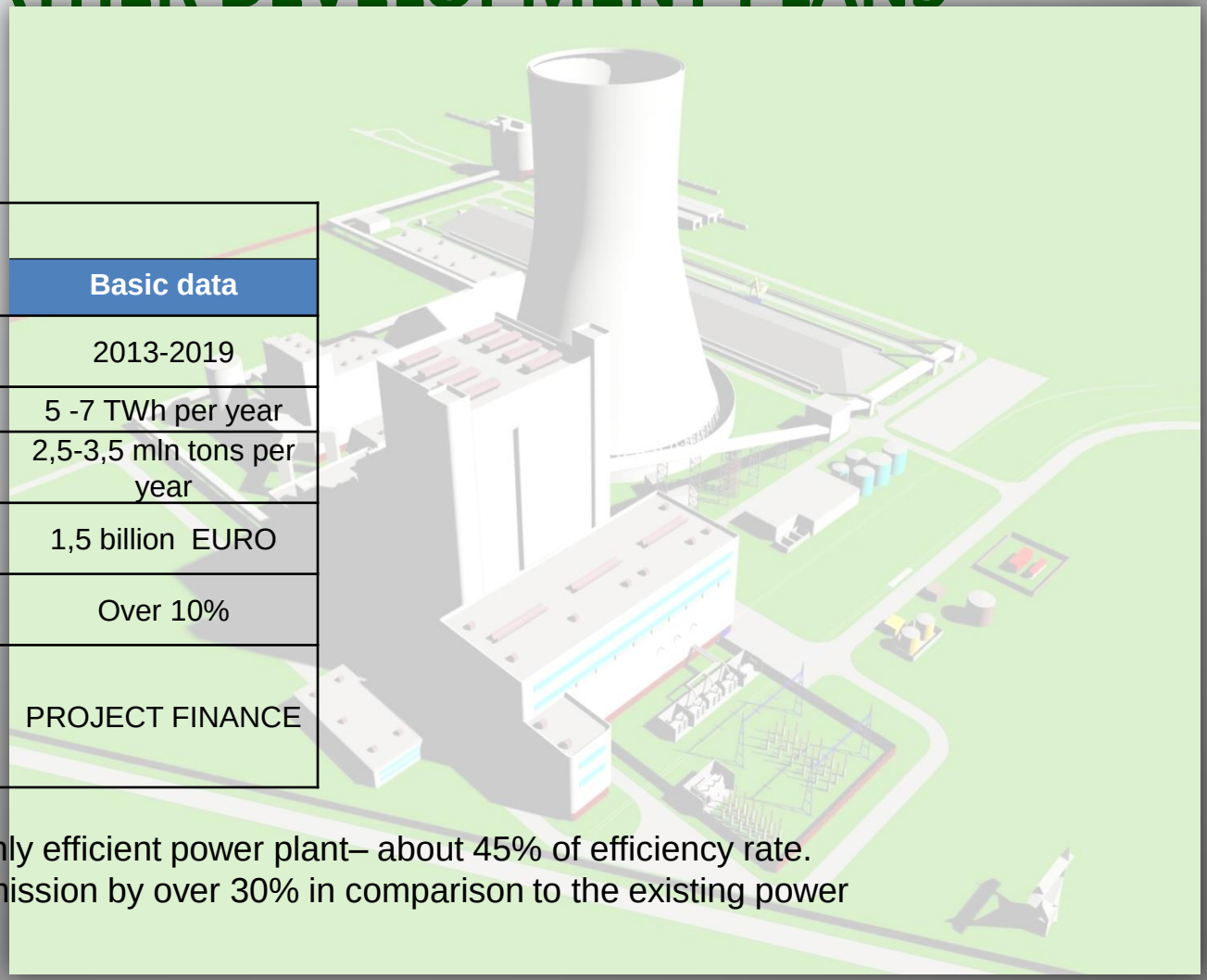
1000 MW POWER PLANT AT PIAST RUCH II COAL MINE (SILESIAN VOIVODSHIP) – COMPLETED TASKS AND FURTHER DEVELOPMENT PLANS

Initial assumptions

	Basic data
Time for design and construction	2013-2019
Production	5 -7 TWh per year
Demand for coal	2,5-3,5 mln tons per year
Estimated cost of investment	1,5 billion EURO
Estimated rate of return	Over 10%
The project is to be implemented under the system of:	PROJECT FINANCE



Development of a highly efficient power plant– about 45% of efficiency rate.
It may reduce CO2 emission by over 30% in comparison to the existing power plants.

PLAN OF REALIZATION OF POWER PLANT CONSTRUCTION PROJECT

- KW S.A. does not have sufficient competence to complete the „Czeczott Power Plant" project on its own
- The project will be implemented as a joint initiative of KW S.A. and a business partner from energy sector
- EPC is a recommended form of business model however, change of method of financing is acceptable after election of a business partner
- The entity responsible for the investment - SPV company established by KWSA and business partner for the energy sector
- The investment shall be financed by equity and debt based funding
- Location – the area of a Piast Ruch II coal mine - former „Czeczott" coal mine

Projected location of „ CZECZOTT" power plant

The arguments for the location:

- Post industrail area with the access to : water, energy, driveways, railway siding
- Main coal suppliers are located in the distance of only a few kilometers, KW S.A. owns a railway track connected with the place of future power plant
- We have already obtained from the PSE Operator the initial conditions of access of the future plant plant to the national energy grids

CONCLUSIONS

- Demand for steam hard coal will increase up to the year 2030 when it reaches the maximum level of 40 million tons
- According to the forecasts, in the year 2030 98 TWh of electricity will be generated from hard coal, the rest from lignite (43 TWh), RES (21 TWh) and gas (13 TWh)
- Since August/September 2011, there is a downward trend in the international coal market. The current price of coal , 86,2 USD per ton – February 2013, remains at the same level as the prices at the beginning of the year 2010.
- At the cost of gas of 300 USD/1000 m^3, the cost of energy generation from hard coal is lower than cost of energy generation from gas
- It is estimated that competitiveness of energy generated from hard coal in comparison to the energy from gas will be maintained, if CO2 emission fee does not exceed the level of 37-40 Euro
- There is a strong relation between hard coal consumption and the level of GDP in Poland

Thank you for your attention