

EEB contribution to State Aid SA.53625 (2020/N) Germany – Lignite phase-out

Introduction: State aids and the EU funding principles

At the time of the European Green Deal (EGD), State aid decisions play a pivotal part in promoting the energy transition and channelling funds towards desired innovation for which public support may be justified.

In the public consultation initiated by Vice President Vestager in November 2020, we already submitted a series of general recommendation concerning the basis on which State aid decisions and EU competition law related assessment should be made to make them compatible with the EGD¹. We would like to recall the main points here:

- The application of Art. 107 TFEU should be accompanied by the consideration and enforcement of other likewise important TFEU articles, such as Art. 11² and Art. 191 (polluter pays principle).
- EU's competition policy should be more rigorous in addressing negative externalities and consider them as market failures that must be fixed (at the present case by energy operators). This would ensure a level playfield among different energy players and reduce the health, economic and environmental burden on society due to air and water pollution.
- Competition law cannot be used as a shield to hide environmental performance information. On the contrary, operators must guarantee a higher level of transparency.
- State aid policy should be aligned with the long-term targets of the Union, not only the 2050 climate neutrality target, but its wider zero pollution ambition.

Comments on the doubts expressed by the European Commission

The EEB has an interest in this procedure within the meaning of Article 1(h) Regulation (EU) 2015/1589.

The EEB generally supports the concerns and doubts expressed by the European Commission concerning the legality of the DE State aid “SA.53625 Deutschland

¹ See EEB input here <https://eeb.org/library/competition-policy-supporting-the-green-deal-goal-eeb-contribution/> (19/11/2020)

² “Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development.”

Kohleausstieg” herewith “German government coal compensations” or “German state aid application”. We welcome that an investigation procedure has been opened.

Our past contributions addressing the German strategy to phase out coal have noticed several breaches of pivotal EU principles enshrined in the Treaties, as well as more specific provisions related to competition policy. Particularly, we think that:

- The German coal compensations plan violates the polluter prevents and polluter pays principle enshrined in Article 191(2) TFEU and environmental law derived therefrom.
- The calculation method used by the German government fails to subtract negative externalities from the aid, such as carbon debt and air and water pollution costs derived from continued operation.
- The aid covers rehabilitation costs of lignite mines, which should be excluded because of the polluters pay principle, as well as to ensure a level playfield with other EU energy operators that did not get public money to rehabilitate their mines.
- The aid fails to provide an incentive effect.
- The “compensation” approach is unproportionate and unjustified.

In a joint NGO letter of 11 September 2020 addressed to Vice President Vestager, Vice President Timmermans and Commissioner Sinkevičius³ CAN-EU, Greenpeace and the EEB have already raised five fundamental flaws in the German coal phase out law, strongly linked to the German government coal compensations that need to be rectified:

- It will promote business as usual for lignite operators, and in some cases even prolong operation. This scheme also deteriorates the market value of renewable energy sources in various ways.
- Aid is not conditioned to full implementation of Union standards, such as Best Available Techniques for Large Combustion Plants, including energy efficiency performances.
- It entails “compensation” to polluters without clarity on the calculations, whilst the negative externalities of their activities (e.g. air pollution and water impact from mining) are not even addressed; covering re-cultivation costs is also in clear breach of the ‘polluter pays’ principle.
- A special conversion bonus to support gas combustion is provided.

³ Joint NGO letter of 11/09/2020 <https://eeb.org/library/letter-to-the-european-commission-on-german-state-aid-for-coal-phase-out/> and annex <https://eeb.org/library/annex-to-the-letter-to-the-european-commission-on-german-state-aid-for-coal-phase-out/>

- It does not prohibit expropriations due to continuation of lignite mining.

Those flaws have not been corrected so far, therefore the German state aid application scheme in the current form shall be rejected.

The EEB supports comments made by its members, notably by Client Earth and Grüne Liga, relating to the compensations to LEAG⁴. We would like to supplement previous input with the following additional points.

I. Lignite units have earned their Return on Investment much earlier than the 60 years assumed (overestimation of expected profits)

Historically, coal plants have retired at an average lifetime of 46 years globally, even though in some cases they can operate for 50–60 years⁵. Nevertheless, given the present state of the energy market, we assume that operators would want to dismantle them as soon as possible to limit losses but, to stay conservative, we assume that they decide to stick with the average lifetime. We also quantify an average Return of Investment (RoI) of 14 years⁶; given its relatively low capital costs, coal plants can generally recover its initial investment capital quite early in the plant lifetime.

Operator	Name of unit	Opening date	RoI date	BAU closure date	Coal law closure date
RWE	Niederaussem C	1965	1979	2011	2022
RWE	Niederaussem D	1968	1982	2014	2021
RWE	Niederaußem G	1974	1988	2020	2030 or 2034
RWE	Niederaußem H	1974	1988	2020	2030 or 2034
RWE	Niederaußem K	2003	2017	2049	2039
RWE	Neurath A	1972	1986	2016	2022
RWE	Neurath B	1972	1986	2016	2022
RWE	Neurath D	1975	1989	2021	2023
RWE	Neurath E	1976	1990	2022	2023
RWE	Neurath F	2012	2026	2058	2039
RWE	Neurath G	2012	2026	2058	2039
RWE	Weisweiler E	1965	1979	2011	2021 or 2025
RWE	Weisweiler F	1967	1981	2013	2021 or 2025
RWE	Weisweiler G	1974	1988	2020	2028 or 2029
RWE	Weisweiler H	1975	1989	2021	2028 or 2029
LEAG	Jänschwalde A	1981	1995	2027	2029
LEAG	Jänschwalde B	1982	1996	2028	2029

⁴ https://www.kein-tagebau.de/images/dokumente/210531_ugc_stellungnahme_beihilferecht_de.pdf

⁵ <https://www.nature.com/articles/s41467-019-12618-3>

⁶ <https://energycentral.com/c/ec/what-are-risks-related-coal-power-plant-investment>. The major assumption here is the lack of CO₂ costs, which only started in 2006 and became a significant cost much later.

LEAG	Jänschwalde C	1984	1998	2030	2029
LEAG	Jänschwalde D	1985	1999	2031	2029
LEAG	Boxberg N	1970	1984	2014	2030
LEAG	Boxberg P	1980	1994	2024	2030
LEAG	Boxberg R	2012	2026	2058	2039
LEAG	Boxberg Q	2000	2014	2046	2039
LEAG	Schwarze Pumpe A	1997	2011	2041	2039
LEAG	Schwarze Pumpe B	1997	2011	2041	2039
LEAG	Lippendorf R	2000	2014	2046	2036
EnBW	Lippendorf S	2000	2014	2046	2036
<i>Table 1</i>					

Table 1 shows that the RoI has already been reached by all except 3 units that went in operation in 2012 (RWE's Neurath F and G and LEAG's Boxberg R).

The table reveals also that the German compensation scheme foresees an earlier-than-BAU closure date only for 11 units. In our opinion, the other ones should not be entitled for any compensations in the first place: either should have been already closed or should close soon to limit losses due to the increasingly bad coal economics.

The argument that operators should be entitled for future profits over a long lifetime period is not tenable; as a matter of fact, loss-making assets should be dismissed and not artificially kept alive through public compensations. Moreover, the need for coal plants to shutdown is not just an investment decision, but also vital for the ambitious goals set by the EGD.

Taxpayers must not be held responsible for poor business decisions by private companies, but also the public purse must not be used to improve profit margins for private companies and their shareholders; public support should instead be re-routed to sustainable alternatives (here non-combustion based renewable energy generation or demand side management).

II. Underestimation of costs for the operators: carbon pricing

The German coal compensation plan does not account for the rising price of carbon emissions, which will increasingly rise due to the new 2030 EU targets ("Fit for 55" package) and the EU's international commitments under the Paris Agreement, which require to phase out coal by 2030 at the latest. The EU also advocates the stop of financing fossil fuel-based infrastructures⁷.

⁷ <https://www.consilium.europa.eu/en/press/press-releases/2021/01/25/council-adopts-conclusions-on-climate-and-energy-diplomacy/>

Vice-President Timmermans affirmed that *“the price [of CO₂] should be much higher than it is even at €50. But that’s up to the market⁸”*.

We strongly support what the Commission states concerning the adequacy of foregone profits against the rising price of CO₂ and, in general, against the present outlook of the energy sector. The plan presented by the German government includes projections (20.74 € in 2025 and 35.67 € in 2040⁹) as to EUA prices which are incongruous with its actual trend. Presently, the price of CO₂ has reached 51.40 €/tCO₂¹⁰; in the last year, it has grown by 170%.

Nevertheless, the current carbon cost does not reflect the true cost of CO₂: according to an OECD report on carbon pricing policies¹¹, prices are *“still well below estimates of the real cost to the planet of CO₂ emissions”*. The report reviews the excise taxes, carbon taxes and emissions permit prices that make up carbon pricing measures in 44 OECD and G20 countries, driving 80% of energy’s global carbon emissions. It found that as of 2018, only 10 of the countries were pricing carbon at even half the 60€/t benchmark, which, the OECD says, is a mid-range estimate of the real cost of CO₂ emissions for 2020 and a low-end estimate for 2030. It also found that 55% of carbon emissions from energy use in the 44 countries were *“entirely unpriced”*, whereas *“120 €/t CO₂ is a central estimate of the carbon price needed in 2030 to decarbonise by mid-century under the assumption that carbon pricing plays a major role in the overall decarbonisation effort. 120 € is also more in line with recent estimates of overall social carbon costs”*.

The DG Move “Transport Cost Handbook” (2019) study confirms a central estimate of **105 €/tCO₂**, but sets also a higher estimate level set to **199 €/tCO₂**¹².

As illustrated in table 2, we consider different scenarios concerning the impact of the rising CO₂ price on the 10 RWE units, the 11 LEAG units and the ENBW unit that still have a reasonable future lifetime (see table 1). For this purpose, we only consider the plants that may be operational after 2023. At the CO₂ price of 120 €/t, RWE will pay in ETS allowances more than 1 billion € only for two units in Neurath, whereas LEAG would pay 3.4 billion € for its seven more modern units.

⁸ <https://www.euractiv.com/section/emissions-trading-scheme/news/eu-climate-chief-warns-against-curbing-carbon-price-rally/>

⁹ Footnote 24 of the letter sent by the Commission to the German government

¹⁰ <https://www.investing.com/commodities/carbon-emissions-historical-data>

¹¹ OECD, Effective Carbon Rates 2021: <https://www.oecd.org/tax/tax-policy/effective-carbon-rates-2021-highlights-brochure.pdf>

¹² see notably ETC/ATNI Report 04/2020 “Cost of air pollution from industrial facilities 2017-2020” <https://www.eionet.europa.eu/etcs/etc-atni/products/etc-atni-reports/etc-atni-report-04-2020-costs-of-air-pollution-from-european-industrial-facilities-200820132017>

At the EUA carbon cost of 50€/t, the allowance cost for RWE would be 1.5 billion € and for LEAG 1.9 billion € per year of operation for the units set out below. We consider the price estimate of 120€/t as reflecting more adequately the cost estimate of climate debt, they are further estimated within Table 4 (under section III point a).

Operator	Unit	CO ₂ emissions (Mt, 2020)	CO ₂ allowances 2020 (M€, 25 €/t average price)	CO ₂ allowances at 50 €/t (M€, current trend)	CO ₂ allowances at 120 €/t (M€)
RWE	Niederaußem G	2	52	103	248
RWE	Niederaußem K	3	76	152	365
RWE	Neurath C	1.3	33	66	158
RWE	Neurath D	2.7	68	136	326
RWE	Neurath E	2.7	68	136	326
RWE	Neurath F	4.6	116	232	557
RWE	Neurath G	4.6	116	232	557
RWE	Weisweiler F	1.7	44	87	209
RWE	Weisweiler G	3.2	81	161	388
RWE	Weisweiler H	3.2	80	160	384
Subtotal RWE (annual)			733	1,466	3,519
LEAG	Jänschwalde A	2.3	56	113	273
LEAG	Jänschwalde B	2.3	56	113	273
LEAG	Jänschwalde C	2.3	56	113	273
LEAG	Jänschwalde D	2.3	56	113	273
LEAG	Boxberg N	3	74	149	358
LEAG	Boxberg P	3	74	149	358
LEAG	Boxberg R	4	100	201	482
LEAG	Boxberg Q	5.4	135	270	648
LEAG	Schwarze Pumpe A	5.1	128	257	617
LEAG	Schwarze Pumpe B	5.1	128	257	617
LEAG	Lippendorf R	4.1	103	207	496
Subtotal LEAG (annual)			973	1,945	4,669
EnBW	Lippendorf S	4,1	103	207	496

Table 2

In table 3, we conceded a less steep CO₂ price curve; starting from the present situation (50 €/t) and considering a 2030 price of 89 €/t¹³. A linear allowance cost growth from 2021 to 2039 is assumed for each unit until the closure foreseen by the German coal law. In this case, we limited our analysis to the units with an earlier-than-BAU closure date.

Operator	Unit	CO ₂ emissions (Mt, 2020)	Closure year	Total allowances (M€)
RWE	Niederaußem K	3	2039	4,813
RWE	Neurath F	4.6	2039	7,338

¹³ <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/120320-analysts-see-eu-carbon-prices-at-eur56-eur89mt-by-2030>

RWE	Neurath G	4.6	2039	7,338
Subtotal RWE (annual)		12.2		19,489
LEAG	Jänschwalde C	2.3	2030	1,388
LEAG	Jänschwalde D	2.3	2030	1,388
LEAG	Boxberg R	4	2039	6,357
LEAG	Boxberg Q	5.4	2039	8,542
LEAG	Schwarze Pumpe A	5.1	2039	8,129
LEAG	Schwarze Pumpe B	5.1	2039	8,129
LEAG	Lippendorf R	4.1	2036	5,034
Subtotal LEAG (annual)		28.3		38,967
EnBW	Lippendorf S	4.1	2036	5,034
<i>Table 3</i>				

Under this scenario, **the carbon allowance costs for the above-mentioned units will be in the range of 19.5 billion € for RWE and 39 billion € for LEAG.**

In such a reasonable scenario not only profits are impossible, but “compensations” provided by the State have no sound basis, let alone fundamentally contradict the polluter pays principle. We regard this “compensation” approach rather a misadministration of public funds; those public sums should instead be invested in sustainable renewable energy sources or energy demand reduction.

Moreover, the think-tank EMBER and Greenpeace have obtained the calculation method used by the German Government, which was hidden from the public and considered as confidential, but nevertheless disclosed after a formal access to document request procedure. The analysis confirms the previously highlighted points and flaws¹⁴, namely:

- Electricity and CO₂ prices were chosen arbitrarily.
- It was assumed that no fixed costs would be saved with the early closures.
- Lignite operators are compensated for a period of 4 to 5 years after the units close, but there is no sound justification for this.

The calculation seems to be methodologically and structurally based on the compensation formula for the security reserve (“Sicherheitsbereitschaft”) agreed in 2015¹⁵. Using the alternative scenario and assumptions that would not yield a systematic overevaluation of compensation payments, as proposed by the German government, would bring the compensation sum from 4.4 billion € to max 143 million € (assuming EUA price of 50€/t).

¹⁴ EMBER: Analysis of German lignite compensation, May 2021, at: https://www.greenpeace.de/sites/www.greenpeace.de/files/ember-assumption_of_german_ministry_of_economics.pdf and <https://ember-climate.org/wp-content/uploads/2021/05/Assumption-of-German-Ministry-of-Economics.pdf>

¹⁵ See Section 13g Energy Industry Act/§ 13g Energiewirtschaftsgesetz (EnWG)

We strongly encourage the Commission to consider the alternative assumptions for the calculation method, namely:

- using forward prices as of 5th May 2021, EMBER uses the current 50€/t EUA assumption. We consider that level as more realistic, but not corresponding to the real damage costs (see section III point a), nor to the reality of EUA price trends. Moreover, it does not factor in the other air pollutants or externalities (see section III).
- critically assess the fixed cost savings potential, also factoring possible retrofit cost avoidance due to EU Best Available Techniques pollution prevention standards (see Section III point b).

Lastly, even the German Federal Environment Minister Svenja Schulze recognised that, due to the fundamentally different energy scenario we are experiencing, the end of the last coal-fired power plant in Germany will be in less than ten years¹⁶. During an energy conference in Berlin, she said that *"the coal phase-out will come faster than previously planned"* due to the tightened EU climate target and the associated price increase for rights to CO₂ emissions, *"we will probably no longer convert coal into electricity in Germany by 2030"*. Also, Economics Minister Peter Altmaier predicted that he expects an earlier end to coal power. In such a context, compensations would be an intolerable waste of public money.

III. Failure for proper accounting for externalities (air and water pollution) and factoring in liabilities.

Environmental pollution constitutes a negative externality, which is a market failure. As confirmed by a study commissioned by the JURI committee of the European Parliament¹⁷: *"From an economic perspective environmental pollution is a negative external effect, also referred to as an externality. Since polluting companies do not feel the negative consequences of the harm they inflict outside of their enterprise, this is described as an external effect. It is, moreover, a negative external effect as it imposes costs rather than confers benefits on third parties. Such a negative external effect can create a market failure. If polluters are not forced to pay for the external effects they create through their activities, the problem arises that the social costs created by pollution would not be incorporated in the relative products and services of the particular company. Since the externality is not taken into account and the polluter does not invest in pollution abatement, relative prices will be too low and consumers will demand too much of a product or service that creates high costs for society. Pollution creates in other words, a market failure. Companies would in that hypothesis be allowed to externalize costs, in other words to impose the costs of pollution on society."*

¹⁶ <https://www.reuters.com/article/deutschland-kohle-schulze-idDEKBN2C71IV>

¹⁷ <https://www.europarl.europa.eu/committees/en/workshop-on-liability-of-companies-for-product-details/20201023WKS03021>

In the following paragraphs we will calculate the cost of pollution imposed by RWE and LEAG to society, a cost that should be taken into account by the Commission whenever a State aid decision is taken, since this constitutes a market failure and its consideration is in the wider interest of society and private investors.

a. Failure to internalise carbon debt (climate cost)

We argue that the expected GHG cost is not properly accounted for and do not reflect the expected “fixed costs” for operation. Assuming a continued modest EUA price of 50€/t, one year of operation of the RWE units would cost about 1.5 billion € in terms of CO₂ allowances, corresponding to 58% of the entire “compensation” budget foreseen. For LEAG a modest EUA price of 50€ would correspond to about 2 billion € for one year of operation of its units, which is more than the entire “compensation” budget foreseen.

However, we consider the real carbon debt to be much higher. If the externalities were fully integrated, the polluters should be liable for a shadow carbon price set forward by DG MOVE and the OECD to a level of **120 €/tCO₂**. We therefore argue that the operators (RWE and LEAG) should not receive a “compensation” but be held accountable for the full carbon debt due to continued operation up to the closure date set for all of its units, irrespective of whether these close prior to 2030 (eligible for “compensation”) or after 2030 (not eligible for “compensation”). The mother company should be held accountable for its business choices and its impacts on environmental protection and climate. Table 4 below sets out the level of the expected carbon debt.

If RWE were to run its units beyond 2021 and under the current phase out dates and scientifically accepted minimal carbon costs, it should be held accountable for a compensation of the **carbon debt of 26.5 billion €**.

If LEAG were to run its units beyond 2021 and under the current phase out dates and scientifically accepted minimal carbon costs, it should be held accountable for a compensation of the **carbon debt of 42.4 billion €**.

If EnBW were to run its Lippendorf R unit beyond 2021 and under the current phase out dates and scientifically accepted minimal carbon costs, it should be held accountable for a compensation of the **carbon debt of 6.6 billion €**.

If Saale Energie were to run its Schkopau units beyond 2021 and under the current phase out dates and scientifically accepted minimal carbon costs, it should be held accountable for a compensation of the **carbon debt of 4.4 billion €**.

Assuming these cost estimates, reflecting the central estimate of carbon damage cost by 2030, **by 31.12.2038 RWE will spend almost 26.5 billion € in carbon allowances for its units, LEAG will have to disburse almost 42 billion €. This is almost sixteen times the public sums the German government wants to pay out to the polluters.**

Operator	Unit	CO ₂ allowances at 120 €/t (M€)	Carbon debt in M€ (only 2020)	Carbon debt up to phase out assuming EUA price stay at 50€/t (M€)
RWE	Niederaußem C	121	71	141
RWE	Niederaußem D	116	67	67
RWE	Niederaußem G	248	145	1,447
RWE	Niederaußem H	248	145	2,026
RWE	Niederaußem K	365	213	4,050
RWE	Neurath A	158	92	184
RWE	Neurath B	158	92	184
RWE	Neurath C	158	92	184
RWE	Neurath D	326	190	571
RWE	Neurath E	326	190	571
RWE	Neurath F	557	325	6,175
RWE	Neurath G	557	325	6,175
RWE	Weisweiler E	223	130	260
RWE	Weisweiler F	209	122	610
RWE	Weisweiler G	388	226	1,808
RWE	Weisweiler H	384	224	2,018
Subtotal RWE (annual)		4,543	2,650	26,471
LEAG	Jänschwalde A	273	275	1,649
LEAG	Jänschwalde B	273	159	1,274
LEAG	Jänschwalde C	273	159	1,433
LEAG	Jänschwalde D	273	159	1,433
LEAG	Boxberg N	358	209	1,877
LEAG	Boxberg P	358	209	1,877
LEAG	Boxberg R	482	282	5,349
LEAG	Boxberg Q	648	378	7,188
LEAG	Schwarze Pumpe A	617	360	6,840
LEAG	Schwarze Pumpe B	617	360	6,840

LEAG	Lippendorf R	496	444	6,655
Subtotal LEAG (annual)		4,669	2,993	42,415
EnBW	Lippendorf S	496	444	6,655
Energie Saale	Schkopau	178	291	4,360
<i>Table 4</i>				

b. Failure to internalise air pollution damage costs.

In this section we would like to provide a rough idea of the dimension of market failure linked to air pollution caused by RWE and LEAG.

Air pollution from those plants is regulated by the Industrial Emissions Directive (IED)¹⁸. The Directive requires the compliance with the EU Best Available Techniques (BAT) for Large Combustion Plants (LCPs)¹⁹ that Member States must enforce by latest 17 August 2021. The German government voted against them in order to protect its lignite industry from costly compliance with stricter environmental performance benchmarks. Even today, German operators resist to comply with tighter emission levels achievable using dedicated air pollution controls and BAT levels on boiler efficiencies.

The BAT are by definition based on economically and technically viable conditions for the operator; those standards are based on emissions data dating back from 2010, have been agreed in 2017 and are due to be complied with by mid-August 2021. Nevertheless, the German government is to transpose the EU standards using the most laxist EU permitted levels, not what is economically and technically achievable to the operators. One of the main arguments by the German Ministry against the tightening of emission levels was that the coal phase out dates were politically agreed, and stricter air pollution standards should not lead to earlier coal closures.

The calculations we make below are rough estimates due to a lack of data transparency by the operators and failure of reporting by the German government²⁰. We encourage the Commission to ask the operators and the German authorities for providing up-to-date data about the NOx and mercury parameter on the lignite units. The German authorities failed to comply with COM implementing rules 2018/1135 (on IED reporting), data for the reporting years 2017 and 2018 should have been submitted by 30 September

¹⁸ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

¹⁹ Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (notified under document C(2017) 5225)

²⁰ see more on this issue here <https://eeb.org/library/industrial-plants-data-viewer-background-briefing/>, DG ENV C4 is aware of this problem

2019 at the latest. DG ENV C4 was informed of this shortcoming by email of 6/05/2021 but we have not yet received a response on actions taken by the European Commission.

Air emissions data provided by the authorities is “validated”, so after subtraction of measurement uncertainty applied and always to the benefit of the operator (can be 5-10% difference). The EU LCP BREF standard is based on “normalised” values (including the measurement uncertainty). Many of the German lignite units are at the borderline of the 175mg/Nm³ upper NO_x BAT-AEL level (LCP BAT-C number 20, footnote 5), which could trigger the requirement to install secondary DeNO_x controls. The German operators are against this important CAPEX and OPEX increase. *See more background on the German transposition law in the following EEB briefings (notably EEB submission to the consultation on the German draft GBR²¹, press release prior to the vote on the GBRs²²).* For the effective DeNO_x, which would enable to cut NO_x emissions by at least 80%, we estimate a CAPEX for the 11 units running beyond 2025 to be in the order of at least 771 million € (see precited input to German GBR, page 9), OPEX will depend on the target pollution limit to be reached and is site specific. No cost assumptions have been provided.

If the largest lignite plants were required to apply the stricter performance levels achieved by the use of BAT, the health damage burden of continued lignite operation could have been reduced by **€5.6 billion a year** in terms of health and other air pollution-related costs²³. However this depends on whether the German operators will be required to retrofit its lignite units, mainly on the NO_x parameter and for a few plants also mercury.

In table 5 we show many units that either exceed or are at the borderline maximum yearly annual upper level set at 175mg/Nm³ for NO_x, 130mg/Nm³ set for Sulphur dioxide (SO₂) and for mercury (hg), set to <1-7µg/Nm³ for this size category.

- For **NO_x**, many units are at the borderline of the upper limit for NO_x (175mg/Nm³). This is the case for almost all RWE units. Since the Niederaußem K boiler is from 2002, it may achieve the level with further tuning of the burning conditions (primary measures), however this is not certain. As indicated above, the values provided are in many cases ‘validated’ so are with subtraction of the measurement uncertainty, which is not permissible under the LCP BAT-C compliance assessment. For the LEAG units all except Schwarze Pumpe may face issues with the NO_x Parameter.
- In addition, many of the LEAG units benefit from special pollution derogations on the **sulphur dioxide** (SO₂) parameter, for Lippendorf this derogation was granted automatically, and we argue it to be in breach of Article 31 and 72(4) point a) of

²¹ <https://eeb.org/library/eeb-submission-to-german-draft-law-implementing-the-2017-lcp-bref/>

²² <https://eeb.org/german-government-and-green-regions-are-letting-the-lignite-industry-decide-on-air-pollution-standards-for-power-plants/>

²³ <https://meta.eeb.org/2020/01/29/money-for-nothing-germany-multi-billion-euro-gift-to-europes-biggest-polluters/> (based on 2013 emissions from Lifting EU’s dark cloud report)

the IED provisions (a pilot case against Germany is still ongoing, please consult with the legal service). The upper BREF BAT-AEL limit is 130mg/Nm³ for those type of fuels (with sulphur content up to 3.2%, only Lippendorf is at such a high level). All the Jänschwalde units emit above this level, as well the Boxberg units and the Lippendorf plant. Further desulphurisation is an important OPEX cost driver (further limestone injection and pumping of the water and operating cost of the sprayers and increased wastewater/residues from the FGD system to handle). Complying with the 130mg/Nm³ SO₂ limit is also a likely issue for Saale Energie (Schkopau), which still has too high mercury emissions as well.

- Finally, whilst the RWE units can handle the upper BATAEL range on the **mercury** parameter, the LEAG plants will have to make further efforts to abate mercury, except Schwarze Pumpe (right below the upper LCP BREF limit set at 7µg/Nm³).

Operator	Name of unit	NOx concentration (mg/Nm ³)	SO ₂ concentration (mg/Nm ³)	Hg concentration (µg/Nm ³)	IED derogations
RWE	Niederaußem G	182-186	113,5	4.8	No
RWE	Niederaußem H	186	110	4.8	No
RWE	Niederaußem K	169.5-186	110	4.8-5	No
RWE	Neurath C	183-190	81-101	5.1-5.3	
RWE	Neurath D	188-193	20-47	5.1-5.3	
RWE	Neurath E	171-193	34-42	5.1-5.3	
RWE	Neurath F	178-190	21-34	5.1	No
RWE	Neurath G	169.5-190	26-39	4.8-5	No
RWE	Weissweiler F		28-65	3.3	
RWE	Weisweiler G	188.5-193	41-56	3.3	No
RWE	Weisweiler H	186.5-195	44-54	3.3	No
LEAG	Jänschwalde A	185-225.7	155	8 (estimated)	Art. 31
LEAG	Jänschwalde B	181-225.7	142	8 (estimated)	Art. 31
LEAG	Jänschwalde C	190-225.7	139	8 (estimated)	Art. 31
LEAG	Jänschwalde D	192-225.7	179.4	8 (estimated)	Art. 31
LEAG	Jänschwalde E	188-224	131 (130 mg in 2018)	8 (estimated)	Art. 31
LEAG	Jänschwalde F	184-191	151 (129 mg in 2018)	8 (estimated)	Art. 31
LEAG	Boxberg N	198	237	5.4-7.9	Art. 31
LEAG	Boxberg P	198-200	170	7-7.9	Art. 31
LEAG	Boxberg R	185.5-199	118-174.7	7.9-8.1	Art.31
LEAG	Boxberg Q	177-198	205	7.9-10.3	Art. 31
LEAG	Schwarze Pumpe A+B	140		6.3	No
LEAG	Lippendorf R	173-205	284	7.8	Art.31
EnBW	Lippendorf S	175-183	270	9.9	Art.31

Saale ENergie	Schkopau	156-170	144-188	14.8 (15.7 in 2017)	Art.31
<p><i>Table 5</i> Source: IPDV database²⁴, data on concentrations refer to 2017-2019 data, where available</p>					

The German government is however considering a business-as-usual scenario, without any OPEX and CAPEX costs linked to the requirement to comply with the EU LCP BREF standards (due by 17 August 2021) and necessity to prevent pollution at source.

Under the EU Water Framework Directive and the Minamata Convention, the EU and its member states have signed up to achieving the cessation of mercury emissions from all anthropogenic sources (by 2027 under the Water Framework Directive, *see more water relevant information under point c*). Coal combustion is the highest source of mercury emissions in Europe. The precited EU LCP BREF sets the level of “<1µg/Nm³” as being achieved with dedicated mercury controls and thus constitutes BAT. This is also confirmed by the UNEP BAT/BEP guidance, setting a level of 1µg/Nm³ for coal combustion²⁵.

The German coal compensation scheme is therefore based on a tacit assumption of not fully complying to the EU environmental protection acquis (namely on the mercury emissions to air but also on the necessity to comply with the other air pollution BAT standards) and is therefore flawed. Granting the state aid would even enable the operators to use that public money for running its plants longer and will promote a continued breaching of the EU Water Framework Directive.

We argue that the operators must comply with the levels considered as BAT and set as such in the lower range of the BAT-AEL in the pre-cited 2017 LCP BREF. Not doing so is an externalisation of a damage cost, both a market failure and a failure of the German government to prevent pollution emission at source.

Operators running their LCPs on hard coal and biomass do not benefit from those generous and laxist pollution levels (for NO_x they are required to run selective catalytic reduction to undercut the 150mg/Nm³ limit). This could therefore also be considered as a market distortion in the field of energy generation.

Enforcing EU Union Standards and leading by example has a true incentive effect for other countries which have similar plants operating. This aspect should be considered in

²⁴ <http://eipie.eu/projects/ipdv>

²⁵ See more background for German situation here <https://eeb.org/library/eeb-submission-to-german-draft-law-implementing-the-2017-lcp-bref/> (German) or here <https://meta.eeb.org/2018/05/30/jump-in-toxic-mercury-emissions-from-german-and-polish-coal/>

the assessment by DG COMP under this state aid decision. Doing so also prevents premature deaths and workdays lost, hence a benefit to the economy²⁶.

We argue that neither RWE, nor LEAG should be entitled to any “compensation”. Instead, it is the society that should receive a compensation from avoidable air pollution inflicted by the continued operation of those lignite power plants. **The operators shall be liable to internalise the impacts on public health they cause, those externalised damage costs are to be subtracted from any “compensation” claim.**

Early closures would not only allow RWE and LEAG to save money, but also reduce health impacts to German and EU citizens, which will result in lower expenses for the public purse and a limitation of market failures linked to environmental pollution as well as an environmental level playing field across the EU.

Table 6 sets out the possible damage costs and savings under the various BAT scenarios for those plants (we only consider those plants running beyond 2025). The external health costs are estimated based on 2017 reported emissions (excluding CO₂) using the EEA method for air pollution damage cost valuation²⁷. We account from 2021 onwards only (considering that the maximum compliance deadline with the 2017 LCP BAT-C is August 2021).

The cumulative damage costs are added up to the coal closure (column 5).

In column 6 the potential damage cost savings are shown, if the German government were to require the polluters to comply with the stricter EU BAT emission ranges on the air pollutants set in the 2017 LCP BREF and associated savings to the public due to reduced pollution load. In column 7 we aggregate the cumulative “health damage cost savings” up to the closure date foreseen. The results are as follows:

RWE: If all units were to run up to the foreseen closure dates under business as usual, this would translate to health damage costs of **12.9 billion €** due to air pollution alone. The German government could however generate **9 billion €** in external cost savings if it were to require its operator to comply with the strict BAT-AEL ranges up to closure. This is more than three times the sum paid out to the polluter as “compensation”.

LEAG: If all units were to run up to the foreseen closure dates under business as usual, this would translate to health damage costs of **27 billion €** due to air pollution alone. The German government could however generate **23.2 billion €** in external cost savings if it

²⁶ <https://eeb.org/lifting-europes-dark-cloud-how-cutting-coal-saves-lives/>

²⁷ more information on the methodology, please check <http://eipie.eu/projects/jpdv> and methodology document <https://bit.ly/2R32w9G>

were to require its operator to comply with the strict BAT-AEL ranges up to closure. This is more than thirteen times the sum paid out to the polluter as “compensation”.

Operator	Name of unit	Coal law closure date	Health costs (M €), other air pollutants per year (2017 emissions data) (1)	Health costs until closure (M €) (1), (2)	Health cost debt (annual) compared to BAT compliance scenario (M€)	Cumulative Health cost debt up to closure (M€) (1), (2)
RWE	Niederaußem G	2030 assumed	193	1,739	151	1,359
RWE	Niederaußem H	2034 assumed	155	2,009	120	1,566
RWE	Niederaußem K	2039	249	3,435	191	3,435
RWE	Neurath F	2039	114	2,061	63	1,138
RWE	Neurath G	2039	125	2,247	70	1,266
RWE	Weisweiler G	2028 assumed	24	169	16	113
RWE	Weisweiler H	2029 assumed	27	216	18	144
Sub Total RWE			887	12,918	630	9,021
LEAG	Jänschwalde A	2026	200	1,000	170	850
LEAG	Jänschwalde B	2028	200	1,400	170	1,190
LEAG	Jänschwalde C	2029	200	1,600	170	1,360
LEAG	Jänschwalde D	2029	200	1,600	170	1,360
LEAG	Boxberg N	2029	134	1,074	113	900
LEAG	Boxberg P	2029	134	1,074	113	900
LEAG	Boxberg R	2039	134	2,417	113	2,025
LEAG	Boxberg Q	2039	134	2,417	113	2,025
LEAG	Schwarze Pumpe A+B	2039	528	9,504	448	8,288
LEAG	Lippendorf R	2035	351	4,914	307	4,298
SubTotal LEAG			2,216	26,999	1,885	23,196

Table 6

Source: IPDV database²⁸, health impacts calculated from emissions, applying factors from EEA's “Costs of air pollution from European industrial facilities 2008-2012”²⁹, see methodology <https://bit.ly/2R32w9G>

(1) excluding CO₂ damage costs

(2) assuming similar emission scenario as for 2017, as from 2021

c. Failure to internalise water fees and damage costs.

²⁸ <http://eipie.eu/projects/ipdv>

²⁹ <https://www.eea.europa.eu/publications/costs-of-air-pollution-2008-2012>

In the table below we made some raw calculations for the plants illustrating the costs that the public already endures in terms of water pollution due to lignite business. Taxpayers are already carrying the burden of RWE and LEAG lignite business through health costs the two companies unload on them. Moreover, the German regional governments even do not enforce the cost recovery principle of the Water Framework Directive³⁰.

In the German states of Saxony, Saxony Anhalt and Brandenburg, mine operations are exempt from water tariffs and the cost of cooling water is 3-6 times less expensive as compared to North Rhine Westphalia.

The costs of water are not fixed in line with the Article 9 of the Water Framework Directive and does not reflect the environmental cost in any of the states. The estimate of unpaid cost of water is based on the highest cost of water levied for coal industry in Germany, which is in North Rhine Westphalia where all the RWE operations are located. Even this 'highest cost' at 0.035 €/m³ is more than 100 times the average cost of drinking water in Germany, making it evident that the costs are not set according to the Annex III (economic analysis) of the Water Framework Directive.

As water utilisation data for individual plants or mines are not reported by Germany or by the companies, this assessment is based on the average water used per MWh of power generated reported by companies as a part of their voluntary disclosures, which are often inconsistent.

Unpaid water cost for plants					
Operator	Name of unit	Coal law closure date	Cost paid annually[^] (M €)	Unpaid water costs 2010-2017 (M €) ^{**}	Unpaid water costs until closure (M €)
RWE *	All units	2028-2033	n.a.	n.a.	n.a.
LEAG	Jänschwalde A	2028	0.09	3.10	8.42
LEAG	Jänschwalde B	2028	0.09	3.10	8.42
LEAG	Jänschwalde C	2028	0.09	3.10	8.42
LEAG	Jänschwalde D	2028	0.09	3.10	8.42
LEAG	Boxberg N	2029	0.07	2.98	8.51
LEAG	Boxberg P	2029	0.07	2.98	8.51
LEAG	Boxberg R	2038	0.1	4.02	16.66
LEAG	Boxberg Q	2038	0.13	5.40	22.39
LEAG	Schwarze Pumpe A+B	2038	0.26	9.28	38.45
LEAG	Lippendorf R	2035	0.15	5.42	20.12
Total LEAG			1.14	42.48	148.33
EnBW*	Lippendorf S	2035	n.a. *	n.a. *	n.a. *

³⁰ <https://eeb.org/library/mind-the-gap-report/>

Table 7

* For this assessment, the cost paid by RWE is the highest cost in Germany, hence there are no unpaid costs by RWE. No data available for EnBW

** based on 0,035 €/m³ the cost of cooling water in North Rhine Westphalia.

^all figures based on 2018 reporting.

Unpaid water cost for mines*

Operator	Annual water volume utilised free of cost (Mm ³)	Unpaid annual water costs (M €)	Unpaid Water costs 2010-2017 (M €)	Unpaid Water costs until 2030 (M €)
LEAG	252	13	91	260

Table 8

* Cost of mine drainage is exempted in the states of Saxony, Saxony Anhalt and Brandenburg. based on 0,05€/m³ the cost of mine drainage in North Rhine Westphalia.

The total unpaid cost for LEAG's power plants and mines is about **408 million €**.

Coal combustion is also the main source of mercury to the environment. Currently, the RWE and LEAG power plants emit over 3 tonnes of mercury to the environment in a year (see Table 9).

Estimates of the cost of mercury remediation are scarce but were estimated to be between 16,800 and 21,000 euro per kg mercury secured from lake and Baltic Sea sediments in a 2006 study³¹. Applying that cost estimate to the release estimate of the RWE and LEAG power plants would yield a rough annual **cost estimate of 27 million € for RWE and 43 million € for LEAG**, only for one year of operation. However, please note that this cost estimate is extrapolated from mercury remediation costs available from the Baltic Sea.

In Germany, around 98% of the surface water bodies do breach the maximum mercury biota limit set under the Water Framework Directive. That Directive requires a full phase out of mercury emissions, losses or immissions by latest 2027.

Mercury emissions to air from coal plants		
Operator	Name of unit	Hg emissions in 2017 (kg)
RWE	Niederaußem G	483
RWE	Neurath F	568
RWE	Weisweiler G	226
SUBTOTAL RWE		1277
LEAG	Jänschwalde A	672
LEAG	Boxberg N	536
LEAG	Schwarze Pumpe A+B	256

³¹ Hylander and Goodsite, Environmental costs of mercury pollution, Science of the Total Environment, 2006, 368(1):352-70. DOI: 10.1016/j.scitotenv.2005.11.029

LEAG	Lippendorf R	578
SubTotal LEAG		2042
<i>Table 9</i>		
<i>Source: European Pollutant Release and Transfer Register https://prtr.eea.europa.eu</i>		

d. Additional mine rehabilitation costs

Germany argues that the companies will face additional rehabilitation costs due to early mine closure. While this may be true, it is important to keep in mind that early mine closure also results in considerable avoided costs, in particular related to water management.

Around 300 million € of federal and federal state funds are still being transferred annually for the remediation of the mining sites that closed after the reunification of Germany³². By the end of 2020, more than 11 billion € had been used for remediation, largely related to water management and restoration of the several billion cubic metres large water deficit that resulted after mining.

Lignite mines operators pump up and discharge large amounts of groundwater to keep the mine pits dry. The effect is lowered groundwater tables in the surrounding area, sometimes extending kilometres-wide, with resulting impacts on surface water systems, such as lakes, rivers and wetlands that are fed by underground sources (see for example the case of the Pinnower See³³). An earlier closure of open pit mines means less impact on groundwater levels, meaning that a smaller groundwater deficit has to be restored.

The deeper and larger a mine pit is, the larger amounts of water and more time will be needed to flood it after closure, meaning higher financial and ecological costs. Therefore, an earlier stop of excavation mean that the volumes of the mine pits is restricted, resulting in less water needed to flood the closed pits and a faster remediation of the mine, achieving the objectives of the Water Framework Directive earlier than expected.

The extraction of lignite exposes sulphur-containing minerals to air, which leads to leaching of sulphates and iron oxides to ground- and surface waters. If excavations stop earlier the sulphate and iron load to water bodies will be smaller than if excavation continues, leading again to lower costs.

In conclusion, we argue that an earlier closure of mines will not necessarily lead to higher costs to the operator, since damages caused to the environment will be less important and easier to remediate. In any case, remediation costs must not be part

³² LMBV website <https://www.lmbv.de/index.php/Finanzierung.html>

³³ <https://www.lr-online.de/lausitz/guben/pinnower-see-geht-wasser-aus-36892918.html>

of a possible compensation payment, being a classic case where the polluter pays principle enshrined in the Treaties must be enforced.

IV. Uncertainties surrounding future projections.

It is highly questionable that today RWE's and LEAG's lignite power plants could make profits in the first place. According to a report released by The Carbon tracker initiative in 2018³⁴, *due to high fuel costs 42% of coal capacity operating today could be losing money. From 2019 onwards, we expect a combination of renewable energy costs, air pollution regulation and carbon pricing to result in further cost pressures and make 72% of the fleet cashflow negative by 2040.* The authors already recognised in the report that their picture was too conservative and, as a matter of fact, today coal economics have plummeted due to a rising price of ETS allowances and clear policy signals at the EU and German level³⁵ that, inevitably, will push coal out of the German energy mix by 2030.

Another recent report by The Carbon Tracker³⁶ revealed that the value of share offerings in fossil fuel companies dropped by almost 20% since 2012, while low-carbon companies gained ground in the shift towards clean energy. From 2012 to 2020, investors have bought almost \$640 billion of equities issued by oil, gas and coal producers, fossil fuel-dependent utilities, pipelines and service companies. However, their investments have lost roughly \$123 billion or nearly 20% in value, despite bullish equity markets during much of that period. That contrasts with activity in clean energy. Investors bought \$56 billion in equity from clean-energy companies, which has gained \$77 billion in value, the report said.

Missing profits should not be compensated by taxpayers in the first place, in particular when coming from short-sighted business decisions; according to Ember think tank³⁷, coal economics has started going down years ago and May 2019 marked the non-return point. In this respect, the case of Germany is emblematic: in Germany, the gross profit of the lignite fleet collapsed by 54% already in the first half of 2019, with a loss of 664 million €, and no lignite unit being able to cover their full fixed costs³⁸.

Even more so, with a carbon price going towards 50 €/t and beyond (see previous sections), there is no reason to believe that there will be any profit and, consequently, that any compensation for expected profits should be provided.

³⁴ https://carbontracker.org/wp-content/uploads/2018/12/CTI_Powering_Down_Coal_Report_Nov_2018_4-4.pdf

³⁵ <https://www.bbc.com/news/world-europe-56927010>

³⁶ <https://carbontracker.org/reports/a-tale-of-two-share-issues/>

³⁷ <https://ember-climate.org/project/coal-collapse/>

³⁸ <https://ember-climate.org/project/the-lignite-cash-cow/>

V. Absence of water abstraction permit (Jänschwalde)

Our member Grüne Liga highlights that the extension of the water permit for the cooling water supply for the LEAG Jänschwalde units are questioned after 2023. We support the doubts expressed by the Commission concerning the admissibility of compensations for a still unpermitted mine and, moreover, we consider the approval of further withdrawal of water (from the mining pit) for cooling water use as incompatible with the Water Framework Directive, also because the granting of that permit would enable further mercury deposition to the surface waters via the air route³⁹.

VI. Alternative approach to State aid

We take into consideration two possible alternative scenarios dismissed by the German government:

- **National minimum CO₂ price for sectors covered by ETS**

As highlighted under Section III point a) the carbon damage cost is not fully reflected in the scenario taken. A minimal carbon price floor has not been seriously considered by the German government as a more cost-effective approach to achieve the same result whilst implementing the polluter pays principle and without resorting to state aid, which should only be considered as a last resort, after having addressed other market failures. As indicated in section II and III point a, the granting of the German coal compensation scheme – without incentive effect based on pollution prevention/reduction intensities – will counteract the approach to address the market measures, especially if the true carbon debt and other environmental externalities are not subtracted nor accounted for.

- **Regulatory closure without compensations (binding boiler efficiency, stricter air pollution standards pursuant to EU 2017 LCP BREF)**

As highlighted in section III, we see many failures by the German government to first address market failures due to non-internalisation of external damage costs. Those relate to air pollution (section III point b) and water use/impact costs (section III point c). The final aim of phasing out coal could have been achieved in a more cost-effective manner, whilst setting an incentive effect to other EU countries, by setting in the general binding rules transposing the LCP BREF BAT-C the stricter emission levels associated with BAT, at least for those plants running beyond 2025.

³⁹ See notably section 2.4 https://www.kein-tagebau.de/images/dokumente/210531_ugc_comment_state_aid_en.pdf

An analogous case is further provided in the Dutch State aid decision (SA.5453740) where the European Commission accepted the provision of State aid (herewith "Dutch coal compensation scheme"). In the Dutch coal compensation scheme the closure law set binding electrical efficiency levels set to a minimum of 44% as from 2020, unless run on 100% biomass. The same level applies for co-combustion of fuels as from 2025. Production units that do not achieve an electrical efficiency of 44% or more have to be phased out by 1 January 2030 (see para 7). The coal law enabled the operator the choice to either upgrade the boilers or shut the plant (para 11), whilst this transition period was not made available to Hemweg. The compensation was based on the expected operational costs using the past efficiency rates of the plant (para 18b) but on the basis that the operator would not have the same transition period compared to the other operators (para 38).

The Dutch Coal compensation has a contradiction in the assessment where the Hemweg plant would in a way be unable to convert to non-fossil power generations, whilst all other plants could (para 62), the reasons being that the closure law had foreseen a notice of less than a month (para 64). In the German case there is a much longer advance notice. The EU 2017 LCP BREF has been finalized back in April 2017 (vote) and has been published in the OJEU in August 2017. It is worth to highlight that the Dutch government has implemented the BAT associated energy efficiency levels (BAT-AEELs) in a binding way.

The pre-cited LCP BREF of 2017 sets a BAT associated energy efficiency level (see BAT 19) for the hard coal power plants to the level of 33.5 - 44% for existing units whereas it is 45-46% for new units. The Dutch authorities are certainly very well aware that those standards, including the levels set for 'new' units, are based on existing plant data from 2010 and correspond to politically negotiated levels. Footnote 8 states that efficiency improvements are at least 3 percentage points. Hence the more ambitious BAT level of 44% was used, which is still lower than the 45-46% BAT standard. The EEB regards the level of 44% to constitute BAT for the >1000MWth existing lignite units.

A similar approach should have been used by the German coal compensation scheme: For the larger lignite units the BAT-AEELs set are **42.5%** for existing lignite units whilst they correspond to 42-**44%** for new lignite units. The level of 44% corresponds to the lignite units that went into operation after 2000, Boxberg Q (2000) claims to reach 43% (net).

The same approach as taken in the Netherlands should have been considered, pre-conditioning any 'compensations' to compliance to the BAT-AEELs. We argue that the BAT level corresponds to economically and technically viable standards, based on the 2010 situation. It is thus entirely justifiable to expect compliance with those levels by 17 August 2021. This is however not foreseen by neither the German GBR (supposed to transpose the 2017 LCP BREF), nor even considered as a cost-effective alternative

measure within the German government coal compensation scheme. The main reason is that the levels are considered as optional under the EU-ETS scheme, hence it is a market failure the EU-ETS does not address. A similar approach would have not only saved a lot of air pollution but also considerable GHG emissions because this approach would drive out the most in-efficient, and therefore more GHG pro rata pollution intensive units first.

It would have been a more sensible measure for GHG abatement to use a performance-based approach and to close more GHG intensive plants first. Yet the German government has not even considered this regulatory option (as the Dutch Government did). Due to improved boiler efficiency this would have also yielded significant additional benefits for the environment due to reduced fuel requirements, with associated savings as to water pollution and associated lignite mining impacts. This approach would have certainly provided for an “incentive effect” to implement the Union Standards at EU level. The IED requires competent authorities to implement energy efficiency levels (see Art 11 point (a) and (f) and Art. 14 of the IED), however the EU-ETS does not explicitly mandate them so there is a potential doubt as to whether the BAT-AEELs are legally binding.

We argue that the EEAG provide for the need to consider the proportionality and incentive effect of the options considered. A clear conditionality to comply with the BAT levels set in the Union Standards, in this case also including the state-of-the-art boiler efficiencies (42.5% or 44%) set under BAT 19, should be pre-required.

VII. Data transparency

Data transparency is key for an evidence-based policy-making and for assessing the effects of policy measures. As far as we have understood, the level of transparency ensured by the applicant and by the two beneficiaries of the aid has been far from being satisfactory. The German government did not provide data at plant level and has not disclosed the methodology for calculating the compensations (recitals 131, 132). But it is also clear that Germany itself was not in the position of making a factual assessment of the compensations due to an “information asymmetry” (recitals 60, 61) with RWE and LEAG. This is totally unacceptable.

Firstly, State aids are taken from the public purse, taxpayers and public authorities should be able to take decisions based on all the information available to spend public money in the most efficient and valuable way. In this case, information that only RWE and LEAG could provide is essential to correctly assess the actual costs linked to rehabilitation of mines and decide whether compensations are needed⁴⁰. Should the beneficiaries of State aid continue to keep information disclosed, aids should not be awarded.

⁴⁰ Our position is that rehabilitation costs should not be covered by public money under any circumstance (see paragraph d). The point we make here concerns purely transparency issues.

For the same reason, Germany itself should make public the methodology with which has calculated the final amount of compensations. The Commission and the public have the right to know whether the right assumptions have been made and how each variable has been taken into account. For instance, it is essential to understand how the price of CO₂ has been handled to calculate possible profit losses and how the total amount of calculation would vary according to different (and more realistic) prices (see the flaws on this count as highlighted under Section II).

We call on the European Commission to make the calculations and background scenarios used publicly available, full disclosure is needed for verification and trust in good public administration of public funds.

VIII. Deferred closure mechanism

On 7 February 2018 the Commission approved⁴¹ a capacity mechanism to ensure energy supply in 6 countries, among which there was Germany. At that time, the German government quantified the security of supply risk (max. 2 GW), in order to mitigate the risk coming from the phase out of nuclear energy. With this decision, Germany was allowed to keep a certain generation capacity as strategic reserve only, to be used in case of emergencies. In the letter that confirmed the decision⁴², the Commission stated that: *"it should be the normal functioning of the electricity market that triggers the necessary investments to cover demand ... At the same time, it will take time for these reforms to have tangible effects on the market and their precise impact on the security of supply situation in Germany is difficult to predict"* (recital 96). Moreover, the Commission reiterated the fact that *"strategic reserves are suitable temporary measures, for example, to accompany market reforms until the market functions properly and market participants are acquainted with its functioning"* (recital 113) and approved a six years measure, ending on September, 30 2025.

The German coal law contradicts both Commission's statements. Firstly, the law breaches the non-permanent nature of the measure, foreseeing to put three plants in a network reserve beyond 30 September 2025 (Jänschwalde A until 31.12.2025, Jänschwalde B until 31.12.2027, and Niederaußem G or H until 31.12.2029, para24, table 2).

Secondly, the German government foresees a massive boost of renewable sources, Germany currently has an excess generation capacity, but also ambitious energy saving targets, it therefore looks unlikely that Germany would need further strategic reserves.

⁴¹ https://ec.europa.eu/commission/presscorner/detail/en/IP_18_682

⁴² https://ec.europa.eu/competition/state_aid/cases/269083/269083_1983030_171_13.pdf

Moreover, the German coal law includes an extension of subsidies to gas fired plants until 2030, in addition to the expected ramp-up in utilisation of existing gas-fired generation capacity and further development of flexible co-generation systems.

Rather, security of supplies should be reached through the interconnection of electricity production capacity among Member States. In this respect, we recall that revision of the TEN-E Regulation is ongoing and that it will be pivotal to enable a more integrated energy system and to deploy smart grids able to manage energy coming from renewable sources.

IX. Conclusions:

We call the Commission to:

- Use realistic assumptions concerning the evolving CO₂ market by taking into consideration the recent trend of the CO₂ price.
- Address, calculate and subtract from aid, if considered as proportionate, all negative externalities, including the ones caused by climate change, air and water pollution. The German government should prevent avoidable air pollution and address market failures first. If operators choose to run their plants under business as usual, operators shall be liable to internalise the impacts on public health they cause, those externalised damage costs are to be subtracted from any “compensation” claim. We find that
 - The carbon debt of allowed lignite operations up to the foreseen phase out data is several orders of magnitude higher than the “compensations”: RWE 26.5 bn €, LEAG 42.4 bn€, EnBW 6.6 bn€ and SaaleEnergie 4.4 bn€
 - Avoidable air pollution damage costs by requiring compliance with the stricter EU 2017 LCP BREF are 3 times the “compensation” amount for RWE, namely 9 bn€ and 13 times the “compensation” amount for LEAG, namely 23.2 bn€
 - Water abstraction costs (mines and plants) to be internalized due to the EU Water Framework Directive and due for LEAG amount to about 408 million €
 - The clean up cost of further mercury deposition through surface waters (extrapolated from cost data on the Baltic Sea) could be in the order of 23 Million € for RWE and 43 Million€ for LEAG.

It results from the above that it is LEAG and RWE that owe considerable amount of money to the German State, due to the operation of their lignite power plants and mines.

- Pre-require the German coal compensations scheme to consider alternative options to state aid, such as binding boiler efficiency levels aligned to BAT (42.5-44%), whilst the EEB considers those to be applicable by 17 August 2021, the German government could also foresee those to apply only as from 2025.

- Disclose all the information that will allow to make a sound assessment of the public compensations scheme proposed.
- Disagree any public compensation for remediation of mines, being a duty of private operators to take care and remediate the damage they did while pursuing their profits.
- Condition any provision of State aid to the implementation of the stricter (lower end of the BAT-AEL) range foreseen by the LCP BAT (85 mg/Nm³ for NO_x, 10 mg/Nm³ for SO₂ and 1 µg/Nm³ for mercury).
- Concede State aid only as the last resort step to be made only after the implementation by the German government of all other possible and necessary measures within its competence, such as regulatory measures or fiscal instruments, that would make the recurrence to State aid schemes not necessary.
- Consider the granting of State aids to be used only as last resort to accelerate the closure of coal-fired power plants that are still profitable or have prospects of profitability beyond 2030 (which is quite unlikely) but that will effectively close by 31 December 2029 at the latest. Conversions to other fossil fuels (including oil, shale gas, fossil gas, peat, gasoline, residues from refining activities, biomass) or waste shall not be admissible, as not in line with the European Green Deal objectives.

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