10th Coal Dialogue
„Transforming energy supply in the EU: what can coal and clean coal technologies deliver?”

Coal – fired power plants in the context of the ETS and the Large Combustion Plant Directive: what does EU legislation mean for investors?

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Agenda

1. The Polish Power System.
2. Derogations for the power generators in the Accession Treaty.
4. Adjustments to the IED Directive. Problem regarding BREF LCP.
5. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans.
6. EU legislation in the eyes of investors.
7. Conclusions.

Brussels, 11 June 2014
1.1. The Polish Power System

The Polish Power System in 2013

Fuel structure of the installed capacity as at December 31, 2013

Total – 38.4 GW (coal 82.67%)

Fuel structure of the electrical energy generation

Total – 162.5 TWh (coal 92.73%)

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1.2. The Polish Power System

Forecasted electricity generation fuel structure (net) for 2030 [%]

Source: Annex 2, Polish Energy Policy 2030

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1.3. The Polish Power System

Polish Energy Policy

• Energy Policy until 2035 with a perspective to 2050 under way;

• New Policy must take into account settlements regarding EU decarbonization in 2030 and 2050;

• Coal will remain strategic fuel in Poland guaranteeing energy security;

• Poland, located in the east of EU countries, is particularly dependent on the gas import from Russia.
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2.1. Derogations for the power generators in the Accession Treaty

• Poland has been a member of the EU since May 1, 2004;

• Accession Treaty assumed derogations for the group of installations defined in Annex XII:
  - to December 31, 2015 r. for $\text{SO}_2$,
  - to December 31, 2017 for $\text{No}_x$.

• Generators in Poland operate the installations in line with the law based on integrated permits;

• Outlays on the natural environment protection comprise an important element of the sector operational costs;

• Implementation of the management systems ISO 14001 and EMAS.
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3.1. Modernizations to meet LCP Directive requirements and the repowering

• Necessity to meet new restrictive and costly ecological requirements;

• Modernization of basic installations in the National Power System until 2008:
  - replacement of the Low Pressure parts of turbines in order to improve generation efficiency (profit amounting to 3-4 percentage points),
  - replacement of electrostatic precipitators, partial application of bag filters,
  - construction of wet technology flue gas desulphurizing installations for the basic group of power units 200, 360 and 500 MW;

• Construction of new capacity with supercritical parameters (1780 MW$_e$ from 2008 to 2011);

• Repowering with the application of fluidized-bed technologies;

• Phasing out of old non-economical and non-ecologic installations.
3.2. Modernizations to meet LCP Directive requirements and the repowering

To meet the national target 2030, the energy sector should reduce emissions by 85%.
3.3. Modernizations to meet LCP Directive requirements and the repowering

To meet the national target 2030 the energy sector should reduce emission NOx by 60%
3.4. Modernizations to meet LCP Directive requirements and the repowering

Results of the investment projects related to sulphur dioxide and nitrogen oxides emissions in TAURON Group are shown in the below graphs:

**Sulphur dioxide emissions from TAURON Wytwarzanie installations**

**Nitrogen oxides emissions from TAURON Wytwarzanie installations**
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4.1. Adjustments to the IED Directive. Problem regarding BREF LCP

- Polish generators made choices regarding NOx emission reduction technologies in 2010 and 2011. They were accepted in the modernization plans for the basic power units assuming their operation until 2030 – execution by the end of 2015;

- Part of the operators will use opportunity resulting from the flexible mechanisms, like Transitional National Plan or 17 500h derogation; some installations will become the TSO intervention reserve;

- It is necessary to ensure the installations through the entire period and range possibility to use derogations from BREF LCP for the installations under derogation pursuant to Articles 31 – 35 as well as reasonable approach to power units which underwent modernization in order to meet IED standards;

- BREF LCP causes significant increase of the investment outlays for new power units.
4.2. Adjustments to the IED Directive. Problem regarding BREF LCP

- Draft BREF LCP assumes new requirements and more stringent emission standards for LCP. We are against such proposal because of technological and economic aspects especially with regard to installations which completed modernization so as to meet IED Directive standards;

- We propose to preserve the upper BAT norms for $\text{SO}_2$, $\text{NO}_x$ and dust emissions as stipulated in the Appendix V of the IED Directive and not to add new pollutants to those installations;

- Requirements for the existent and new installations have to be diversified taking into account the fuel type and quality as well as local technological and economic conditions;

- A new, revised BREF LCP Draft should be elaborated in order to eliminate shortcomings in D1 version.

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5.1. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans

- Polish utilities participate in the ETS since 2005. Poland will use coal for the next decades as this fuel is the prerequisite for our energy security especially in the view of the Ukrainian crisis;

- Poland is dependent on the import of crude oil and gas;

- From 2008 to 2011 three power units with supercritical parameters of total capacity amounting to 1,780 MW were commissioned thus commencing the replacement program of old capacities with the application of the highest efficiency technology;

- To ensure significant role of coal in the future generation of electrical energy we need access to CCS or CCU technologies;

- Biomass co-firing or coal to biomass conversion is applied in order to reduce CO$_2$ emissions;
5.2. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans

• Currently, four supercritical coal-fired power units with the total capacity amounting to 3,585 MW are under construction, with net efficiency of 46%; they are to replace old power units with poor efficiency amounting to 32-33% which means CO₂ emission reduction by circa 40%;

• These units will operate after 2050 when there will be no CO₂ in the ETS and there might not be CCS commercially available. They cannot become stranded costs, therefore they require guaranteed free allowances or allowances with limited fixed prices;

• They are indispensable in order to ensure electrical energy for the economy and the end users at acceptable prices;

• As far as EU decarbonization policy 2030/2050 is concerned, compensation mechanisms and guarantees are necessary.
5.3. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans

Roadmap 2050 – green-house gases emission reduction in the EU to 2050

EU GHG emissions towards an 80% domestic reduction (100% =1990)
5.4. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans

Power sector fuel structure in 2050 acc. to European Commission

PCR: electricity generation structure

Result:
- Loss of jobs in the mining industry,
- Growing fuel import Dependancy.
5.5. Challenges resulting from the ETS Directive and EU economy and power sector decarbonization plans

Reduction scale and CO₂ emission caps scenarios for sectors under ETS

Current EUA: -1.74% pa

EUA – 2.2%

EUA: -3% pa

2063 – „zero” cap with 1.74%

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6.1. EU legislation in the eyes of investors

• It is necessary to define clear goals for the energy – climate policy in the EU and particular Member States for the years 2030/2040/2050 and reconsider the future of coal in the European fuel mix;

• The targets for the Member States have to be realistic;

• The energy – climate policy targets should take into account the security of supply, competitiveness and sustainable development of the EU and Member States;

• Fuel mix for the electricity generation in the EU countries should take into account shares for hard coal and lignite, gas, RES and nuclear energy;

• We are against the „leading by example” policy in the global agreement negotiations regarding green-house gases emission reduction. Europe by itself can not stop the climate changes;
6.2. EU legislation in the eyes of investors

• Political intervention in the ETS system aiming at artificial increase of the CO₂ allowances price (backloading, MSR) is unacceptable;

• Climate goals must take into account commercially available technologies. Decarbonization goals should be adjusted to the existing combustion technologies until the CCS and CCU (or other clean combustion technologies) have been commercialized;

• All fuel options should remain open for member states especially taking into account domestic fuel resources;

• We propose to reconsider the possibility of going back to national CO₂ reduction goals taking into account GDP as well as the „ability to pay”; current ETS system does not take into account differences between MS with regard to fuel mix and the states’ wealth;
6.3. EU legislation in the eyes of investors

• As far as the energy security is concerned we propose setting a law allowing the Member States priority access to the grid for a defined amount of electrical energy generated from domestic fuels inclusive of coal;

• Stability and predictability of legal framework is of key importance to provide investors with confidence;

• Investors and installation operators have limited confidence in the EU energy – climate policy; its outcome is viewed negatively in Poland because, among others:
  - there is an increase of generation costs and electrical energy prices resulting from CO₂ reduction requirements and development of RES,
6.4. EU legislation in the eyes of investors

- market mechanisms experience disruptions, regional power systems are unstable due to excessive RES subsidizing in Germany,
- investments in new conventional capacity are postponed or held up,
- some energy-intensive sectors witnessed decline in competitiveness resulting in shifting the operations from Europe to the US and Asia,
- in the perspective to 2050 Poland may witness loss of GDP of circa 12.5%,
- electrical energy prices will go up by 75% compared to the liberal policy.
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7.1. Conclusions

• Coal rehabilitation in the EU is a prerequisite of the power independence. Coal cannot be discriminated as it is a vital element of the energy security of Poland and the entire EU;

• „Clean Coal Technology” development is indispensable;

• Launch of the capacity remuneration system is indispensable in order to maintain the existing conventional generation and to create an appropriate atmosphere for the construction of new installations;

• ETS was developed to obtain CO₂ emission reduction based on market mechanisms at lowest cost. Interference into ETS is unjustified;
7.2. Conclusions

- Ambitious EU climate goals should not jeopardize power security as well as the competitiveness of the economy and energy-intensive companies;

- Poland and Europe need coal for the generation of electrical energy with the application of clean technologies so as to improve energy independence;

- New restrictive emission standards account for increase of the costs and premature phasing out of conventional capacities;

- Coal fired power plants can deliver cheap, reliable, flexible and clean electricity for the next decades;

- Erasing coal from the fuel mix means loss of jobs in the mining industry and in the factories producing equipment for the PP.
Thank you for the attention

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