

NEW EMISSION STANDARDS – a new reality for the coal power sector

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On 28 April, representatives of the member states adopted the BAT conclusions (the so-called BREF document), which introduce new emission standards for coal-fired power plants. On 17 August, these conclusions have been published in the Official Journal of the European Union, which means that in the coming four years, energy groups will increase their expenses by billions of LEI (RON) on modernising exhaust fumes and waste water purification systems. Shortly afterwards, energy groups will see another revision of the best available techniques and will need to comply with even stricter limitations. For coal-fired electric utilities this means not only additional expenses, but also recalculating the profitability of their operations to make an informed decision about whether further modernisation is economically viable or if coal units should be phased out.

Tighter existing emission limit values and new standards

On 17 August 2017 the European Union not only effectively tightened the emission standards for sulphur dioxide (SO₂), nitrogen oxides (NO_x) and dust (PM), but also introduced new emission standards for mercury (Hg), hydrogen chloride (HCl) and hydrogen fluoride (HF), and revised the permitted pollution levels for waste water generated for large combustion plants.

Table 1. New emission standards for existing coal combustion plants – annual average in mg/Nm³ (data for pulverized coal boilers)

mg/Nm ³	Current limit values – IED	New limit values – BAT conclusions	Change (%)
Sulphur dioxide (SO ₂)	200	10–130	-35%
Nitrogen oxides (NO _x)	200	65–150 h.c.	-25%
		85–175 lig.	-13%
Dust	20	2–8	-60%
Mercury (Hg) in µg/Nm ³	none	1–4 h.c.	n/a
		1–7 lig.	n/a
Hydrogen chloride (HCl)	none	1–7*	n/a
Hydrogen fluoride (HF)	none	1–7*	n/a

h.c. – hard coal; lig. – lignite

** Units with a wet flue gas desulfurisation system*

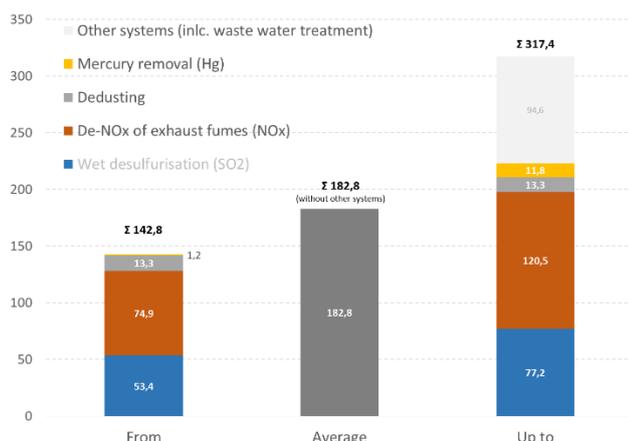
Source: Greenpeace own research based on the BAT conclusions dated 28 April 2017

Modernisation and high expenses in all power plants in Romania

All coal-fired power plants in Romania will require modernisation to conform to the tightened emission standards. The estimated total capital expenditures (CAPEX) required to adapt the coal power sector total around EUR 1.6 - 1.9 billion. Most of this amount will be utilised to construct new installations or upgrade the existing systems that reduce SO₂ and NO_x emissions to more advanced ones, including wet flue gas desulfurisation systems that use more substrate or selective catalytic reduction of NO_x (SCR).

The average cost of modernising 1 GW in the case of a lignite-fired power plant in Romania is estimated at around EUR 183 million (without taking into account requirements regarding waste water treatment), whereas the actual expense can vary depending on the extent of works. It may especially be higher if a new desulfurisation installation needs to be constructed (see Fig. 1).

Fig. 1 The estimated cost of modernising 1 GW in the case of a lignite-fired power plant, in million EUR



Source: Greenpeace, own research, August 2017

High expenditures (CAPEX) on modernisation are not the only reason for higher outlays in the energy sector in the coming years. The operating costs of businesses will also increase as a result of the higher maintenance costs of the new installations, which will require substrates for the exhaust fumes purification process. We estimate that these costs will represent around 7-8% of the outlays on modernisation annually. Electric utilities will also need to find physical room for expansion or installation of a new purification system.

Expenses on modernisation will need to be made before 2021

The starting point for modernisation in Romania does not look optimistic. Today more than a half of the 28 power units do not meet emissions standards set in the current permits (not talking about newly adopted standards) or are even operating without a valid permit. The examples of power plants operating without a valid permit include: Mintia (Deva), Govora, Paroseni. At the same time there is no single power plant that would be (as a whole) BREF-compliant.

In these circumstances the energy companies and relevant authorities are given the deadline for making the installations conform to the new standards in 4 years following the publication of the BAT conclusion in the Official Journal of the European Union, which occurred on 17 August 2017. During this period, the relevant authorities will need to review the existing (valid and not valid) integrated permits and examine the possible

applications for exemption, whereas the businesses will need to draw up the Specification of Essential Terms of Contract and organise a tender, sign a contract and carry out the necessary works. The last step alone, namely the construction and assembly works, are estimated to take around two years to complete. Considering certain examples from the market, the entire modernisation process is likely to take even 4 to 6 years to complete.

In the case of facilities which do not conform to the emissions standards under the Industrial Emissions Directive (IED) that have been in force since 1 January 2016, as they are subject to the derogation under the Transitional National Plan (TNP), it will be necessary to review the modernisation activities that have so far been carried out to conform to the IED, to incorporate changes that are necessary to meet the new standards under the BAT conclusion. Energy groups will need to determine whether it is economically feasible to continue the modernisation process, given the cyclical reduction of the emission standards as well as the age of the Romanian power plants. Huge majority (above 85%) of all power units in Romania are more than 30 years old. After 17 August, installation operators need to ask themselves the question whether further modernisation of units dating back to the 1960s, 70s and 80s makes sense or perhaps they are a bottomless pit. This is the time to make strategic decisions, perhaps even to phase out coal units.

Exemption from the new standards only in extraordinary situations

Article 15(4) of the Industrial Emissions Directive, IED hereinafter, permits exemptions from the new emission limit values. It may apply only in specific cases, namely if the costs of modernisation are disproportionately high compared to the environmental benefits. Decisions regarding exemptions are made by the relevant authority (in many Central Eastern Europe countries this is the same authority which is responsible for granting permits - Agenția Națională pentru Protecția Mediului, respectiv Agențiile Județene pentru Protecția Mediului). However, the exemption cannot set less restrictive limits than those imposed by the IED, said limits being in force since January 2016.

One may expect many tendering procedures and modernisation projects over a short period of time

(effectively involving all energy groups in Romania at the same time) as well as the potential delays (and the resulting pressure on completion dates), which may temporarily increase the prices and, as a result, the estimated costs of modernisation

presented earlier in this article. A detailed description of the possible action scenarios for the installation operators and an action timeline have been presented on Fig. 2.

Fig. 2. Timeline and action scenarios for energy groups

Timeline and action scenarios for energy groups



Source: Greenpeace, own research, August 2017

Additional market risks

The new regulations that oblige electric utilities to make considerable outlays on modernisation and the ensuing higher operational costs are just one aspect of the market risk. The risk is further augmented by the fact that the power plant modernisation efforts are cyclical. New and tighter emission standards can be expected in the next 4 years (around 2021) and a new time window for their implementation shall begin. This fact should be incorporated into modelling of the profit and loss as well as cash flow of energy companies. This results in the fact, that the potential valuations of energy companies (carried out with the DCF method), which may be willing to enter the stock exchange, may be virtual, as they are based on cash flows at risk from remote future, so ultimately on the terminal value. This may heavily lower the attractiveness of the company willing to proceed with the IPO. Such company would have to disclose any risks that a potential shareholder may face when buying shares – including relevant environmental and

climate change factors impacting value of the shares.

Also raising capital for financing all of the initiatives and modernisation will be a major market challenge for energy companies, in our opinion. The banks are and will be under more and more pressure from the society, who voice their worrying about the effects of climate change.

The new regulations are a harsh reality for energy companies and future potential investors

The new emission standards and their cyclical increases as well as the risks outlined above will soon force electric utilities to review the economic feasibility of their operations. The new standards and the market environment further undermine the financial condition of the energy sector. This perspective certainly deters potential, future investors. The high risk involved in investing in coal energy is already clear to the

investors from Europe, where in many countries businesses ceased investing in coal.

The new emission standards and the outlined risks also force power plant operators in Romania to run thorough economic analyses and may prompt them to phase out the existing coal-fired units and abandon the plans to construct new coal capacity.

QUESTIONS FOR INVESTORS

1. Are installation operators ready to quickly implement the BAT conclusions and have they secured the financing for the new exhaust fumes purification systems?

2. Have energy companies presented the possible action scenarios, the actual expenses on modernisation, the estimated increase in operating costs as well as the impact on the future financial performance?

3. Considering all of the planned and announced investments and expenses, what will be the debt ratio of energy companies, how much will financing cost and who will provide it?

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