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Higher Administrative Court Berlin-Brandenburg
Hardenbergstrasse 31

10623 Berlin

20 May 2020

Lawsuit

German Environmental Aid Association
represented by the executive committee,
Hackescher Markt 4, 10178 Berlin,

- Plaintiff -

attorney of record:
Attorneys Dr. Reiner Geulen, Prof. Dr. Remo Klinger
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Schaperstraße 15, 10719 Berlin,

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Federal Republic of Germany,
represented by the Federal Government of Germany,
these represented by the Federal Chancellor,
Chancellery,
Willy-Brandt-Straße 1, 10557 Berlin,

- Defendant -

because of: the right to establish an effective national programme for meeting national

obligations to reduce national emissions of the air pollutants ammonia, particulate matter, sulphur dioxide and nitrogen oxide under Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants (the NEC Directive)

provisional value of the object: 10.000,00 €

In the name and on behalf of the plaintiff (**Annex K 1**) we raise the following

Lawsuit

and apply:

1. order the defendant to draw up a national air pollution control programme in which the measures necessary to reduce the national annual anthropogenic emissions of the air pollutants ammonia (NH3), particulate matter ($PM2_{.5}$), sulphur dioxide (SO2), nitrogen oxide (NOx) - with the exception of the emissions referred to in Article 2(2) of the 43rd Federal Immission Control Ordinance (BImSchV) - along a linear reduction path, this reduction path

   - for NOx, between the emission level resulting from the obligation to reduce NOx emissions by 39 % in 2020 compared to 2005 and the emission level resulting from the obligation to reduce NOx emissions by 65 % in 2030 compared to 2005,
   - in the case of NH3, between the quantity of emissions resulting from the obligation to reduce NH3 emissions by 5 % in 2020 compared to 2005 and the quantity of emissions resulting from the obligation to reduce NH3 emissions by 29 % in 2030 compared to 2005
   - for SO2, between the quantity of emissions resulting from the obligation to reduce SO2 emissions by 21 % in 2020 compared to 2005 and the quantity of emissions resulting from the obligation to reduce SO2 emissions by 58 % in 2030 compared to 2005,
   - in the case of $PM2_{,5}$, between the emission level resulting from

the obligation to reduce $PM2_{,5\ emissions}$ by 26 % in 2020 compared to 2005 and the emission level resulting from the obligation to reduce $PM2_{,5\ emissions}$ by 43 % in 2030 compared to 2005,

is pulled.

2. alternatively: Order the defendant to draw up a national air pollution control programme in which the measures necessary to limit the national annual anthropogenic emissions of the air pollutants ammonia (NH3), particulate matter ($PM2_{.5}$), sulphur dioxide (SO2), nitrogen oxide (NOx) - with the exception of the emissions referred to in Article 2(2) of the 43rd Federal Immission Control Ordinance (BImSchV) - are laid down with a specific implementation timetable as follows

- national annual anthropogenic NH3 emissions by 5% in each year between 2020 and 2029 and by 29% in each year from 2030 onwards compared to 2005
- national annual anthropogenic $PM2_{.5\ emissions\ by}$ 26% in each year between 2020 and 2029 and by 43% in each year from 2030 onwards compared to 2005
- national annual anthropogenic SO2 emissions by 21 % each year between 2020 and 2029 and by 43 % each year from 2030 onwards compared to 2005,
- national annual anthropogenic NOx emissions by 39 % each year between 2020 and 2029 and by 65 % each year from 2030 onwards compared to 2005.

3. further alternatively: It is stated that the defendant is obliged to draw up a national air pollution control programme in which, with a specific implementation timetable, the measures required to reduce the national annual anthropogenic emissions of the air pollutants ammonia (NH3), particulate matter ($PM2_{.5}$), sulphur dioxide (SO2), nitrogen oxide (NOx) - with the exception of the emissions mentioned in § 2 para. 2 of the 43rd Federal Immission Control Act - along a linear reduction path, this reduction path

- for NOx, between the emission level resulting from the obligation to reduce NOx emissions by 39 % in 2020 compared to

2005 and the emission level resulting from the obligation to reduce NOx emissions by 65 % in 2030 compared to 2005,

- in the case of NH3, between the quantity of emissions resulting from the obligation to reduce NH3 emissions by 5 % in 2020 compared to 2005 and the quantity of emissions resulting from the obligation to reduce NH3 emissions by 29 % in 2030 compared to 2005
- for SO2, between the quantity of emissions resulting from the obligation to reduce SO2 emissions by 21 % in 2020 compared to 2005 and the quantity of emissions resulting from the obligation to reduce SO2 emissions by 58 % in 2030 compared to 2005,
- in the case of $PM2_{,5}$, between the emission level resulting from the obligation to reduce $PM2_{,5\ emissions}$ by 26 % in 2020 compared to 2005 and the emission level resulting from the obligation to reduce $PM2_{,5\ emissions}$ by 43 % in 2030 compared to 2005,

is pulled.

4. further auxiliary: It is stated that the defendant is obliged to draw up a national air pollution control programme in which the measures necessary to limit the national annual anthropogenic emissions of the air pollutants ammonia (NH3), particulate matter ($PM2_{.5}$), sulphur dioxide (SO2), nitrogen oxide (NOx) - with the exception of the emissions referred to in Article 2(2) of the 43rd Federal Immission Control Ordinance (BImSchV) - are laid down with a specific implementation timetable as follows

- national annual anthropogenic NH3 emissions by 5% in each year between 2020 and 2029 and by 29% in each year from 2030 onwards compared to 2005
- national annual anthropogenic $PM2_{.5\ emissions\ by}$ 26% in each year between 2020 and 2029 and by 43% in each year from 2030 onwards compared to 2005
- national annual anthropogenic SO2 emissions by 21 % each year between 2020 and 2029 and by 43 % each year from 2030 onwards compared to 2005,

– national annual anthropogenic NOx emissions by 39 % each year between 2020 and 2029 and by 65 % each year from 2030 onwards compared to 2005.

We provide the following justification, preceded by an **outline:**

A. Facts

Germany is obliged under international and EU law to reduce its national anthropogenic emission ceilings for the air pollutants ammonia (NH3), nitrogen oxide (NOx), particulate matter ($PM2_{.5}$) and sulphur dioxide (SO2). The defendant does not fulfil these obligations.

I. Effects of pollutant emissions on the environment and health

Even before the beginning of the corona pandemic, air pollution was the greatest environmental health hazard in Germany and the European Union and one of the main causes of premature death and illness.

Studies by the European Environment Agency estimate that 400,000 Europeans die prematurely every year from air pollution (**Annex K**, extract EEA). According to a 2019 study by the Max Planck Institute for Chemistry, almost 800,000 Europeans are expected to die prematurely each year from air pollution-related diseases in Europe (**Annex K,** PM MPG).

Due to the presumed links between air quality and the course of disease when infected with SARS-CoV-19 or other pathogens, the current situation also highlights the importance of high air quality for the protection of health.

On the health and environmental effects of the individual air pollutants in detail:

1. Fine dust

Particulate matter (PM) is the term used to describe particles in the air that do not immediately sink to the ground but remain in the atmosphere for a certain time. A distinction is made between the fine dust fractions PM10, $PM2_{.5}$ and ultra-fine particulate matter according to the aerodynamic diameter of the particles.

Primary particulate matter is caused by emissions from motor vehicles (diesel engines, brake and tyre wear, dust swirling), power stations and district heating plants, furnaces and heating systems in residential buildings, in metal and steel production and also during the handling of bulk goods. An important source of secondary particulate matter for-

mation is agriculture, since emissions of gaseous precursors, especially ammonia emissions from animal husbandry, contribute to secondary particulate matter formation (**Annex K**, UBA).

Particulate matter is transported to the lungs via the respiratory tract during respiration. Particularly fine dust smaller than 2.5 µm reaches the smallest airways and pulmonary alveoli and can cause diseases in the air tract as well as in the whole body. The International Society for Environmental Epidemiology (ISEE) and the European Respiratory Society (ERS) have compiled numerous studies on the health effects of exposure to particulate matter in an expertise. According to these studies, the evidence for lung cancer and cardiovascular diseases is now recognized as causal, that of lung diseases as "probably causal". It is also considered likely that particulate matter has other effects on the whole body, in particular on the development of the child in the womb, lung and brain development in children, diabetes and dementia (**Annex K**).

According to the European Environment Agency, 59,600 of premature deaths were due to particulate matter. This puts Germany in first place in a European comparison, ahead of Italy and Poland (**Annex K**, EEA). According to the Max Planck Institute, as many as 120,000 premature deaths in Germany are attributable to particulate matter (**Annex K**).

There is no threshold below which particulate matter is not considered harmful to human health. The annual average limit value for $PM2_{.5}$ of 25 µg/m³ air set by the EU is considered far too high by the World Health Organization (WHO). The WHO recommends a significantly lower maximum value of 10 µg/m³ as an annual average. In Germany, this lower value was exceeded at 57% of the measuring stations in 2019 (**Annex K**, Air Quality 2019, p. 10).

2. Ammonia

Ammonia (NH3) is an air pollutant, which is mainly produced by agricultural processes and contributes to significant pollution of ecosystems and secondary particulate matter. About 44 % of agricultural ammonia emissions are attributable to livestock farming and the storage of farm manure, 32 % to the spreading of farm manure, 12 % to the fertilisation with synthetic mineral fertilisers and just under 10 % to the storage and spreading of fermentation residues (**Annex K**, Tünen).

Ammonia and the ammonium produced after transformation are major causes of acidification and eutrophication (nutrient enrichment) of terrestrial and aquatic ecosystems, each with significant negative impacts on biodiversity. Almost half of the plant species on the "Red List" are endangered by increased nutrient inputs (**Annex K**, BfN). The risks to which near-natural ecosystems are exposed through the input of air pollutants are assessed using the critical load approach for acidifying sulphur and nitrogen inputs and for eutrophying nitrogen pollution. In 2015, the proportion of ecosystems affected by exceedance of the critical load for acid deposition was 30 percent. The burden of eutrophication is even significantly higher: in 2015, around 70 percent of all ecosystems were still at risk from exceeding the permissible nitrogen inputs (**Annex K**). Particularly high ammonia concentrations in the vicinity of large animal husbandry facilities can also cause direct damage to vegetation.

Nitrification and denitrification processes also produce nitrous oxide (N2O) from reactive nitrogen compounds such as ammonia, a greenhouse gas that is around 300 times more harmful to the climate than carbon dioxide (CO2).

Ammonia emissions also contribute significantly to the health impacts associated with particulate matter through the formation of secondary particulate matter. Changes in ammonia emissions therefore have a direct effect on PM2.5 concentrations in the air, so that reducing them contributes significantly to improving air quality. Numerous monitoring studies show that secondary particles in Europe typically account for about 40-60% of the total PM2.5 mass in ambient air (**Annex K**, Towards Cleaner Air). A study by the European Environment Agency, in which the quantitative contribution of different sectors to air pollution in different cities was modelled, shows that in the city of Dresden, for example, 40% of particulate matter comes from the agricultural sector (**Annex K**, Urban $PM_{2.5}$ Atlas Air quality in European cities). The study by the Max Planck Institute for Chemistry also identified agriculture as the main source of particulate matter pollution due to ammonia emissions (**Annex K**).

3. Nitrogen oxides

The gaseous compounds nitrogen monoxide (NO) and nitrogen dioxide (NO2) are added to the air pollutant nitrogen oxides (NOx). While it is technically and regulatively sensible

to state emissions as nitrogen oxides, since waste gases always contain a mixture of nitrogen monoxide and nitrogen dioxide, immissions and thus the local pollution are stated as nitrogen dioxide, since this is measurable and a large part of NO2 is then formed secondarily in the atmosphere by converting NO into NO2.

Nitrogen oxides are formed as products of undesired side reactions during combustion processes. The main sources of nitrogen oxides are combustion engines and combustion plants for coal, oil, gas, wood and waste. In urban areas, road traffic is the most important source of NOx.

High nitrogen dioxide concentrations lead to deterioration in the health of asthmatics and are considered "probably causal" was the occurrence of respiratory diseases. Recent studies also point to a connection for cardiovascular diseases such as diabetes (**Annex K, ISEE).**

The European Environment Agency estimates that the number of premature deaths due to nitrogen dioxide pollution was 11,900 per year (**Annex K, EEA**).

Nitrogen oxide emissions are also associated with environmental pollution. Nitrogen dioxide can damage plants and cause, among other things, yellowing of the leaves (so-called necroses), premature ageing and stunted growth. Like ammonia, nitrogen dioxide also contributes to the over-fertilisation and acidification of soil and water (**Annex K, UBA**).

4. Sulphur dioxide

Sulphur dioxide (SO2) is a gas that is harmful to health and the environment and contributes to fine dust pollution (PM10) through the formation of sulphate particles. Sulphur dioxide irritates the mucous membranes and can lead to eye irritation and respiratory problems. Deposition in ecosystems can lead to acidification of soils and water (**Annex K**, sulphur dioxide).

5. Relationship between Covid-19 and air quality

The reduction of emissions of the above-mentioned pollutants is, after all, an elementary concern that cannot be postponed even in times of a corona pandemic.

Rather, the current situation illustrates why we urgently need cleaner air to protect lung health. For example, there is evidence that the generally harmful effect of air pollutants on the respiratory tract makes it more difficult for the immune system to fight the additional infection of the lungs by SARS-CoV-19 and other pathogens and increases the likelihood of a more difficult course of disease.

Studies of previous epidemics of viruses of the same virus genus confirm the close correlation between air quality and the course of disease during an infection. For example, a study from 2003, which examined five regions with at least 100 SARS (severe acute respiratory syndrome) cases during the SARS-CoV epidemic in 2002/2003, shows that SARS sufferers from regions with higher levels of air pollution during the period under study had an 84% increased risk of dying of SARS (**Annex K**).

It can be assumed that scientific studies will continuously provide further insights into the connection between the course of the disease and the new virus SARS-CoV-2 and air pollution. However, scientists at Harvard University are already pointing to the need to implement clean air policies. They found that an increase of only 1 µg/m3 in $PM2_{.5}$ is associated with an 8% increase in the COVID-19 death rate. According to them, even a small increase in long-term exposure to PM2.5 leads to a large increase in the COVID-19 death rate (**Annex K**, Exposure).

Severe courses of disease with Covid-19 are therefore most likely to occur where air quality is poor. Any improvement in air quality is therefore important for the protection of health.

II. Germany's emission reduction commitments

Germany and the European Union are parties to the 1979 United Nations Economic Commission for Europe (UNECE) Convention on Long-range Transboundary Air Pollution (hereinafter 'LRTAP Convention') and several protocols thereto. These include the

1999 Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone ("Gothenburg Protocol"), which provided for country-specific emission ceilings for the above pollutants.

In order to implement these obligations under international law, Directive 2001/81/EC of 23 October 2001 (hereinafter referred to as the "old NEC Directive") laid down national emission ceilings for ammonia, nitrogen oxide, sulphur dioxide and particulate matter, among others, which could no longer be exceeded from 2010 onwards. According to the data available to date, the national emission ceiling for ammonia of 550 kilotonnes of NH3 allocated to Germany was not complied with at any time until the end of its validity on 31 December 2019. There is hardly any other EU Member State where the reduction targets for ammonia were missed so persistently and drastically (**Annex K**).

In 2012 the Gothenburg Protocol was revised and supplemented by new reduction commitments for 2020 and beyond. In order to implement these commitments, Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants (hereinafter referred to as the "NEC Directive") was adopted and entered into force on 31 December 2016. The obligation to comply with the national emission ceilings under Art. 4 of the old NEC Directive remained in force until 31 December 2019. The requirements of the new NEC Directive will be transposed into national law by the 43rd BImSchV, whereby the legislator intended a 1:1 transposition of the requirements under Union law (BR-Drs 216/18, p. 20).

Under Article 4(1) in conjunction with Annex II of the NEC Directive requires Germany to reduce annual anthropogenic emissions of

- ammonia by 5 % from 2020 and by 29 % from 2030
- particulate matter by 26 % from 2020 and by 43 % from 2030
- sulphur dioxide by 21 % from 2020 and by 58 % from 2030
- nitrogen oxide by 39 % from 2020 and 65 % from 2030

compared to the reference year 2005.

The NEC Directive stipulates that emissions must be limited in principle along a linear reduction path. Only if this is economically or technically more efficient, Member States may define a non-linear reduction path to be justified in the clean air programme, provided that this path gradually approaches the linear reduction target from 2025 onwards

and is without prejudice to emission reduction commitments for 2030, Art. 4 para. 2 NEC Directive.

To monitor compliance with these requirements, the NEC Directive provides for various reporting obligations: An emissions inventory must be reported annually by February 15th, an informative inventory report by March 15th, and every two years by March 15th, an emissions forecast must be reported to the EU Commission and the European Environment Agency. In Germany, the Federal Environment Agency is responsible for this. All documents are published on the following website of the European Environment Agency: https://cdr.eionet.europa.eu/de/un/clrtap.

III. National Air Pollution Control Programme

Article 6 of the NEC Directive obliges the Member States to draw up, adopt and implement a national clean air programme in order to limit emissions of the various pollutants in accordance with the above reduction commitments.

In December 2018, the German government presented a draft for such a programme.

The applicant submitted comments within the prescribed period and drew attention to numerous deficiencies in the programme (**Annex K).**

On 22 May 2019, the National Clean Air Programme (NLRP) was adopted (**Annex K)**.

The national clean air programme describes the political framework for air quality and air pollution control, contains information on emission trends to date and emission projections for various scenarios.

Details of the emission forecasts:

6. Emission Forecast for the WM Scenario

On the one hand, the development of emissions is considered taking into account existing measures (With-measure/WM scenario).

For this WM scenario, the forecast of the Clean Air Program comes to the following results:

- With regard to ammonia, the reduction commitments for 2020 will not be met. The reduction target would only be achieved if so-called inventory adjustments for NH3 emissions from the fermentation of energy crops and the application of energy crop fermentation residues were taken into account. The interim target for 2025 and the reduction commitments for ammonia applicable from 2030 are also missed in the World Cup scenario.
- With regard to nitrogen oxide, compliance with the reduction commitments from 2020 onwards is forecast in the World Cup scenario. However, the interim target for 2025 and the reduction commitments from 2030 would not be met.
- With regard to particulate matter and sulphur dioxide, compliance with both the annual reduction commitments from 2020 and the interim target for 2025 is forecast. However, the reduction commitments for 2030 for these pollutants cannot be met either without additional measures.

The results of the WM scenario forecast are summarized in the following table (NLRP, p. 74):

Tabelle 28: Emissionsprojektionen im Mit-Maßnahmen-Szenario (WM – With Measures)

Emissionen im Basisjahr 2005		**2005**				
		NO_x	**SO_2**	**NMVOC**	**NH_3**	**$PM_{2,5}$**
Emissionsberichterstattung 2018	**kt**	**1577**	**473**	**1324**	**625**	**135**
ohne 3B und 3D	**kt**	**1459**		**1121**		
ohne Emissionen aus pflanzlichen Gärresten	**kt**				**614**	
Reduktionsverpflichtungen der NEC-Richtlinie ggü. 2005		**2020**				
		NO_x	**SO_2**	**NMVOC**	**NH_3**	**$PM_{2,5}$**
		39 %	**21 %**	**13 %**	**5 %**	**26 %**
Mit-Maßnahmen-Szenario (WM)	**%**	**40 %**	**36 %**	**28 %**	**2 %**	**33 %**
	kt	**882**	**301**	**803**	**614**	**91**
Korrektur pflanzliche Gärreste	**%**				**9 %**	
	kt				**560**	
Reduktionsverpflichtungen der NEC-Richtlinie ggü. 2005		***2025***				
		NO_x	**SO_2**	**NMVOC**	**NH_3**	**$PM_{2,5}$**
		52 %	***39,5%***	***20,5 %***	***17%***	***34,5%***
Mit-Maßnahmen-Szenario (WM)	**%**	***50 %***	***45 %***	***30 %***	***8 %***	***37 %***
	kt	***726***	***259***	***787***	***575***	***85***
Reduktionsverpflichtungen der NEC-Richtlinie ggü. 2005		**2030**				
		NO_x	**SO_2**	**NMVOC**	**NH_3**	**$PM_{2,5}$**
		65 %	**58 %**	**28 %**	**29%**	**43 %**
Mit-Maßnahmen-Szenario (WM)	**%**	**59 %**	**51 %**	**30 %**	**9 %**	**41 %**
	kt	**603**	**231**	**785**	**570**	**80**

7. Emission forecast for the WAM scenario

Since the emission reduction commitments are largely missed in the WM scenario, the NEC Compliance or With-additional-measure/WAM scenario calculates the emission development taking into account additional measures.

The WAM scenario considers the following options for action:

a) Klimaschutzmaßnahmen des MWMS des Projektionsberichts 2017

b) Ausstieg aus der Verstromung von Stein- und Braunkohle gemäß Empfehlungen der Kommission „Wachstum, Strukturwandel, Beschäftigung"

c) Nationale Umsetzung der MCP-Richtlinie (EU) 2015/2193 gemäß Beschluss der Bundesregierung vom 18.03.2019, voraussichtlich in Kraft ab Juli 2019

d) Beibehaltung der Regelung für Festbrennstoffkessel der 1. BImSchV

e) Maßnahmenpaket Straßenverkehr – Umweltprämie und Software-Update für Pkw, Hardware-Nachrüstung für Busse, Förderung Umweltverbund, Fortschreibung der CO_2-Grenzwerte für Pkw

f) Maßnahmenpaket Landwirtschaft (vgl. Kapitel 5.6)

g) Ggf. Förderung eines Wechsels der in der industriellen Produktion eingesetzten Brennstoffe hin zu schwefelärmeren Brennstoffen oder effizienteren Technologien zur Abgasreinigung

h) Nur falls zur Erreichung der NO_X-Minderungsziele zu 2030 zwingend erforderlich: Änderung der 13.BImSchV für ausgewählte Brennstoffe außer Kohle

The concrete content of these measures, as well as the timetable and responsibilities for their implementation, cannot be derived from the Clean Air Programme. The implementation of the measures is not bindingly provided for in the Clean Air Programme itself.

Although the implementation of the measures in the WAM scenario is therefore highly uncertain, it is generally assumed in the Clean Air Programme that all further measures will show reduction effects from 1.1.2025 at the latest and that their implementation will be completed accordingly before then (NLRP, p. 97).

On the basis of this assumption, the Clean Air Programme for the WAM scenario forecasts compliance with the interim target for 2025 for all pollutants as well as the reduction commitments applicable from 2030 onwards (pp. 90 f., 98). Compliance with the reduction commitments applicable from 2020 is also assumed in most cases. Only with regard to ammonia is it determined that the reduction commitments for 2020 cannot be met even in the WAM scenario (NLRP, p. 102).

The projected emission development in the WAM scenario is presented on page 98 of the Clean Air Programme as follows:

Tabelle 36: Projizierte Emissionsentwicklung im NEC-Compliance-Szenario (WAM)

Reduktions-verpflichtungen der NEC-Richtlinie ggü. 2005		2025					2030				
		NO_x	SO_2	NMVOC	NH_3	$PM_{2,5}$	NO_x	SO_2	NMVOC	NH_3	$PM_{2,5}$
		52%	*39,5%*	*20,5%*	*17%*	*34,5%*	65%	58%	28%	29%	43%
WM-Szenario	%	50%	45%	30%	8%	37%	59%	51%	30%	9%	41%
	kt	*726*	*259*	*787*	*575*	*85*	603	231	785	570	80
Minderungspotenziale weiterer Strategien und Maßnahmen im Bereich Klimaschutz gemäß PB 2017-MWMS und r2B-Szenario 65 % EE + Kohleausstieg											
a)	kt	*-17,2*	*-17,8*	*-1,5*		*-1,1*	-24,6	-26,6	-2,0		-1,6
b)	kt	*-24,7*	*-29,6*	*-0,7*	*-0,4*	*-1,3*	-32,3	-34,8	-0,9	-0,5	-1,5
Minderungspotenziale weiterer Maßnahmenoptionen und in Umsetzung befindlicher Maßnahmen der Luftreinhaltepolitik (aufbauend auf PB 2017-MWMS gekoppelt mit r2B-Szenario 65 % EE + Kohleausstieg)											
c)	kt	*-17,8*	*-0,2*				-31,2	-0,2			-0,1
d)	kt					*-1,7*					-1,3
e)	kt	*-11,3*		*-3,9*	*-0,1*	*-0,3*	-7,2		-5,5	-0,2	-0,3
f)	kt				*-60,1*					-133,0	
g)	kt		*-8,6*					-8,2			
h)	kt	*-2,0*					-2,1				
NEC-Compliance-Szenario (WAM)	%	*55%*	*57%*	*30%*	*18%*	*40%*	65%	66%	31%	30%	44%
	kt	*653*	*202*	*781*	*514*	*81*	506	161	776	436	75

IV. Current emission data

The calculations of the Clean Air Programme are based on the emission data from the 2018 emissions reporting for the time series 1990 to 2016.

In the meantime, the emissions data from the 2020 reporting for the time series 1990 to 2018 have been published (**Annex K**). The current emission data show that there are still considerable gaps in the achievement of the various emission reduction commitments, in relation to NH3 and NOx in relation to the emission reduction commitments applicable from 2020 and beyond, and in relation to SO2 and $PM2_{.5}$ at least in relation to the interim target for 2025 and the reduction commitments applicable from 2030. This is illustrated in the following table (own presentation):

kt	NOx	SO2	NH3	PM2.5
Total national emissions 2005	1,522	477	641	141

Total national emissions 2018	1,084	289	636	97
2020				
Reduction commitment 2020 (%)	-39	-21	-5	-26
Reduction commitment 2020 (kt)	929	377	609	104
2025				
Reduction target 2025 (%)	-52	-39,5	-17	-34,5
Reduction target 2025 (kt)	731	289	532	92
2030				
Reduction commitment 2030 (%)	-65	-58	-29	-43
Reduction commitment 2030 (kt)	533	200	455	80

V. Lack of suitability of the clean air programme to limit emissions

In its current form, the national clean air programme is not suitable for meeting the obligations of the NEC Directive on emission reduction.

Although both the current emissions data and the optimistic emissions forecast for the World Cup scenario indicate that additional measures would be needed to meet the binding reduction commitments, the Clean Air Programme merely lists various abstract options for measures without obligation. A concrete implementation timetable and the authorities responsible for implementation are not mentioned. The emission forecasts are also based on numerous optimistic assumptions regarding the effects of the measures in detail. The fact that the emission forecasts are subject to numerous uncertainties is acknowledged in the Clean Air Programme itself.

The plaintiff therefore applied for a rectification of the air pollution control programme by letters dated 4 February 2020 and 24 April 2020 (**Annex K**). The defendant did not respond to this request.

B. Legal assessment

The action must be upheld, since it is both admissible and well founded.

I. Admissibility of the main request

The action is admissible, in particular the plaintiff is entitled to bring an action.

1. Jurisdiction of the Higher Administrative Court

The Higher Administrative Court of Berlin-Brandenburg is responsible for the subject matter and local jurisdiction.

The substantive jurisdiction follows from § 7 sub-section 2 sub-section 1 UmwRG, according to which the Higher Administrative Court is responsible for appeals against decisions in accordance with § 1 sub-section 1 sub-section 1 no 4 UmwRG at first instance.

The UmwRG is applicable in the present case.

The subject of the present legal dispute is a decision in accordance with § 1 sub-section 1 sentence 1 no. 4 UmwRG. This includes decisions on the acceptance of plans and programmes within the meaning of Article 2 (7) of the Environmental Impact Assessment Act and within the meaning of the corresponding provisions of Land law, for which there may be an obligation to carry out a Strategic Environmental Assessment (SEA) pursuant to Annex 5 UVPG or provisions of Land law and on the acceptance of which no decision is made by formal law.

These conditions are met.

The national air pollution control programme at issue here is a programme within the meaning of Article 2(7) of the UVPG for which there may be an obligation to carry out an SEA. Within the framework of the examination of the requirements of § 1 sub-section 1 sentence 1 no. 4 UmwRG, the possibility of the existence of a SEA obligation is sufficient, as can already be seen from the wording of the provision.

The air pollution control programme is not listed in Annex 5 to the UVPG. However, this does not prevent the applicability of Art. 1 para. 1 sentence 1 no. 4 UmwRG, because the non-inclusion of the national clean air programme is contrary to the requirements of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive). § Article 1 sub-section 1 sentence 1 no. 4 UmwRG is to be interpreted in conformity with international and Union law to the effect that it also covers decisions on the acceptance or non-acceptance of programmes which, taking into account the requirements of Union law, *would have to* be listed in Annex 5 to the UVPG.

Annex 5 of the UVPG includes those plans and programmes for which the obligation to carry out a strategic environmental assessment arises from Article 35 (1) UVPG. § Art. 35 para. 1 UVPG serves to implement Art. 3 para. 2 lit. a of the SEA Directive (BT-Drs. 15/3441, p. 27 to the predecessor provision of Art. 14b para. 1 UVPG old version). Annex 5 to the UVPG must therefore include all plans and programmes for which Art. 3 para. 2 lit. a) of the SEA Directive 2001/42/EC requires a strategic environmental assessment. This is the case with regard to the clean air programme at issue here. Since the actual existence of a SEA obligation is a question of justification, this aspect is explained in more detail there (see below under B. II. 1.).

With regard to local jurisdiction, § 7 sub-section 2 UmwRG provides that, in the case of plans and programmes of a transnational nature, the Higher Administrative Court in whose district the authority which has taken the decision on the adoption of the plan or programme has its seat is competent.

The national air pollution control programme is drawn up and adopted by the Federal Government in accordance with § 4 of the 43rd BImSchV. The seat of the constitutional body, the Federal Government, is the federal capital Berlin in accordance with § 3 para. 1 Berlin/Bonn Act.

The local competent court is therefore the Higher Administrative Court of Berlin-Brandenburg.

2. Statehood

The complaint aimed at dynamising the national clean air programme is admissible as a general performance complaint. This corresponds to the principles regulated by the BVerwG, according to which the claim to the enactment of a plan similar in legal nature to an administrative regulation is to be pursued by way of a general action for performance (BVerwG, judgement of 5 September 2013 - 7 C 21.12, BVerwGE 147, 312, para. 18).

Like clean air plans, the clean air programme at issue in the dispute resembles an administrative regulation. It has no external effect, so that legal authorizations are required for the implementation of the measures it contains.

Due to the admissibility of the general action for performance, the provision of § 7 sub-section 2 sentence 2 UmwRG, which, in relation to decisions according to § 1 sub-section 1 sentence 1 no 4 UmwRG, provides for a subsidiary application of the provisions on the abstract review of standards of § 47 VwGO, is not applicable. The explanatory memorandum to the Act explicitly states that the case law cited above on the admissibility of the general action for performance in relation to plans and programmes remains unaffected (Bundestag printed paper 18/9526, p. 43).

3. Legal standing

The requirement of legal standing, which is to be applied mutatis mutandis to the general action for performance, is also fulfilled. The legal standing arises both from the UmwRG and, independently thereof, directly from Union law.

a. Right of action under the UmwRG

The right to bring an action is firstly derived from Section 42 (2) 1 HS VwGO in conjunction with § 2 sub-section 4 sentence 1 no. 2 UmwRG. According to this, an association recognised under § 3 UmwRG may, without having to demonstrate an infringement of its own rights, claim that a decision under § 1 sub-section 1 sentence 1 no. 4 UmwRG or failure to act in accordance with it violates environment-related legal provisions which are relevant to this decision.

The plaintiff is an association recognised under § 3 UmwRG.

The applicant complains of a breach of the requirements of the NEC Directive or of the provisions of the 43rd BImSchV for its implementation. These are regulations serving the protection of the environment.

The Clean Air Programme is a decision within the meaning of § 1 sub-section 1 sentence 1 no. 4 UmwRG.

b. Right of action under Union law

Independently of the right of action by associations under the UmwRG, the plaintiff's right to bring an action also derives directly from Union law.

In the absence of provisions of Union law on the modalities of judicial review, it is for the domestic legal order of each Member State to regulate those modalities in accordance with the principle of procedural autonomy. However, these must not make it practically impossible or excessively difficult to exercise the rights conferred by the Union legal order (principle of effectiveness) (ECJ, judgment of 16 December 1976, C-33/76, para. 5 - Rewe-Zentralfinanz, ECJ, judgment of 22 February 2018, C572/16-, para. 42 with further references - INEOS).

With regard to the principle of effectiveness, Article 19(1), second paragraph, TEU provides that Member States shall provide for the necessary legal remedies to ensure effective judicial protection in the areas covered by Union law (ECJ, judgment of 19 November 2014, C404/13-, para. 52 - ClientEarth; ECJ, judgment of 26 June 2019, C-723/17, para. 31 - Craeynest).

According to the settled case law of the ECJ, in all cases where the provisions of a directive are unconditional and sufficiently precise in substance, individuals must be able to rely on those provisions vis-à-vis the Member State where the latter has not transposed the directive into national law within the prescribed period or has done so inadequately (fundamental ECJ, judgment of 19 November 1991, C6/90- and C9/90-, nr. 11 - Francovich).

It would be incompatible with the principle of effectiveness and the binding effect of directives, as recognised by Article 288(3) TFEU, to exclude in principle the possibility that individuals may rely on the obligation imposed by a directive (see already ECJ, judgment of 19 January 1982, C- 8/81, para. 22 - Becker; ECJ, judgments of 7 September 2004, C127/02-, para. 66 - Waddenvereniging; ECJ, judgment of 3 October 2019, C-197/18, para. 30 - Wasserleitungsverband Nördliches Burgenland).

This consideration applies in particular to a directive which aims at controlling and reducing air pollution and thus protecting public health (ECJ, judgment of 25 July 2008, C237/07-, para. 37 - Janecek; ECJ, judgment of 19 November 2014, C404/13, para. 55 - ClientEarth). This is the case with the NEC Directive.

The objective of a directive is also crucial in determining whether natural and legal persons are directly affected by a breach of the obligations imposed by a directive (ECJ, judgment of 3 October 2019, C-197/18, para. 35 - Wasserleitungsverband Nördliches Burgenland). Accordingly, the health protection pursued by the NEC Directive also disputes the existence of a direct concern of the plaintiff.

The obligation under Art. 6 NEC Directive invoked here is also clear, precise and unconditional. In its ruling of 26 May 2011, the European Court of Justice made it clear with regard to Art. 6 of the old NEC Directive that the obligation to draw up a national air pollution control programme, as standardised there, is unconditional and sufficiently precise. Consequently, it must be possible for natural and legal persons directly affected to obtain compliance with and implementation of such EU law standards from the competent authorities, if necessary by appealing to the national courts (ECJ, judgment of 26 May 2011, C-165/09 to C-167/09, para. 99 et seq. - Stichting).

Following this finding of the ECJ, the 27th recital of the new NEC Directive clarifies

> "One of the objectives of this Directive is to protect human health. As the Court has repeatedly stated, it would be incompatible with the binding legal effect conferred on a directive by the third paragraph of Article 288 of the Treaty on the Functioning of the European Union (TFEU) to exclude in principle the possibility that an obligation imposed by a directive may be relied on by the persons concerned. This consideration applies in particular to a directive which seeks to control and reduce air pollution and thus to protect human health. “

The applicant must therefore be granted a right of action in the present case on the basis of the Janecek case-law alone.

In addition, the ECJ bases its case law on Article 9 (3) of the Aarhus Convention (AK) in conjunction with Article 47 of the Charter of Fundamental Rights (GRCh).

According to Article 9 (3) of the SCA, each Party shall ensure, in addition to and without prejudice to the review procedures referred to in Article 9 (1) and (2) of the SCA, that members of the public, provided they meet any criteria laid down in its national law, have access to administrative or judicial procedures to challenge acts and omissions by private persons and public authorities which contravene provisions of its national law relating to the environment. As an international treaty, the Aarhus Convention not only binds the Federal Republic of Germany (see Federal Law Gazette II 2007, p. 1392), but is also part of the Union legal order because it is signed by the Community (ECJ, judgment of 8 March 2011, C-240/09, marginal no. 30 et seq. N. - Slovakian Brown Bear I).

In its decision "Slovak Brown Bear II", the ECJ states that Art. 9 (3) AK does not have direct effect because it does not contain a clear and precise obligation. However, as the provision aims at ensuring effective protection of the environment, the principle of effectiveness requires that a national court should, as far as possible, review procedural law with regard to the conditions which must be met for the initiation of administrative or judicial review proceedings in accordance with the objectives of both Article 9 (3) AK and Article 9 (4) AK. 3 AK as well as with the objective of effective judicial protection of rights conferred by Union law, in order to enable an environmental protection organisation to challenge before a court a decision taken at the end of an administrative procedure which may be in conflict with Union environmental law (Judgement of 8 March 2011, C-240/09, marginal 45 et seq. - Slovak Brown Bear I marginal 45 et seq.)

In the "Protect" decision (ECJ, ruling of 20 December 2017, C-664/15, margin 45 et seq. - Protect), the ECJ also states that Art. 9 (3) AK, also in conjunction with Art. 47 GRCh, obliges the Member States to ensure effective judicial protection of the rights guaranteed by Union law, in particular the provisions of environmental law. Article 47(1) ECHR gives every person whose rights or freedoms guaranteed by Union law have been violated the right to an effective remedy before a court or tribunal.

The ECJ states in this respect that the right of appeal provided for in Art. 9 (3) AK would have no practical effect if certain categories of "members of the public", a fortiori the "public concerned" such as environmental organisations which fulfil the requirements of Art. 2 No. 5 AK, were completely denied access to the courts by criteria of national law. In particular, environmental organisations may not be deprived by criteria laid down in national law of the possibility of having compliance with the legal provisions arising from Union environmental law checked, particularly as such legal provisions are in most cases directed towards the general interest and not solely towards the protection of the legal interests of individuals, and the task of said environmental organisations is the protection of the general interest. Admittedly, this means that the Member States retain a margin of discretion. However, criteria that were so strict that it was practically impossible for environmental organisations to challenge acts and omissions within the meaning of Article 9 (3) AK were inadmissible. If, therefore, an interpretation of national provisions within the meaning of the "Slovak Brown Bear I" decision that takes into account the objectives of Art. 9 (3) AK and the rights conferred by Union law as far as possible is not possible, the national court would have to disapply the national procedural provision in question out of its own decision-making power (ECJ, judgement of 20 December 2017, marginal no. 55 - Protect; the following BVerwG, judgement of 27 February 2018, 7 C 30/17, BVerwGE 161, 201 ff, juris para. 36).

Through the above argumentation, the ECJ has supported the view of the German legislator that Art. 9 (3) AK has already been transposed into German law and that the national possibilities of restriction resulting from the provision are not exhausted in the national law resulting from Art. 42 (3) AK. 2 VwGO (see BT-Drs 16/2497 pp. 42, 46, which sees no need for national implementation and only the final implementation of Art. 9 para. 2 AK in the UmwRG; see also BVerwG, ruling of 5 September 2013 - 7 C 21.12, NVwZ 2014, 64, marginal no. 31). Such a restriction is diametrically opposed to the case law now to be observed with regard to the possibilities of restriction within the framework of Article 9 (3) AK.

As a result, the ECJ provides environmental associations recognised under national law with a comprehensive right of action for compliance with objective Union environmental law (Wegener, ZUR 2018, 217, 221; Sobotta EuZW 2018, 165, 166; Streinz, JuS 2018, 728; Klinger, NVwZ 2018, 231, 232). This interpretation is confirmed by the decision of

the ECJ of 3 October 2019, in which the Court of Justice assumed that the mere exceeding of a normative limit value is sufficient to justify a right of action by a water management association (ECJ, judgment of 3 October 2019 - C-197/18, NVwZ 2019, 1587, margin no. 30 et seq. - Wasserleitungsverband Nördliches Burgenland; Reinhardt, NVwZ 2019, 1591).

The action is therefore admissible.

4. Specificity of the claim

The plea in law is sufficiently specific.

In view of the executive branch's scope for planning, it is sufficient to specify the objective in order to determine the validity of an application for action (BVerwG, judgment of 5 September 2013 - 7 C 21/12, BVerwGE 147, 312, juris marg. nos. 54 f.).

The application meets these requirements because it specifies the emission reduction obligations to be met by the planning.

5. Need for legal protection

The need for legal protection is given.

A prior application to the competent authority is not necessary. In particular in cases concerning the elimination of unlawful conditions, it is not apparent why an application must first be made to the respective authority (see Sodan, in: Sodan/Ziekow, VwGO, 5th ed. 2018, § 42 marginal 45; VGH Kassel, ESVGH 65, 94, 95).

In addition, as a precautionary measure, a corresponding application was submitted by letters dated 4 February 2020 and 24 April 2020.

II. Substance of the main request

The action is also well founded.

According to § 2 sub-section 4 no. 2 p. 1 UmwRG, the merits of a class action lawsuit require that the decision according to § 1 sub-section 1 p. 1 no. 4 UmwRG or its omission violates environment-related legal provisions which are important for this decision and that the violation affects interests promoted by the suing association. According to sentence 2 of the provision, there must be an SEA obligation with regard to the challenged decision.

These conditions are met.

1. SUP obligation

According to Article 3(2)(a) of Directive 2001/42/EC (the SEA Directive), a strategic environmental assessment is to be carried out for all plans and programmes which are prepared in the fields of agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent for projects listed in Annexes I and II to Directive 85/337/EEC. This provision was transposed into national law by § 35 UVPG.

The existence of these conditions in detail:

a. Programme within the meaning of Article 2(a) of Directive 2001/42/EC

The clean air programme in question here is a plan or programme within the meaning of Article 2(a) of the SEA Directive.

This provision covers plans and programmes which are prepared and/or adopted by a public authority at national, regional or local level or which are prepared by a public authority for adoption by Parliament or the Government through a legislative procedure and which are required to be drawn up by law, regulation or administrative action (ECJ, judgment of 22 December 2001, p. 1). ECJ, judgment of 22 March 2012, C-567/10-, para. 31 - Inter-Environnement Bruxelles and others; ECJ, judgment of 7 June 2018, C-160/17, para. 43 - Thybaut and others; ECJ, judgment of 12 June 2019, C-43/18, para. 54 - CFE). The provisions delimiting the scope of Directive 2001/42/EC must be interpreted broadly in view of the Directive's objective of ensuring a high level of environmental protection

(see ECJ, judgment of 7 June 2018, C-160/17, para. 38 to 40 with further references - Thybault and others; ECJ, judgment of 12 June 2019, C-43/16, para. 36 - CFE).

The national clean air programme meets these requirements. The decree is provided for in Art. 6 of the NEC Directive and in § 4 of the 43rd BImSchV. According to § 4 para. 2 of the 43rd BImSchV, the programme is adopted by the Federal Government.

An indication that the national clean air programmes constitute plans and programmes within the meaning of Article 2 of the SEA Directive also follows from Article 2(5) of Directive 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment. According to this provision, no public participation procedure in accordance with the requirements of Directive 2003/35/EC is carried out for the plans and programmes listed in Annex I for which a public participation procedure is already carried out in accordance with the SEA Directive. This also includes the clean air programmes according to Art. 6 of the NEC Directive. Annex I of Directive 2003/35/EC was supplemented accordingly against the background of the requirements of the Aarhus Convention (cf. Art. 19 of the NEC Directive, 33rd recital, OJ L 344, 17.12.2016, p. 1).

It follows from the clarification in Article 2(5) of Directive 2003/35/EC that the plans and programmes referred to in Annex I are not subject to public participation under Directive 2003/35/EC that those plans and programmes fall within the scope of the SEA Directive, not only as regards public participation but also as regards strategic environmental assessment. For it would be contradictory to affirm the opening of the scope of Art. 2 of the SEA Directive for these plans and programmes only if they refer to provisions on public participation when a plan or programme is adopted, but to no longer allow the same action programmes to fall within the scope of this provision if they concern the assessment of environmental effects (ECJ, ruling of 17 June 2010, C-105/09, para. 40).

b. elaboration in a specific area

The national clean air programme shall also be developed in the areas referred to in Article 3(2)(a) of Directive 2001/42/EC. The forecasts and measures of the Clean Air Programme concern, among others, the areas of agriculture, energy, industry and transport.

c. Framework for projects subject to EIA

Finally, the Clean Air Programme also sets a framework for future development consent for projects listed in Annexes I and II of the EIA Directive 85/337/EEC.

As regards the question of whether an act establishes the framework within which the implementation of such projects may be authorised in the future, the ECJ has ruled that the term "plans and programmes" refers to any act which, by laying down the rules and procedures for monitoring applicable in the field concerned, establishes a significant set of criteria and arrangements for authorising and implementing one or more projects likely to have significant effects on the environment (ECJ, judgment of 27 June 2003 in Case C-273/98, ECR I-473, p. 1). ECJ, judgment of 27 October 2016, C 290/15, nr 49 with further references - D'Oultremont and others; ECJ, judgment of 7 June 2018, C-671/16, nr 53 - Inter-Environnement Bruxelles and others; ECJ, judgment of 7 June 2018, C-160/17, nr 54 - Thybaut and others).

The term "significant set of criteria and modalities" is to be understood qualitatively and not quantitatively (ECJ, judgment of 27 October 2016, C 290/15, nr. 48 with further references - D'Oultremont and others; ECJ, judgment of 7 June 2018, C-160/17, nr. 55 - Thybaut and others).

Since plans and programmes can affect the authorisation of individual projects in a variety of ways, thereby affecting the proper consideration of environmental effects, the SEA Directive takes a very broad view of the framework. It does not require final definitions. Rather, it also covers forms of influence that still leave room for manoeuvre. The aim is to subject all preliminary decisions for project approval to an environmental assessment if they are likely to have significant environmental impacts (VGH Munich, judgement of 25 April 2018 - 14 N 14.878, juris para. 51).

When applying these criteria, the air pollution control programme's frame-setting function must be affirmed.

For example, the measures to reduce ammonia emissions that are taken into account in the WAM scenario have an impact, inter alia, on the permitability of installations for intensive animal husbandry or breeding within the meaning of Annex I No 17, No 19 and Annex II No 1 (e) of Directive 2011/92/EU. For example, the permit for such an installation would be dependent on compliance with the requirements on exhaust air purification, which are mentioned as an option for measures.

Similarly, the measures to reduce NOx and SO2 emissions described in the Air Quality Programme set a framework for the eligibility for development consent of the projects listed in Annexes I and II, in particular in the mining, energy and infrastructure sectors (Nos 2a, 7 and 19 of Annex I and 2, 3 and 19 of Annex II). For example, the measure option (b) in the WAM scenario, the planned phase-out of electricity generation from hard coal and lignite, will necessarily involve the restriction or denial of permits for coal-fired power plants. The same applies to climate protection measures laid down in regulatory law or plant-specific emission limits anchored in the Federal Immission Control Ordinances, the design of which is specified in the Clean Air Programme.

With regard to the framework function of the Clean Air Programme, it should be borne in mind that the NEC Directive not only requires the identification of mitigation strategies and a non-binding discussion of options for action, but also requires the definition of concrete measures to be adopted, for which a concrete implementation timetable must be determined (see below under B. II. 2. c. cc). Accordingly, a clean-air programme which meets these requirements - unlike the defendant's clean-air programme - and lays down measures for adoption provides a significant reference framework for the approval of, inter alia, the above-mentioned projects, which undeniably have significant environmental effects.

The acceptance of the SEA obligation for the Clean Air Programme is confirmed by a comparison with the action programmes as defined in Article 5 of Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive). For these action programmes, the ECJ has affirmed the framing function with regard to the objective and content of the programme and the scope of the environmental assessment of the projects concerned (ECJ, judgement of 17 June 2010 - C-105/09 and C-110/09, para. 45 et seq.).

With regard to the objectives of these action programmes, the ECJ found the following to be decisive:

> "46) Thus, with regard to the objectives of action programmes, it follows from Directive 91/676, and in particular from the ninth to eleventh recitals in the preamble thereto, Articles 1 and 3 to 5 and the annexes thereto, that, in respect of vulnerable zones, those programmes imply a comprehensive assessment of the environmental problems linked to nitrate pollution from agricultural sources and establish an organised system to ensure a general level of protection against such pollution.
> (47) The specific character of these programmes is that they constitute a coherent overall approach which has the character of concrete and structured planning, covers vulnerable zones, where appropriate throughout the national territory, and addresses both the reduction and the elimination of nitrate pollution from agricultural sources".
> (ECJ, judgment of 17 June 2010 - C-105/09 and C-110/09, paragraph 46 et seq.)

These considerations can be applied to the clean air programme at issue here. The objective of a clean air programme within the meaning of Article 6 of the NEC Directive is to limit anthropogenic emissions of certain air pollutants. This objective implies that the clean air programmes provide for a comprehensive examination of the environmental and health problems associated with the emissions of the various air pollutants covered and that, on this basis, a coherent overall concept is drawn up for reducing these emissions to the level specifically defined by the NEC Directive.

With regard to the content of the action programmes within the meaning of Article 5 of the Nitrates Directive, the following was decisive for the ECJ:

> "48 As regards the content of the action programmes, it is apparent from Article 5 of Directive 91/676, read in conjunction with Annex III thereto, that those programmes contain specific and binding measures concerning, in particular, the periods during which the application of certain types of fertilisers on agricultural land is prohibited, the capacity of manure storage tanks, the methods of application and the maximum amount of nitrogenous manure that may be applied (see paragraph 3 of the contested decision). see, to that effect, Case C-416/02 Commission v Spain [2005] ECR I-7487, paragraph 34). Those measures ensure, in particular, as provided for in point 2 of Annex III to Directive 91/676, that for each farm or livestock farm, the amount of manure applied to the soil, including that applied by the animals themselves, does not exceed 170 kg of nitrogen per hectare per year".
> (ECJ, judgment of 17 June 2010 - C-105/09 and C-110/09, paragraph 48)

The NEC Directive also requires that the clean air programmes to be drawn up contain concrete and binding measures to reduce emissions. Like the Nitrates Directive, the NEC Directive also provides for concrete requirements in Art. 6 and Annex III regarding the minimum content of the clean air programmes, with specific measures to limit ammonia emissions being specified in Annex III Part 2 Section A. Independently of these specific measures, the NEC Directive, comparable to Art. 5 para. 5 Nitrates Directive, requires that all other additional measures necessary to meet the binding reduction commitments are specified in the clean air programme (see below under B. II. 2. c).

With regard to the third criterion, the extent of the environmental assessment of the projects concerned, the ECJ stated with regard to the action programmes to be drawn up under the Nitrates Directive

> "49 As regards the scope of the environmental assessment provided for by Directive 85/337, it must first be recalled that the measures contained in the action programmes concern the intensive stock-farming or intensive rearing installations listed in point 17 of Annex I and point 1(e) of Annex II.
> 50) In the context of the environmental assessment provided for by Directive 85/337, the national authorities must take account not only of the direct effects of the planned works themselves but also of the effects on the environment which may be caused by the use and operation of the installations resulting from those works (judgments of 28 February 2008, Abraham and Others Case C-2/07 Abraham and Others [2008] ECR I-1197, paragraph 43, and Case C-142/07 Ecologistas en Acción-CODA [2008] ECR I-6097, paragraph 39).
> 51 As regards, in particular, intensive livestock farming installations, such an environmental assessment must include the impact of those installations on water quality (see, to that effect, Case C-121/03 Commission v Spain [2005] ECR I-7569, paragraph 88).
> (52) As the Advocate General correctly pointed out in point 80 of her Opinion, Article 8 of Directive 85/337 requires the environmental effects which the action programmes are intended to regulate to be taken into account when projects for the operation of such installations are authorised.
> 53 Moreover, it follows from Article 5(4) of Directive 91/676 that 'action programmes adopted under Article 5(1) must include a set of measures, compliance with which may be a condition for the grant of development consent which may be granted for projects listed in Annexes I and II to Directive 85/337, and for the development of which Directive 91/676 gives the Member States a certain degree of latitude'.
> (ECJ, judgment of 17 June 2010 - C-105/09 and C-110/09, juris, paragraph 49 et seq.)

In the same way as the effects on water quality are to be taken into account in the environmental impact assessment of intensive stockfarming systems at the time of approval, the level of emissions of air pollutants must also be taken into account. In particular, the approval of such installations may depend on compliance with the measures to be laid down in the air pollution control programme, e.g. whether exhaust air purification filters are installed, whether N-reduced feeding is envisaged or whether the requirements for covering slurry stores are complied with. Approval would have to be refused if the plant did not comply with the provisions on exhaust air purification laid down in the clean air programme. In the same way, the other measures in the package of measures to be provided for in the Clean Air Programme, such as the measures for coal phase-out, would affect the ability of coal-fired power plants to obtain a permit.

The criteria according to which the ECJ affirmed the SEA obligation of action programmes under Article 5 of the Nitrates Directive are therefore also present in the present case. The National Clean Air Programme sets a framework for the approval of projects that require an environmental impact assessment. According to all this, Union law imposes an obligation to carry out a Strategic Environmental Assessment. Accordingly, the Clean Air Programme would have had to be included in Annex 5 to the UVPG.

The failure to carry out a strategic environmental assessment also constitutes a procedural error within the meaning of § 4 UmwRG, which would already lead to the cancellation of the existing inadequate air pollution control programme. For this reason too, the defendant is obliged to draw up a new, effective air pollution control programme.

Finally, it should be noted that when transposing the requirements of the NEC Directive into national law, the legislator was also aware that there might be an obligation to carry out a Strategic Environmental Assessment. This follows from § 6 para. 4 of the 43rd BImSchV, which regulates the non-applicability of the requirements for public participation regulated in § 6 para. 1 to 3 in the event that a Strategic Environmental Assessment is to be carried out.

2. breach of environmental obligations

The defendant also infringed substantive environmental obligations.

Contrary to the provisions of Art. 6 in conjunction with Art. 4 NEC Directive and § 4 in conjunction § 2 of the 43rd BImSchV, it has so far not drawn up a national air pollution control programme that meets the legal requirements.

In the following, the obligations arising from the NEC Directive are first discussed in the abstract (a. - c.). Subsequently, reasons are given as to why the defendant is in breach of these obligations (d.).

a. Strict binding nature of emission reduction commitments

The defendant is obliged under Article 4(1) of the NEC Directive to reduce its annual anthropogenic emissions of air pollutants:

> "Member States shall limit their annual anthropogenic emissions of sulphur dioxide, nitrogen oxides[] ammonia and particulate matter at least in accordance with their national emission reduction commitments from 2020 to 2029 and from 2030 as set out in Annex II. “

Part B of Annex II of the NEC Directive states that Germany must pay the annual anthropogenic

- Ammonia emissions by 5 % each year between 2020 and 2029 and by 29 % each year from 2030
- Nitrogen oxide emissions by 39 % each year between 2020 and 2029 and by 65 % each year from 2030
- sulphur dioxide emissions by 21 % each year between 2020 and 2029 and by 58 % each year from 2030
- Particulate matter emissions by 26 % each year between 2020 and 2029 and by 43 % each year from 2030 onwards

must reduce.

These reduction targets contain an absolutely binding obligation to achieve results in accordance with Article 288 (3) TFEU.

When determining the legal scope of a provision of a directive, its wording, its context and the objectives of the related provisions must be taken into account (see inter alia

ECJ, judgment of 3 October 2013, C-317/12, para. 19; ECJ, judgment of 1 July 2015, C-461/13, para. 30).

The wording of Article 4 (1) of the NEC Directive, according to which Member States shall "limit" their annual anthropogenic emissions at least in accordance with their reduction commitments set out in Annex II, leaves no doubt that the reduction targets must be strictly adhered to. The binding nature of the reduction commitments is also made clear by the context of the obligation under international law and by the objective enshrined in Art. 1 NEC Directive of achieving a level of air quality that does not give rise to negative impacts on and risks to human health and the environment.

The acceptance of an obligation to produce results is also in line with the findings of the ECJ on comparable provisions of the Directive. Thus, with regard to the comparable provisions of Art. 13(1) of Directive 2008/50/EC (ECJ, judgment of 19 November 2014 - C-404/13, para. 30 - ClientEarth) or Art. 4(1)(a) of Directive 2000/60/EC (ECJ, judgment of 1 July 2015, C-461/13, para. 31, 43 - BUND), the ECJ emphasised the strict binding nature of the environmental quality standards laid down therein.

The ECJ has also already ruled on the old NEC Directive that emission reduction commitments must be met within the specified time frame. In its "Stichting" ruling of 26 May 2011, the ECJ states that the Member States already have a positive obligation to implement the necessary measures during the transposition period:

> "84 As regards the question whether positive obligations apply to the Member States during the transitional period from 27 November 2002 to 31 December 2010 and, if so, which ones, it should be recalled that, according to settled case-law, the obligation on a Member State to take all measures necessary to achieve the objective prescribed by a directive is a duty imposed by Art. Article 288(3) TFEU and the directive itself (Case 152/84 Marshall [1986] ECR 723, paragraph 48, and Case C-243/96 Kraaijeveld and Others [1996] ECR I-0000, paragraph 48), Case C72/95 Kraaijeveld and Others [-1996] ECR I5403-, paragraph 55, and Inter-Environnement Wallonie, paragraph 40).
> 85 It follows from that obligation that, during the period for transposition, it is for the Member States to take the measures necessary to ensure that the objective prescribed by the directive is achieved on expiry of that period (Inter-Environnement Wallonie, paragraph 44). The same applies to a transitional period such as that- provided for in Article 4 of the NEC Directive.
> 86- In that regard, the NEC Directive- itself imposes certain positive obligations on the Member States during that period, relating in particular to the definition of strategies for action at a higher level with the aim of progressively reducing annual

> emissions of the pollutants concerned to the maximum levels laid down in Annex I to that directive by the end of 2010 at the latest.
> 87 More specifically, Articles 6 and 8(2) of the NEC Directive require- the Member States to draw up, by 1 October 2002 at the latest, programmes for the progressive reduction of the emissions in question and, if necessary, to update and revise them by 1 October 2006 at the latest, and to make them available to the public and to the organisations concerned by means of clear, comprehensible and easily accessible information and to inform the Commission in good time. “
> (ECJ, judgment of 26 May 2011, C- 165/09 to C-167/09, paragraphs 84-87 - Stichting)

There are also no primary legal doubts about the validity of the reduction obligations imposed on Germany. In its decision on an action for annulment brought by Poland, the ECJ found that the emission obligations imposed on Poland in Art. 4 in connection with Annex II of the NEC Directive are proportionate and do not violate the primary law principle of equality of the Member States (ECJ, ruling of 13 March 2019, C-128/17, marginal 94 et seq. 127 et seq. - Poland v European Parliament and others). In this context, the ECJ emphasises the objective of protecting the environment and health at a high level pursued by the Directive and the fact that the Member States and the European Union are obliged to reduce emissions accordingly, also on the basis of their obligations under international law under the Gothenburg Protocol (ECJ, loc. cit., marginals 97-99, 128 et seq.) With regard to the emission reduction obligations imposed on Germany, nothing else can apply.

The binding nature of the provisions of the NEC Directive also results from the fact that Art. 18 NEC Directive obliges the Member States to adopt provisions on effective, proportionate and dissuasive sanctions to be imposed in the event of infringement of the national provisions transposing the NEC Directive. The defendant, which has not included any sanctioning provision in the 43rd BImSchV, has not yet complied with this obligation.

According to all this, the provisions of Art 4(1) in conjunction with Annex II NEC Directive are strictly binding. The explanatory memorandum to the 43rd BImSchV correctly clarifies in this respect that the emission reduction obligations specify an "emission level" which must be achieved (BT-Drs. 19/1598, p. 26).

b. Obligation to follow a certain reduction path

The NEC Directive also sets out the reduction path to achieve the emission reduction targets for 2030:

> "Without prejudice to paragraph 1, Member States shall take the necessary measures to reduce their anthropogenic emissions of sulphur dioxide, nitrogen oxides, [...] ammonia and particulate matter in 2025. The indicative emission levels concerned shall be determined using a linear reduction path drawn between their emission levels resulting from emission reduction commitments for 2020 and their emission levels resulting from emission reduction commitments for 2030.

This provision is intended to ensure demonstrable progress towards the reduction targets for 2030 and to promote a gradual and continuous reduction in emissions (ECJ, judgment of 13 March 2019, C-128/17, para. 102).

Although Article 4(2)(2) of the NEC Directive allows a deviation from the linear reduction path, this is subject to certain conditions:

> "Member States may follow a non-linear reduction path if this is economically or technically more efficient and provided that this path gradually converges to the linear reduction path from 2025 onwards and that this does not affect emission reduction commitments for 2030. Member States shall define this non-linear reduction path in the national clean air programmes to be submitted to the Commission in accordance with Article 10(1) and shall justify why they are following it. “

Any deviation from the linear reduction path must therefore be defined and justified in the national clean air programme to be submitted and is subject to the restriction that the non-linear reduction path must gradually converge to the linear reduction path from 2025 onwards and that it must equally ensure that the reduction commitments for 2030 are met.

These requirements are discussed in more detail in the guidelines of the EU Commission (**Annex K**), which were drawn up on the basis of Art. 6 para. 9 NEC Directive. Here it says:

> "If the projected emission reductions under the "with additional measures" scenario do not result in a linear emission reduction path between 2020 and 2030, Member States must confirm with evidence that the emission reduction commitments for

> 2030 will be implemented with adopted measures. This evidence should set out the analysis carried out on the emission reduction for the time series and explain why the reduction will not be linear. A non-linear path is allowed only if it is demonstrated that it is economically or technically more efficient and that this is without prejudice to the emission reduction commitments for 2030 (Article 4(2)).
> Similarly, Member States must demonstrate that the non-linear path will gradually converge to the linear reduction path from 2025 onwards in order to meet the same emission reduction commitments for 2030. The draft national clean air programmes to be submitted to the public for consultation in accordance with Article 6(5) of the Directive should include information on the projected emission reduction path, including the status in 2025.
> [...] The explanation should show why further measures to comply with the linear path of the quantitative limit until 2025 would entail disproportionate costs (Annex III, Part 1, point 1(d)). “

A Member State cannot therefore deviate at will from the linear reduction path set out in principle. Rather, *proof is* required that the conditions for pursuing a non-linear reduction path (technical and economic efficiency, ensuring convergence to the linear reduction path from 2025) are met. The existence of these conditions must be justified in detail, as this is the only way to ensure that the deviation can be verified by the courts and the public.

c. Obligation to draw up a national clean air programme suitable for meeting the emission reduction targets

Art. 6 para. 1 NEC Directive obliges the Member States to establish a national air quality programme. The provision has the following wording:

> "Each Member State shall establish, adopt and implement its national programme for clean air in accordance with Part 1 of Annex III in order to limit its annual anthropogenic emissions in accordance with Article 4 and to contribute to the achievement of the objectives laid down in Article 1(1) of this Directive. “

Member States have a wide margin of manoeuvre in the design of clean air programmes. For example, the 19th recital of the Directive emphasises that the Member States are free to decide for themselves what measures they take to meet the emission reduction obligations laid down in the Directive. In its case law on the old NEC Directive, the European Court of Justice also emphasised that the EU Member States have a margin of manoeuvre in the design of clean air programmes (ECJ, judgment of 26 May 2011, C-165/09 to C-167/09, para. 88).

However, this leeway is limited by the function of the clean air programmes to ensure compliance with the binding reduction commitments and by the further substantive requirements provided for in Art. 6 and Annex III NEC Directive.

On the limitations of the planning scope in detail:

aa. Suitability for meeting emission reduction commitments

The central requirement for the air pollution control programmes to be drawn up is their suitability to fulfil the requirements of Article 4 para. 1 in conjunction with Annex II NEC Directive.

According to Art. 6 para. 1 of the NEC Directive, the Clean Air Programme must be drawn up, adopted and implemented in order to "limit" annual emissions to the extent provided for in Art. 4.

If current emission data and projections indicate that the reduction targets cannot be met, the emission reduction strategies and measures of the Clean Air Programme must be updated within 18 months in accordance with Article 6 para. 4 NEC Directive. This updating obligation is already triggered if there is a mere *risk that* the reduction targets will not be met.

Thus, unlike with regard to the abstract objectives mentioned in Art. 1 of the Directive, the clean air programme must not only contribute to the achievement of the objectives. Rather, a certain success is owed in relation to these specific reduction targets set out in Annex II. The clean air programme must contain all measures necessary to meet the reduction targets.

The ECJ has already clarified this with regard to the planning obligation in Art. 6 of the old NEC Directive:

> "It should be pointed out in this regard that, while Member States thus have a margin of discretion, Article 6 of the NEC Directive imposes limits on the exercise of that discretion, which may be relied upon before the national courts, as regards the

> orientation of all the policies and measures adopted or envisaged under the respective national programmes towards that objective of reducing emissions of the pollutants concerned to the maximum levels fixed for each Member State by the end of 2010 at the latest (see, to that effect, Janecek, paragraph 46). “
> (ECJ, judgment of 26 May 2011, C-165/09 to C-167/09, paragraph 103)

This requirement applies equally in relation to the new NEC Directive. The discretion in the design of the national clean air programme is thus limited by the obligation in Art. 4 para. 1 to strictly adhere to the emission reduction commitments regulated in Annex II.

Nor do the flexibility mechanisms regulated in Art. 5 of the NEC Directive release the parties from their obligation to orient their planning of measures towards strict compliance with the principles set out in Art. 4 (1) in conjunction with Art. 4 (2) of the NEC Directive. Annex II NEC Directive. These flexibility options may, in very limited cases, justify a subsequently established failure to meet the reduction obligations under Art. 4 para. 1 NEC Directive. However, the flexibility options are of no relevance to the prospective planning aimed at meeting the reduction obligations under Art. 6 NEC Directive. This can already be deduced from the fact that the use of the flexibility options is subject to annual approval by the EU Commission, Art. 5 para. 5 NEC Directive. However, the EU Commission does not make this decision for the future, but for the respective reporting year. In the event that the application of a flexibility regulation is denied, additional taxes at the level of the planning of measures are therefore no longer an option for time reasons alone. Therefore, the flexibility options cannot be used as a basis for planning. Rather, the clean air programme under Art. 6 para. 1 NEC Directive must be based on strict compliance with the requirements set out in Art. 4 para. 1 in conjunction with Annex II NEC Directive.

bb. Planning horizon

The clean air programme must not only ensure that the emission commitments for 2020 are met. Rather, the programme must already now ensure, by defining suitable measures, that, according to a sufficiently reliable forecast, the reduction obligations applicable from 2030 onwards can also be met along a linear reduction path.

If the forecast to be used as a basis for planning, as in this case, refers to compliance with an obligation to produce results under Union law, it is appropriate to make high

demands on the reliability of the forecast (in this direction VGH Mannheim, judgment of 18 March 2019 - 10 S 1977/18, juris para. 44). The time planning horizon must therefore not be limited to the year 2020 and the following years and leave compliance with the reduction targets applicable from 2030 in doubt. On the contrary, the first national clean air plan had to be geared to compliance with the reduction commitments applicable from 2030.

This too can be seen from previous ECJ case law on the old NEC Directive. Here the ECJ has derived that the obligation to draw up and implement effective planning does not only apply from the time when the National Emission Ceilings become binding. Rather, the Member States must

> "during the transitional period from 27 November 2002, the [end of the period for transposition of the old NEC Directive] until 31 December 2010, [the date from which Member States are] required to comply with the emission ceilings, the date from which Member States shall introduce or plan, through national programmes, adequate and consistent policies and measures which, taken as a whole, are capable of reducing emissions of the above pollutants in such a way that the national ceilings provided for in Annex I to this Directive are complied with by the end of 2010 at the latest,".
> (ECJ, Judgment of 26 May 2011, C-165/09 to C-167/09, third indent; paragraph 84 et seq. - Stichting)

Translated into the obligations of the new NEC Directive, this means that coherent policies and measures to ensure compliance with the reduction targets for the period from 2020 and 2030 had to be developed as early as 31 December 2016, the date of entry into force of the new NEC Directive, and no later than 1 July 2018, the deadline for implementation. These were to be anchored in a national clean air programme which, according to Art. 10 para. 1 NEC Directive, was to be submitted to the EU Commission by 1 April 2019. This first clean air programme already had to contain the measures necessary to meet the reduction commitments from 2030.

cc. Analysis and definition of additional reduction measures

According to Article 6(1) of the NEC Directive, the air pollution abatement programmes must be drawn up "in accordance with Part 1 of Annex III" to the Directive. There the minimum content of the national clean air programmes is regulated.

According to this, the air pollution control programmes contain, on the one hand, information on the existing political framework, authority responsibilities and the reduction effects of existing strategies and measures and their contribution to compliance with the reduction targets (Annex III Part 1 lit. a) NEC Directive, § 4 para. 1 sentence 1 no. 4-6, 13 of the 43rd BImSchV).

The programme must also identify the additional policy options that are being considered to meet emission reduction commitments and examine them in terms of their impact (Annex III Part 1 lit. b) NEC Directive, § 4 para. 1 sentence 1 no. 7-8 of the 43rd BImSchV).

However, the mere identification and examination of additional options for action is not sufficient. Rather, the NEC Directive stipulates that the programme must also contain "the strategies and measures planned for adoption, as well as the timetable for their adoption, implementation and review, with details of the competent authority" (Annex III Part 1 lit. c NEC Directive, § 4 para. 1 sentence 1 no. 9 of the 43rd BImSchV). Accordingly, the air pollution control programme must define measures that are to be implemented on a binding basis.

Thus, in a first step, the measures and strategies suitable for the required reduction of emissions must be identified and analysed with regard to their impact potential. Based on this, in a further step the measures must be determined which are to ensure compliance with the readily binding reduction obligations. This corresponds to the planning procedure that is also required for the preparation of clean air plans (VG Wiesbaden, judgement of 30 June 2015 - 4 K 97/15.WI, juris marg. no. 91).

It is therefore not sufficient for a clean air programme to merely discuss various options for measures without obligation. Rather, the programme must bindingly specify which strategies and measures should actually be adopted and implemented in order to meet the reduction targets. Based on the analysis of the various policy options, a binding selection of measures must therefore be made.

This already follows from the requirement in Art. 6 para. 1 of the NEC Directive that the clean air programmes should ensure binding emission limitation and, to this end, should also be "implemented" on the basis of existing legal bases or those that may have to be

created. However, a mere non-binding discussion of options for measures cannot be implemented and has no effect on the level of emissions.

The need for a binding specification of measures with a concrete implementation schedule and concrete allocation of responsibilities can also be seen in the implementing decision (EU) 2018/1522 , which was adopted on the basis of Art. 6 para. 10 NEC Directive and which defines a uniform format for the air pollution control programmes, as well as in the guidelines of the EU Commission (Annex K), which were drawn up on the basis of Art. 6 para. 9 NEC Directive.

The EU Commission's guidelines specify that the analysis of the effectiveness of measures should serve as a basis for the Member States "to select the most successful strategies and measures for inclusion in the national air pollution control programme" and provide the following information on this (Annex K, p. 13):

2.7.1. **Zur Verabschiedung vorgesehene Strategien und Maßnahmen; zuständige Behörden**

Obligatorischer Inhalt:

Je nach dem Ergebnis der zuvor durchgeführten Analyse haben die Mitgliedstaaten folgende Angaben zu den zusätzlichen Strategien und Maßnahmen, die für die Aufnahme in das nationale Luftreinhalteprogramm vorgesehen wurden, zu machen:

Auf Ebene einer einzelnen Strategie/Maßnahme oder eines Strategie-/Maßnahmenpakets:

a) Bezeichnung und Kurzbeschreibung der einzelnen Strategie und Maßnahme bzw. des Strategie-/Maßnahmenpakets

b) Vorgesehenes Jahr der Verabschiedung und Zeitplan für die Umsetzung (Jahr(e))

c) Vorgesehener Zeitplan für die Überprüfung (Jahr)

d) Für Umsetzung und Regulierung der Strategie und Maßnahme zuständige Behörden

Fakultativer Inhalt:

a) Relevante Anmerkungen, die sich aus der Konsultation zu der einzelnen Strategie/Maßnahme oder zu dem Strategie-/Maßnahmenpaket ergeben

b) Angaben zu Zwischenzielen und Indikatoren, die zur Überwachung der Fortschritte bei der Umsetzung der vorgesehenen Strategien und Maßnahmen ausgewählt wurden; weitere Einzelheiten zu diesem Inhalt und der möglichen Ausarbeitung enthält Kapitel 3.

The implementing decision also states that the discussion of policy options already requires (O) the identification of the concrete implementation period and the competent authorities responsible for implementation, as well as a quantified reduction potential and the analytical methods used:

2.6.1. *Nähere Angaben zu den zur Einhaltung der Emissionsreduktionsverpflichtungen in Betracht gezogenen Strategien und Maßnahmen (Angabe auf Strategie-/Maßnahmenebene)*

Bezeichnung und Kurzbeschreibung einer einzelnen Strategie/Maßnahme oder eines Strategie-/Maßnahmenpakets (O)	Betroffene Schadstoffe, Zutreffendes auswählen: SO_x, NO_x, NMVOC, NH_3, $PM_{2,5}$, (O); Ruß als Bestandteil von $PM_{2,5}$, sonstige (z. B. Hg, Dioxine, THG) (F), bitte angeben	Ziele einer einzelnen Strategie/Maßnahme oder eines Strategie-/Maßnahmenpakets (O)	Art(en) der Strategie(n)/Maßnahme(n) (*) (O)	Wichtigste und gegebenenfalls weitere betroffene Sektoren (†) (O)	Umsetzungszeitraum (O für zur Umsetzung ausgewählte Maßnahmen)		Für die Umsetzung zuständige(n) Behörde(n) (O für zur Umsetzung ausgewählte Maßnahmen) Siehe Tabelle 2.3.2.		Nähere Angaben zu den für die Analyse verwendeten Methoden (z. B. spezifische Modelle oder Methoden, zugrunde liegende Daten) (O)	Quantifizierte erwartete Emissionsreduktionen (für einzelne Strategien/Maßnahmen bzw. für Strategie-/Maßnahmenpakete) (kt, pro Jahr oder als Spanne, im Vergleich zum Szenario „mit Maßnahmen") (O)			Qualitative Beschreibung der Unsicherheiten (O, sofern verfügbar)
					Beginn	Abschluss	Art	Name		2020	2025	2030	

Similarly, the individual strategies and measures to be adopted must be specified in detail with regard to their implementation timetable, the competent authorities and the monitoring of their effectiveness:

2.7.1. *Zur Verabschiedung vorgesehene einzelne Strategien/Maßnahmen oder Strategie-/Maßnahmenpakete; zuständige Behörden*

Bezeichnung und Kurzbeschreibung einer einzelnen Strategie/Maßnahme oder eines Strategie-/Maßnahmenpakets (O) *Siehe Tabelle 2.6.1.*	Derzeit vorgesehenes Jahr der Verabschiedung (O)	Relevante Anmerkungen, die sich aus Konsultationen zu der einzelnen Strategie/Maßnahme oder zu dem Strategie-/Maßnahmenpaket ergeben (F)	Derzeit vorgesehener Zeitplan für die Umsetzung (O)		Zwischenziele und Indikatoren, die zur Überwachung der Fortschritte bei der Umsetzung der ausgewählten Strategien und Maßnahmen ausgewählt wurden (F)		Derzeit vorgesehener Zeitplan für die Überprüfung (falls abweichend von der allgemeinen Aktualisierung des nationalen Luftreinhalteprogramms alle vier Jahre) (O)	Für die einzelne Strategie/Maßnahme oder das Strategie-/Maßnahmenpaket zuständige Behörden (O) *Siehe Tabelle 2.3.2.*
			Anfangsjahr	Abschlussjahr	Zwischenziele	Indikatoren		

The fact that clean-air measures laid down in plans and programmes can only be taken into account in the forecast of compliance with air quality objectives if their implementation is ensured and their content and timing is specified in the programme itself is also in line with previous case-law on the required quality of clean-air plans within the meaning of Article 23(1) of Directive 2008/50/EC. According to this, measures whose implementation is made dependent on an event whose occurrence is unlikely or unforeseeable in terms of time are not suitable for shortening the period during which immission limit values are exceeded (VG Stuttgart, judgement of 26 July 2017 - 13 K 5412/15 , juris para.

172). A clean-air plan which makes the effectiveness of the measures provided for in it dependent on conditions whose occurrence is uncertain and which cannot be brought about by the planner himself will not meet the legal requirements (BVerwG, judgement of 27 February 2018 - 7 C 30.17, marginal no. 35). For this reason, measures that are limited to a mere incentive function or that are mere declarations of intent or for which only very general and imprecise estimates of the mitigation effect have been made may not be taken into account in the impact prognosis on which the plan is based because their implementation and effect cannot be assumed with sufficient certainty (VG Gelsenkirchen, judgement of 15 February 2018 - 7 C 30.17, para. 35). November 2018 - 8 K 5068/15, juris para. 197 et seq.; VG Mainz, judgement of 24 October 2018 - 3 K 988/16.MZ, juris para. 36).

It follows from all the above that a non-binding list of mere options for measures without a concrete implementation period and without designating the competent authorities for implementation does not meet the requirements of the NEC Directive. Rather, the measures designed to ensure compliance with the emission reduction targets must be ready for adoption. When and by whom implementation is to take place must be specified in the Clean Air Programme.

d. Failure by the defendant to comply with those requirements

The National Air Pollution Control Programme of the Federal Republic of Germany adopted on 22 May 2019 does not meet the above requirements.

Although both current emission data and the emission forecast of the Clean Air Programme show that the measures considered in the WM scenario cannot ensure compliance with the reduction commitments, the defendant has not specified any additional measures in the Clean Air Programme which could ensure compliance with the reduction commitments in accordance with the requirements of Article 6 of the NEC Directive and Article 4 of the 43rd Federal Immission Control Ordinance.

This is because the Clean Air Programme only discusses non-binding options for measures whose implementation is not certain. An implementation timetable is not mentioned. However, measures that are not implemented cannot contribute to limiting emissions. Apart from this, the calculation of the reduction effects is largely incomprehensible

and plausible.

In detail:

aa. Failure to meet reduction commitments with existing measures

With the help of the existing measures considered in the WM scenario, the reduction targets of the NEC Directive cannot be met in most cases.

According to the most recent emission data for 2018, the following gaps remain in meeting individual reduction commitments:

- The national ammonia emissions in 2018 were still 636 kt. This leaves a gap of 27 kt to meet the reduction commitments that apply from 2020, a gap of 104 kt to meet the interim target for 2025 and a gap of 181 kt to meet the reduction commitments that apply from 2030.
- National nitrous oxide emissions in 2018 were 1.084 kt. This leaves a gap of 155 kt to meet reduction commitments from 2020, a gap of 353 kt to meet the interim target for 2025 and a gap of 551 kt to meet reduction commitments from 2030.
- The national SO2 emissions in 2018 were 289 kt. The reduction commitments applicable from 2020 have therefore already been met. The interim target for 2025 is also just about reached. With regard to the reduction targets applicable from 2030, a gap of 89 kt remains.
- The national PM2.5 emissions in 2018 were 97 kt. This means that the reduction obligation applicable from 2020 has already been achieved. A gap of 5 kt remains to achieve the interim target for 2025. However, a gap of 17 kt remains with regard to the reduction targets applicable from 2030.

The World Cup scenario is also predicted to fall far short of the emission reduction targets:

- Ammonia is projected to fall short of the 2020 emission reduction target by 5 kt, a gap of 58 kt to meet the interim target and a shortfall of 115 kt to meet the 2030 reduction commitments.

- For nitrogen dioxide, the World Cup scenario forecasts a slight overfulfilment of the reduction commitments applicable from 2020 by 16 kt. However, a gap of 30 kt remains to meet the interim target for 2025 and 91 kt to meet the reduction commitments for 2030.
- For sulphur dioxide, the reduction targets for 2020 and 2025 are projected to be exceeded. However, a gap of 34 kt remains with regard to the reduction obligations from 2030.
- $PM2_{.5}$ is also projected to exceed the reduction targets for 2020 and 2025. However, with regard to the reduction obligations from 2030, a gap of 3 kt remains.

It must be taken into account that the forecast of the World Cup scenario is already subject to numerous uncertainties and overestimates the mitigation effect of the measures considered therein (see below under B. II. 2. d. bb. (1)). Even after this inadequate forecast of the programme, however, additional measures are needed to meet the reduction commitments.

Although it cannot be ruled out that the coronavirus pandemic and the subsequent threat of recession will lead to a decline in activity, and for this reason emissions in 2020 will be significantly lower than in 2018 or than forecast for 2020, it is not possible to rule out the possibility that the coronavirus pandemic and the subsequent recession will lead to a decline in activity. However, this is at best a temporary effect that cannot guarantee permanent compliance with annual emission reduction commitments throughout the entire commitment period.

bb. Lack of suitability of the clean air programme to limit emissions

Accordingly, both the current emission data for 2018 and the optimistic emission forecast for the World Cup scenario show that additional measures are needed to meet the reduction commitments under the NEC Directive.

In this situation, the defendant is obliged under Article 6 of the NEC Directive and Article 4 of the 43rd BImSchV to provide in the Clean Air Programme for all additional measures necessary to meet the reduction commitments along a linear reduction path. However, the defendant's Clean Air Programme does not meet these requirements.

With regard to the obligation to reduce NH3 for 2020, this already results from the defendant's own emissions forecast. According to this, even in the WAM scenario, annual emissions of 613 kt NH3 are still to be expected and thus a failure to meet the emission reduction obligation (NLRP, p. 102).

For all other air pollutants and with regard to the reduction targets for NH3 for 2030, the WAM scenario calculates a narrow compliance with the reduction commitments along a linear reduction path. However, this forecast is deficient because it is subject to considerable uncertainties, the implementation of the measures considered in the WAM scenario is not envisaged and their potential effect is overestimated.

The national courts are called upon to verify strictly that the substantive requirements of the NEC Directive concerning the suitability of the clean air programme to limit emissions of air pollutants are met.

As the ECJ stated in its decision of 26 June 2019 (C-723/17 - Craeynest) with regard to the obligations under Directive 2008/50/EC, the existence of a margin of discretion with regard to the design of the planning does not mean that the decisions taken by the authorities in this context are beyond any judicial review (ECJ, loc. cit. para. 45). Rather, to determine the intensity of judicial review of national decisions, the purpose of the underlying Union act must be taken into account and care must be taken to ensure that its effectiveness is not impaired (ECJ, loc. cit. para. 46). Because of the relevance of the interests affected by air pollution, intensive judicial review is advisable, even if these are scientifically complex technical matters (ECJ, loc. cit., para. 52). In view of this case-law and with a view to the obligation to achieve a reduction obligation, the national clean air programme and the underlying forecast must therefore be subject to close judicial review (in this vein on clean air plans VGH Mannheim, judgment of 18 March 2019 - 10 S 1977/18, juris para. 44).

However, even if one were to apply the limited standard of review that national case law applies when reviewing sectoral planning forecasts, justifiable forecast deficits can be identified in the present case. This limited examination merely checks whether the forecast has been methodologically soundly developed, whether it is based on unrealistic assumptions and whether the forecast result is plausibly justified (see BVerwG, decision of 28 November 2013 - 9 B 14.13, juris para. 7; OVG NRW, decision of 25 January 2011

- 8 A 2751/09, juris para. 30; OVG Münster, judgment of 31 July 2019 - 8 A 2851/18, juris para. 172 - 173).

These criteria have been further specified in national case law with regard to projections in clean air plans within the meaning of Article 23 of Directive 2008/50/EC. According to this, one of the recognised forecasting requirements is that the assumptions in the forecast must be realistic and reliably estimate the development of air quality. A forecast based on mere wishful thinking is erroneous (VG Berlin, judgement of 9 October 2018 - 10 K 207.16, juris para. 81; VGH Mannheim, judgement of 18 March 2019 - 10 S 1977/18, juris para. 45). It is not sufficient to include in a clean air plan regulations of a certain experimental or trial character and to accept the general forecast uncertainties in other respects. Rather, in view of the principle of effet utile under Union law (cf. Article 4 para. 3 TEU), the uncertainties must be mitigated by accompanying controls and precautionary measures (Münster Higher Administrative Court, judgement of 31 July 2019 - 8 A 2851/18, juris para. 333 et seq.) In order to reduce uncertainties, the most up-to-date data possible must also be used as a basis for forecasting, allowing a realistic assessment of the current and future situation (Münster Higher Administrative Court, judgement of 31 July 2019 - 8 A 2851/18, juris para. 333 et seq. 31.7.2019, 8 A 2851/18, juris marginal no. 176; OVG Hamburg, judgement of 29 November 2019 - 1 E 23/18, juris marginal no. 113). Furthermore, the prognosis of effects must not be based on measures which are made dependent on conditions and the occurrence of which is uncertain and which cannot be brought about by the planner himself (BVerwG, judgment of 27 February 2018 - 7 C 30.17, juris para. 35). For this reason, measures which are aimed, for example, at a change in the behaviour of third parties, which require prior political guidance decisions or funding commitments or which affect companies, state authorities etc. which have either not yet taken the decisions falling within their competence or have in any case not yet fully implemented them, cannot be taken into account in the forecast (Gelsenkirchen Administrative Court, judgment of 15 November 2018 - 8 K 5068/15 juris, paras. 167 - 168). The same applies to such measures that are mere expressions of intent (VG Gelsenkirchen, judgement of 15 November 2018 - 8 K 5068/15, juris para. 199). Even measures for which only very general and imprecise estimates of the reduction effects have been made so far may not be taken into account in the forecast (VG Gelsenkirchen, judgement of 15 November 2018 - 8 K 5068/15, juris para. 199). Rather, the forecast of the reduction effects must be as accurate as possible, concretely quanti-

fied, based on comprehensible calculations and plausibly justified (Hessian Administrative Court, judgement of 10 December 2019 - 9 A 2691/18, juris para. 93; Baden-Württemberg Administrative Court, judgement of 29 November 2019 - 10 S 2741/18, juris para. 67).

When applying these forecast criteria, the forecast of the Clean Air Programme, which is based on the WAM scenario and which shows that the reduction targets of the NEC Directive will be met, is in several respects in deficit.

More specifically:

(1) Uncertainties of the emission forecast for the WM scenario

Even the emissions forecast for the WM scenario does not contain a realistic estimate of the expected emissions trend. The forecast is subject to numerous uncertainties and is based on unrealistic assumptions. Moreover, the result of the forecast is partly not plausibly justified.

Regarding the uncertainties of the forecast for the World Cup scenario, the Clean Air Programme states that even the emission inventories themselves are subject to considerable uncertainties of between 10 and 27% (NLRP, p. 74).

In addition, there are great uncertainties regarding the development of activity rates and the mitigating effects of the existing measures considered in the World Cup scenario:

(a) Activity rate development according to 2017 projection report

For the projection of NOx, SO2 and $PM2_{.5\ emissions}$ in the WM scenario, the projected activity rates of the Co-Measure Scenario (MMS) of the 2017 projection report were used. This scenario includes all measures adopted by 31.7.2016 (NLRP, p. 62 f.).

The NLRP already concedes that the extrapolation of the activity rate development according to the 2017 projection report is subject to considerable uncertainties (NLRP, p. 74).

In the meantime, the Projection Report 2019 has been published, which paints a much more pessimistic picture of the emissions trend and assumes significantly higher greenhouse gas emissions. For this reason alone, the emission forecasts of the NLRP are erroneous, especially as they are not based on the latest available data.

(b) Trend forecast agriculture

In the field of agriculture, an agro-economic projection of the Thuenen Institute, the so-called "Thuenen Baseline" (https://literatur.thuenen.de/digbib_extern/dn059667.pdf) was used for the World Cup scenario, which takes into account in particular the tightening of the Fertiliser Ordinance (DüV) that came into force on 2 June 2017 (NLRP, p. 64 f.).

Even the basic assumptions on the development of activity rates are subject to numerous uncertainties. In the air pollution control programme itself, the following uncertainties of the Thuenen Baseline are pointed out on page 102:

- Development of milk production
- Development of the input quantities of synthetic N fertilizers
- Development of the proportion of urea-containing fertilisers in synthetic N fertilisers
- Shifting effects in the application of farm manure through the regulations of the amended Fertiliser Ordinance
- Development of the accumulation of plant fermentation residues

In the Thuenen Baseline further uncertainties regarding the development of activity rates are mentioned (Thuenen Baseline, p. 56).

These uncertainties regarding the development of activity rates alone make it clear that the forecast of emissions development in the WM scenario is not on the safe side.

The forecast for the World Cup scenario is also based on unrealistic assumptions regarding the effect of the measures of the Fertiliser Ordinance (DüV 2017), which came into force on 2 June 2017. In the World Cup scenario and the underlying Thuenen baseline, the following measures are taken into account (NLRP, p. 65):

(a) the inclusion of fermentation residues of plant origin in the application limit of 170 kg nitrogen from organic fertilisers per hectare per year on average of the utilised agricultural area of a holding

(b) the assumption that there will be no prolongation of the derogation from the limit of 170 kg nitrogen per ha from organic fertilisers,

(c) fertilisation with urea only with the addition of urease inhibitors

(d) the requirements on improved application techniques for liquid fertilisers (strip application/direct incorporation into the soil on arable land from 1 February 2020, on permanent pasture or in multi-cut fodder production from 1 February 2025). The incorporation of poultry manure on uncultivated farmland within 4 h has also already been taken into account in the baseline (Luftreinhalteprogramm, p. 90).

(e) the extension of the periods during which fertilisers may not be applied to arable land and grassland,

(f) the proof of storage capacity of at least nine months required from 2020 for holdings with more than three livestock units per hectare,

g) the tightening of the nutrient comparison requirements with plausibility checks of basic feed yields

(h) the reduction of the control values to 50 kg N/ha and 10 kg P2O5/ha

Which reduction potential is assigned to these measures and how it was calculated is neither presented in the NLRP itself nor in the underlying Tuenen baseline in a comprehensible way.

In particular, it is not apparent what assumptions have been made about the actual implementation. It can be assumed that the mitigating effect of the above measures is clearly overestimated because the numerous exceptions and the considerable enforcement problems were not taken into account in the forecast.

For example, the assumption under c) of the list of measures presented above, that fertilisation with urea is only carried out with the addition of urease inhibitors, finds no basis in the legal requirements. Section 6 para. 2 DüV merely stipulates that from February 1, 2020, urea as a fertilizer may only be applied if a urease inhibitor is added *or if* it is incorporated within four hours of application at the latest.

With regard to the procedures and techniques of low-emission application mentioned under d), the DüV provides for numerous exceptions that were not taken into account

when assessing the effect of the measures. Thus, for example, farms may obtain exemptions from the competent authority under Land law with regard to the low-emission application of liquid fertilisers on cultivated arable land or grassland, which will be mandatory from 2020 or 2025 respectively (Article 6 para. 3 sentences 4 and 5 DüV). In addition, if the soil cannot be driven over due to unforeseeable weather events, exceeding the incorporation period of four hours for commercial fertilizers on uncultivated arable land is tolerated (Article 6 para. 1 sentence 2 DüV). These exceptions are not taken into account in the emission forecast of the Clean Air Programme, which - as is conceded on p. 92 of the NLRP - leads to considerable uncertainties in the forecast.

With regard to assumption e), it is not comprehensible which concrete blocking periods were used as a basis for the forecast and which exceptions were taken into account in this respect. Thus, with regard to the blocking periods for arable land and grassland regulated in Article 6 para. 8 sentence 1 of the DüV in the version of 2 June 2017, it should be noted that these are supplemented by numerous exceptions. For example, there is a shortening of the blocking period for the use of solid manure (Article 6 para. 8 sentence 2 DüV) as well as a considerable relaxation of the blocking period in favour of the so-called autumn fertilisation of catch crops and certain winter crops (Article 6 para. 9 DüV). In addition, there is the possibility of postponing the retention period and the exceptions in favour of fertilizers with a high dry matter content (§ 6 para. 10 DüV). It is obvious that these exceptions considerably reduce the effect of the retention periods regulated in § 6 para. 8 DüV.

The assumptions made under g) regarding the "tightening of the nutrient comparison requirements with plausibility check of the basic fodder yields" by the amendment of the DüV in 2017 are also not discussed in a comprehensible manner. It is to be assumed that the fact that the effect of the plausibility check of the field-stable balance sheet is cancelled out by various possibilities for exceptions has not been taken into account. According to an expert agricultural opinion from 2018, for example, the N contents in the harvested material for some crops (e.g. silage maize) were set too high, which led to an overestimation of nutrient removal and thus to a reduction of the limiting effect of the control value in Article 9 para. 2 DüV 2017. In addition, the supplement on nutrient removal for unavoidable nutrient losses due to unused or unabsorbed feed in the amount of 15 to 25 % (§ 8 para. 3, Annex 1 Table 2 DüV) lacks any technical basis. Also the deductions for uncontrollable grazing opened up possibilities for manipulating the

nutrient comparisons. In addition, there would be high loss deductions according to Article 8 para. 5 DüV 2017 for, among others, vegetable growing (cf. on all this, Taube, Expertise zur Bewertung des neuen Dününgerechts von 2017 in Deutschland hinsichtlich den Gewässerschutz, p. 16 f.). It is not apparent that these exceptional provisions and their influence on the reduction potential of the plausibility check of the nutrient balance were taken into account in the forecast. It is also unclear which effect assumptions were made under h) regarding the reduction of the control values to 50 kg N/ha and 10 kg P2O5/ha.

In the end, however, this is no longer relevant as the measures considered under g) and h) were completely deleted by the amendment to the Fertiliser Ordinance (BR-Drs. 98/20) adopted on 27 March 2019. With the omission of the control value of 50 kg N/ha regulated in Article 9 para. 2 DüV 2017, there is now no longer any regulatory restriction on nutrient surpluses. Thus, the reduction potential of the plausibility check of the nutrient balance considered in the World Cup scenario (which was set too high) is no longer applicable. Since the material flow balancing currently only foreseen for a few farms does not provide for any regulatory restriction of the balance sheet balance, even higher surpluses are thus permitted than under the old legal situation. Thus, even higher ammonia emissions may result (cf. Taube, Expertise zur Bewertung des neuen Düngerechts (DüG, DüV, StoffBilV) von 2017 in Deutschland hinsichtlich des Gewässerschutzes; AGRA-Europe 2020; Möckel, Düngeverordnung: zu kurz sprung, status 30.3.2020, available at https://www.ufz.de/index.php?de=36336&webc_pm=17/2020). The forecast must also be adjusted for this reason.

Finally, it is also not evident that the blatant enforcement problems in fertiliser law were taken into account when determining the emission reduction potential. It is suggested that the investigated measures are correctly implemented across the board. However, this contradicts any findings on the effectiveness of the enforcement of fertilisation law (cf. BLAG DüV, Evaluierung der Düngeverordnung - Ergebnisse und Optionen zur Weiterentwicklung, 2012, Annex 5, Appendix K) and on the development of nitrogen surpluses and nutrient findings in water bodies. Violations of fertilisation law can only be controlled and sanctioned to a limited extent and are justifiable, so that for this reason alone, the necessary changes in farmers' behaviour cannot be assumed without further ado

(Taube, Expertise zur Bewertung des neuen Düngerechts von 2017 in Deutschland hinsichtlich den Gewässerschutz, p. 4, 19). The assumption of a one hundred percent implementation of the fertiliser law measures is therefore completely unrealistic.

Finally, the forecast for the World Cup scenario is also inadequate because it apparently deducts NH3 emissions from plant fermentation residues (pp. 67, 90 of the Clean Air Programme). As explained above, this inventory adjustment cannot be taken into account in the emissions forecast and the planning of measures based on it.

(c) Considered reduction effects of other measures already implemented in the field of air pollution control

The World Cup scenario also forecasts the reduction effects of national and European regulations in the field of air pollution control that are legally valid until 1 September 2017 and whose effect is not or not yet fully reflected in the 2018 emissions inventory (NLRP, p. 65 f.).

Again, it is not clear how the reduction effect of the individual measures was determined. Comprehensible calculations and plausible justifications are missing. Instead, the Clean Air Programme itself admits that the assessment of the reduction potential of these measures is subject to considerable uncertainty (NLRP, p. 75).

Here too, the assumed reduction effect is likely to be unrealistic because the impact assessment did not take account of exceptions and enforcement difficulties. For example, it is assumed for plants within the scope of the 13th and 17th BImSchV that the limit values laid down in these ordinances will be fully complied with from 2020 (NLRP, p. 66). However, there are substantial doubts about full compliance with the limit values of the 13th BImSchV for large combustion, gas turbine and internal combustion engine plants, as the competent authorities allow far-reaching exemptions in accordance with § 26 of the 13th BImSchV. The plaintiff has, for example, the immission control notices of the district government of Münster regarding the company Ruhr Oel GmbH for the Scholven plant (dated 31.01.2019) and of the district government of Cologne regarding the company Shell Deutschland Oil GmbH, Rheinland Raffinerie, Werk Nord (dated 21.01.2019). In these notices, exemptions from compliance with the corresponding nitrogen oxide emission limits are granted due to the delayed implementation of the BAT

requirements in German law (**Annex K**). In addition, numerous large combustion plants have made use of exemptions under Art. 31 and Art. 35 IE Directive 2010/75/EU (**Annex K**). The assumption of full compliance with the limit values of the 13th BImSchV, on which the WM scenario is based, is refuted by these exemptions, which illustrate current enforcement practice only by way of example.

In the WM scenario, a tightening of the emission limits is also assumed in cases where the upper end of the respective permitted range of emission values on an annual average from the BAT conclusions of the implementing decision (EU) 2017/1442 is lower than the applicable requirements of the Federal Immission Control Ordinances (NLRP, p. 66). This assumption is also unrealistic, especially as implementation of the new BAT conclusions is still not in sight. Although the deadline for implementation of the new BAT conclusions for large combustion plants from implementing resolution (EU) 2017/1442 already expired in August 2018, there was still no draft available from the Federal Government at the time of signing this petition. In view of the required retrofitting periods of up to 18 months, it is therefore questionable whether the stricter values can be complied with from August 2021 - the relevant date under the Industrial Emissions Directive 2010/75/EU. Compliance with the stricter limit values from this date, as assumed in the World Cup scenario, is thus already ruled out in terms of time.

It is also not clear to what extent the assumptions for the implementation of the new BAT conclusions take into account the fact that the limit values according to the implementing decision (EU) 2017/1442 for large combustion plants vary considerably depending on combustion technology, annual operating hours, etc. The emission factor cannot therefore be determined by a blanket reference to the upper end of the range. The emission calculation is also not plausible in this respect.

(2) Uncertainties of the emission forecast for the WAM scenario

Thus, even the forecast for the Reference Scenario is characterised by considerable uncertainties regarding the development of activity rates and unrealistic assumptions regarding the effect of mitigation measures. These forecast deficiencies affect the forecast for the WAM scenario, which is based on the WM scenario, and lead to the defectiveness of this forecast as well.

In addition, there are considerable uncertainties regarding the reduction potential of the measures considered on p. 97 of the Clean Air Programme in the WAM scenario.

These uncertainties are based in particular on the fact that the implementation of the measures considered there is not at all guaranteed. The Clean Air Programme itself is limited to a completely non-binding presentation of "options for action"; there is no binding definition of measures or a concrete implementation schedule. The measures are not planned for implementation elsewhere either. This contradicts the requirements of the NEC Directive and leads to the forecast being incorrect.

The NEC Directive requires that the air pollution abatement programme shall contain "the strategies and measures envisaged for adoption, together with the timetable for their adoption, implementation and review, indicating the competent authorities" (Art. 6 para. 1 in connection with Annex III Part 1 lit. c NEC Directive). Thus, a binding definition of measures and the designation of a concrete implementation timetable is required.

However, the defendant's clean air programme does not specify whether, when or by whom the options for measures described only vaguely in Chapter 5 are to be implemented.

Rather, the sixth chapter of the Clean Air Programme merely provides information under the heading "Strategies and measures (including timetable for adoption of the measure, implementation and monitoring of success, and responsible authority)":

> "All the options for measures contained in Chapter 5 are necessary to achieve the reduction commitments; only for NOx and SO2 is there a small buffer. The implementation of the measures is usually carried out by legislation at federal level and enforcement at state level. Overall, the measures are implemented within the framework of the applicable budget and financial planning estimates of the departments (including posts and positions), subject to the availability of the necessary budgetary funds. “

On page 97 of the Clean Air Programme it says

> "It is generally assumed that all further measures will show reduction effects by 1.1.2025 at the latest and that their implementation will be completed before then. “

This information does not allow for a reliable implementation of the measures or a concrete implementation schedule. Instead, implementation is subject to a general reservation regarding the availability of the necessary budgetary resources. Measures whose implementation, as here, is made dependent on conditions and whose occurrence is therefore uncertain or which are limited to mere declarations of intent cannot be taken into account in the forecast.

In particular, without the establishment of concrete implementation schedules, it is not even possible to begin to understand whether the defendant is following a linear reduction path, as claimed in the Clean Air Programme.
Details of the doubts about the projected reduction effect of the individual additional measures:

(a) Climate protection measures of the MWMS of the 2017 projection report

In the WAM scenario, the climate protection measures of the MWMS of the projection report 2017 are estimated to have a reduction effect of 17.2 kt for NOx, 17.8 kt for SO2 and 1.1 for $PM2_{.5}$ from 2025 and of 24.6 kt for NOx, 26.6 kt for SO2 and 1.6 for $PM2_{.5}$ from 2030 (NLRP, p. 98).

The fact that such a reduction effect can be achieved is not comprehensibly justified and appears unrealistic.

The reader of the programme does not always know which measures have been taken into account here.

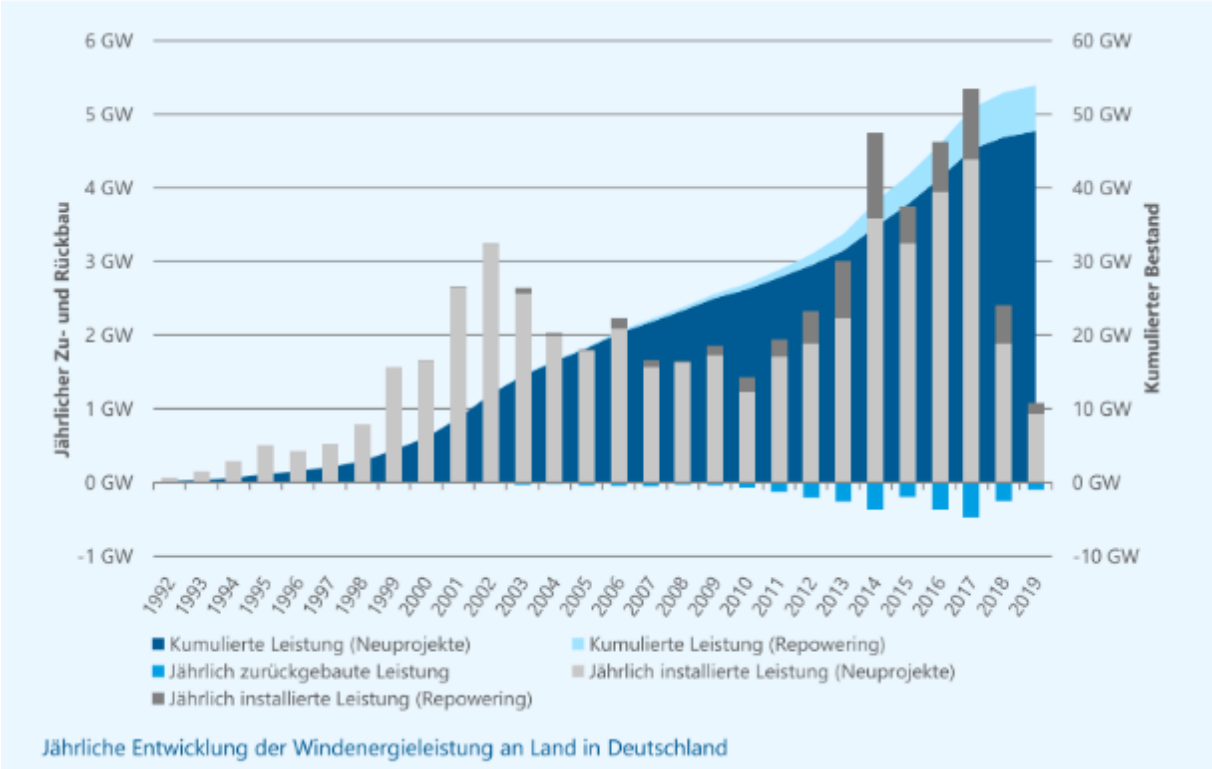
In this respect, the NLRP states on p. 83 f. that, in addition to the transfer of lignite-fired power plant units to safety readiness in accordance with the Energy Industry Act, climate protection measures, which form the basis of the Mit-Weiteren-Maßnahmen-Szenario (MWMS) of the Projection Report 2017, were taken into account. It is stated here that these measures were essentially taken from the "Action Programme Climate Protection 2020" and the "National Energy Efficiency Action Plan" and that, in addition, the development of power plant output required to meet the 55% reduction target of the Climate Protection Plan 2050 was taken into account.

However, this information does not give any indication as to which measures have been taken into account to reduce emissions and what reduction potential has been allocated to the individual measures.

Moreover, it seems completely unclear whether the climate protection measures to which the Clean Air Programme refers with reference to the MWMS of the 2017 projection report are even intended for implementation. In contrast to the Co-action scenario (MMS) of the projection report, the MWMS not only takes into account climate protection measures already implemented by law or at least bindingly decided upon. Rather, the MWMS also takes into account measures whose implementation is still completely uncertain and for which only a "review" is planned. In particular, the fact that the measures are listed in the "Action Programme Climate Protection 2020" or the "National Action Plan Energy Efficiency" does not indicate that they will be implemented. The legally binding nature of the "Action Programme Climate Protection 2020" was recently the subject of an action brought by Greenpeace against the defendant. In this case, the defendant emphasised that this programme is merely a strategy paper which is not even binding on the administration and certainly not on citizens and companies (VG Berlin, judgement of 31 October 2019 - 10 K 412.18, juris). In the defendant's own understanding, the action programme thus contains mere political declarations of intent. These cannot be taken into account in the forecast of the NLRP.

Indeed, many of the measures included in the scenarios of the 2017 projection report have not yet been fully implemented:

In 2019, for example, we are even miles away from the expansion of onshore wind power by 2,800 MW per year in 2019, or 2900 MW (from 2020) as considered in the MMS (PB 2017, p. 94):



(*German Wind Guard*, wind energy statistics year 2019, onshore wind energy)

Even the deletion of the PV cap of 52 GW (PB 2017, p.178) considered in the MWMS has not yet been realized.

This also applies to the amendment of the Energy Saving Act for Buildings (EnEG/EnEV; EEWärmeG) (PB 2017, p. 83), which is taken into account in the MWMS. The Building Energy Act (GEG) has not yet been passed. Nor does the current draft law suggest any improvement in efficiency standards (Annex K, https://www.duh.de/fileadmin/user_upload/download/Pressemitteilungen/Energieffizienz/20190625_DUH_Stellungnahme_GEG.pdf).

In addition, many of the measures included in the MWMS are support instruments or accompanying and information tools. The effect of these measures is highly dependent on the behaviour of third parties and therefore highly uncertain. Many of the measures are so unspecific and vague that a concrete reduction potential cannot be seriously attributed to them.

These considerable uncertainties associated with the measures included in the MWMS could also have been the reason why the new 2019 projection report does not include a

MWMS but only an MMS. This MMS of the 2019 projection report paints a much more pessimistic picture of emissions trends, as explained above. The reduction effect assumed in the NLRP for the MWMS measures cannot therefore be assumed with the necessary certainty.

Nor is the assumption regarding the development of installed power plant capacity, which would be necessary to achieve the greenhouse gas reduction target of 55 % by 2030 of the climate protection plan 2050, backed up by binding measures and a concrete implementation timetable.

(b) Withdrawal from the generation of electricity from hard coal and lignite

For the phase-out of electricity generation from hard coal and lignite in line with the recommendations of the Commission "Growth, Structural Change, Employment", the Clean Air Programme estimates a reduction effect of 24.7 kt for NOx, 29.6 kt for SO2, 0.4 kt for NH3 and 1.3 for $PM2_{.5}$ from 2025 and of 32.3 kt for NOx, 34.8 kt for SO2, 0.5 kt for NH3 and 1.5 for $PM2_{.5}$ from 2030 (NLRP, S. 98).

This is also unrealistic.

The defendant refers to the recommendation of the Commission 'Growth, Structural Change and Employment (WSB)', set up in June 2018, which in its final report of 26 January 2019 expressed its intention to phase out coal-fired electricity generation.

However, a legal implementation of these recommendations and, in particular, a legal definition of an exit plan are still outstanding.

Moreover, the draft coal phase-out law adopted in January 2020 does not fully implement the recommendations of the WSB Commission (see the comparison in **Annex K**, https://germanwatch.org/de/17311). For this reason, numerous commission members have distanced themselves from the draft law in a public statement (**Annex K**, https://www.dnr.de/presse/pressemitteilungen/pm-2020/mitglieder-der-kohlekommission-zur-aufkuendigung-des-kohle-kompromisses-durch-die-bundesregierung/).

A particular problem here is that, contrary to the recommendations of the WSB Commission, the timetable laid down in the current draft legislation for the shutdown of power plants does not ensure a "gradual" and, if possible, "continuous" shutdown, but rather only provides for a gradual and very late shutdown of lignite-fired power plants. Between 2023 and 2028 and beyond, only a few power plant closures are to take place, the majority being postponed until the end of the decade. This is stated by the Commissioners (**Annex K**):

> "The sequence of shutdown now agreed for the lignite-fired power plants dominating the emission reduction path does not reflect the compromise path found and, on the contrary, is characterised by higher emissions. In the particularly relevant period from 2023 onwards, there will be only minor power plant shutdowns before 2028 and very extensive shutdowns in 2028 and at the end of 2029 in order to meet the target for 2030. In the years 2018 to 2020 there will also be only one single, symbolic shutdown of 300 megawatts of lignite instead of the significant contributions to the 2020 climate protection target. Overall, compared to the steady reduction path recommended by the KWSB, lignite-fired power plants alone will emit an additional 40 million tonnes by 2030".

In addition to delaying urgently needed greenhouse gas emissions, this inevitably delays the reduction of NOx, SO2 and $PM2_{.5\ emissions}$. Such a postponement of the shutdown of the particularly emission-intensive lignite-fired power plants until the end of the decade is incompatible with the obligation to pursue a linear reduction path for air pollutant reduction. The result of the forecast of the Clean Air Programme that a linear reduction path can be adhered to is therefore not comprehensible.

In addition, several studies give rise to fears that these and other deviations from the recommendations in the final report of the WSB Commission could even lead to additional emissions of greenhouse gases and thus also of air pollutants. A study by the German Institute for Economic Research (DIW) (**Annex K**, https://www.bund.net/fileadmin/user_upload_bund/publikationen/kohle/kohle_ausstieg_diw-studie.pdf) calculates that, compared with the coal compromise, around 134 million additional tonnes of carbon dioxide will be emitted between 2020 and 2040, particularly as a result of the late shutdown of lignite-fired power plants and the commissioning of the Datteln IV hard coal-fired power plant. If this were to be the case, the potential for reducing air pollutants, as set out in the NLRP for the coal phase-out, would also be significantly overestimated

Moreover, the impact prognosis for the coal phase-out is not comprehensibly justified. The Clean Air Programme refers to a blanket reference to a target achievement scenario "65% RES and coal measure" of r2b energy consulting GmbH, which forms the basis of the recommendations of the WSB Commission. Even in the context of an UIG information request (Annex K), only a presentation on the content of this r2b target achievement scenario (Annex K) could be obtained. The emission forecast is therefore highly intransparent.

(c) National implementation of the MCP Directive

The national implementation of the MCP Directive (EU) 2015/2193 is assigned a reduction effect of 17.8 kt for NOx and 0.2 kt for SO2 from 2025 and of 31.2 kt for NOx and 0.2 for SO2 for 2030 (NLRP, p. 98).

The Ordinance on Medium-Sized Firing, Gas Turbine and Combustion Engine Installations (44th BImSchV) of 13 June 2019 serves to implement the Directive.

Here too, however, a prerequisite for achieving the reduction effect is that no relief from emission limitations is granted in licensing practice. § Article 32 para. 1 of the 44th BImSchV provides for far-reaching abstract-generic exemptions, e.g. in the event that "individual requirements cannot be met or can only be met at disproportionate expense". It is not evident to what extent the emission forecast for the WAM scenario takes into account the uncertainties associated with such far-reaching exemption provisions.

(d) Retention of the regulation for solid fuel boilers of the 1st BImSchV

By maintaining the regulation for solid fuel boilers of the 1st BImSchV, $PM2_{.5\ emissions\ are}$ to be reduced by 1.7 kt from 2025 and by 1.3 kt from 2030 (NLRP, p. 98).

This forecast is subject to considerable uncertainty, if only because the legal admissibility of these measures must currently be regarded as open.

A DUH expert opinion from 2015 has shown that the maintenance of stricter national regulations for solid fuel boilers would be possible in principle. However, there are high

hurdles in this respect, as the corresponding ecodesign requirements of Directive (EU)2015/1189 do not generally provide for national deviations. In January 2019, the lead ministry sent the European Commission for the first time a corresponding reasoned notification under Art. 114 (4) TFEU. The European Commission then requested the Federal Government to provide further information in order to assess the facts of the case. An amended Reasoned Communication was sent to the European Commission at the end of November 2019. So far, it is unclear whether the European Commission approves the Reasoned Communication and whether the measure, which is intended to contribute up to 3kt to PM2.5 reduction, can be implemented.

Irrespective of the uncertain legal feasibility, there are indications that the activity rate development assumed in the defendant's emission forecast with regard to $PM2_{.5}$ is subject to considerable uncertainties and that the level of the expected $PM2_{.5}$ emissions is therefore underestimated. For example, $PM2_{.5\ emissions}$ from the source category "households and small consumers" have fluctuated between 24.8 kt and 32.2 kt since 2011 after the 1st BImSchV came into force - particularly depending on weather conditions and wood consumption. In the last years reported (2015 and 2016), there has also been a renewed increase in $PM2_{.5\ emissions}$ from this source category.

Further uncertainties regarding activity rates (contribution of wood combustion) exist in connection with the planned expansion of renewable energies in the heating and cooling sector within the framework of the National Energy and Climate Plan (NECP). The NECP envisages that the share of renewable energies in the heating and cooling sector will be increased to 27% by 2030. This target could be linked to an increase in $PM2_{.5\ emissions.}$ Currently, the majority of renewable energy in the heating sector is based on the use of solid biomass (wood). The NECP does not describe which concrete technology-specific expansion paths are envisaged in the field of renewable heat and which measures are intended to promote technologies beyond the use of biomass. If alternative technology paths (ambient heat/geothermal energy and solar thermal energy) continue to play a subordinate role, there is a high risk that significantly higher $PM2_{.5\ emissions}$ are to be expected in 2030 than forecast in the NLRP due to increased biomass use. The Projection Report 2017, on which the NLRP is based, foresees a smaller share of renewable energies in the heating sector in 2030 compared to the NECP. The emission forecast of the NLRP therefore does not take into account the targets of the NECP. Accordingly, either

the emission forecast of the NLRP is incorrect or the defendant assumes that the targets of the NECP will not be met.

In addition, there are considerable doubts about the emission factors used to calculate emissions in the source category "households and small consumers" and thus in both the WRC and WAM scenarios. For the following reasons, it can be assumed that the emission factors are clearly underestimated:

- The emission factors of single room combustion plants are primarily based on the results of test bench measurements which are far removed from reality and which were assigned a small deterioration or correction factor (cf. the study by Ökopol GmbH i.A. of the Federal Environment Agency, *Ermittlung und Aktualisierung von Emissionsfaktoren für das nationale Emissionsinventar bezüglich kleine und mittlerer Feuerungsanlagen der Haushalte und Kleinverbraucher*, 2016). For wood-burning stoves this factor was 2.0 and for pellet stoves 1.37. However, the results of the BeReal project as well as the measurement results of the project "Evaluation of the 1st BImSchV of 2010" (UFOPLAN) indicate that these factors are clearly exceeded with a more realistic measurement method or cycle. And even the results of the above-mentioned projects were determined under optimal conditions and are not easily transferable to the typical use in practice, which is often characterised by operating errors on the part of the operator. It is therefore highly probable that the emission factors are set considerably too low, particularly in the case of log wood individual room firing systems (wood-burning stoves), which are responsible for the vast majority of emissions.
- In addition to the unrealistic test bench conditions, the dust measurement method currently used in Germany and elsewhere (so-called DIN method, CEN standard EN 16510) must also be viewed critically. This method detects particles with a heated filter and, unlike the Norwegian method (NS/EN 14785), does not use a dilution tunnel. As a result, the DIN method does not take into account particles that are produced during the further cooling of the exhaust gases and dust emissions are lower. If gaseous hydrocarbons, which contribute to particulate emissions when the exhaust gas is cooled, are only recorded indirectly via the NMVOCs, this is associated with high uncertainties and ultimately obscures the influence of small combustion plants on $PM2_{.5\ emissions}$. The effect of the different measurement methods becomes clear, for example, when comparing German and Danish emissions from the source category "Commercial, institutional and

households": Despite a considerably smaller number of installations (less than 1 million small combustion plants in Denmark vs. more than 11 million in Germany), Denmark has more than half as many $PM2_{.5\ emissions}$ as Germany (EEA Air pollution emission data viewer, LRTAP Convention, reference year 2016) due to the higher emission factors (15.21 kt).

- Also the dust limit value of the 1st BImSchV for solid fuel boilers of 20 mg/m3 (at 13% O2) only has to be met during type testing. In the case of recurring measurements on site, the measurement uncertainty of the measuring instruments used, amounting to 40%, guarantees large tolerances. It is therefore questionable whether the estimated safety margin of 20%, which was added to the emission factor (limit value) when calculating the $PM2_{.5\ reduction\ of}$ this measure, is sufficiently high.

After all, the assumptions for the reduction of $PM2_{.5\ emissions}$ are subject to considerable uncertainty.

(e) Road transport package

The road transport package aims to reduce NOx emissions by 11.3 kt, NH3 emissions by 0.1 and $PM2_{.5\ emissions}$ by 0.3 kt from 2025. From 2030, emissions are to be reduced by 7.2 kt (NOx), 0.2 kt (NH3) and 0.3 kt ($PM2_{.5}$).

The forecast of these reductions is based on the following assumptions (NLRP, p. 86):

- Software update diesel passenger cars (and light commercial vehicles) Euro 5/6 and environmental bonus (buyback of diesel passenger cars Euro 4 and older).
- Hardware retrofit diesel buses to reduce NOX emissions
- Expansion and strengthening of the environmental network
- Updating the $CO2$ limits. For passenger cars, the calculations were based on the European Commission's proposal (average reduction of CO2 emissions from the new car fleet of 30% in 2030 compared to 2021), which assumes a higher share of e-vehicles in 2030 than previously included in the TREMOD trend forecast. For the calculation of the WAM scenario, an E share of 15% from 2025 was assumed.

The details of these options for action and the underlying assumptions are not at all discussed in the Clean Air Programme itself. For this reason alone, the forecast result is not comprehensibly justified.

The plaintiff took part in an information event of the Federal Environment Agency on 16 and 17 October 2018, at which the options for action were discussed in detail in the Transport source group (**Annex K**, Aviso).

However, even when the assumptions discussed there are taken into account, the assumed reduction effect seems completely unrealistic.

Regarding the environmental premium/ repurchase of Euro 4 and older diesel cars, the presentation assumed that 25% of all Euro 4 and older diesel cars would be replaced by Euro 6 diesel cars. This corresponds to a NOx reduction potential of 2.27 kt/a in 2020 and 0.5 kt/a in 2030. This assumption is already incomprehensible insofar as it is not explained which Euro 6 vehicles are included here. This makes a big difference, as the average emissions differ greatly between vehicles meeting the Euro 6a-c emissions standard and those meeting the Euro 6d and Euro 6d temp standards. Since the "environmental bonuses" have already been declared after the diesel scandal became known, it can be assumed that most vehicles have not yet complied with the Euro 6d temp emission standard, as these vehicles were not even available on the market in significant numbers before autumn 2018. The assumptions regarding the effectiveness of the eco-rebate cannot be reconstructed in so far as it cannot be guaranteed that the vehicles will only be replaced by diesel passenger cars complying with the Euro 6 emission standard. The manufacturers have not ruled out the possibility of also buying Euro 5 vehicles. Ultimately, given that the average savings associated with an eco-rebate are not higher than the discounts granted in any case in the car dealership, it cannot be assumed that the eco-rebate will have a significant effect on fleet renewal.

With regard to hardware retrofitting of buses, it is assumed that 80% of Euro III-V buses will be retrofitted. The NOx reduction rate is estimated at 70%. This corresponds to an NOx reduction potential of 2.36 kt/a in 2020 and 0.27 kt/a in 2030. The plaintiff is not aware of a single Euro III or IV bus that has undergone SCRT hardware retrofitting. Especially due to the long residual holding time within the polluted city, this is not worthwhile for the transport companies. So far, only buses of the Euro-Norm V or EEV have been

equipped with retrofits. The promotion of bus retrofitting is limited to vehicles in cities with air pollution problems. Less than 80% of all buses in Germany are thus in use at all in areas where the subsidy is granted. The industry also expects the retrofitting of just 6,500, not 29,000 buses, as predicted by the Minister of Transport. By the end of 2020, according to industry representatives, no more than 2,000 vehicles are expected to have undergone retrofitting. These figures are confirmed by Bundestag document 19/17390. Questions 32 to 35 deal with the hardware retrofitting of buses. According to these, 25,334 vehicles for which approved systems are planned will be registered as of 1 January 2019. Of these, however, only the retrofitting of 1,687 public transport diesel buses has been approved to date. This means that only a fraction of the forecast approvals have been granted.

For the increased promotion of the environmental alliance, it is assumed that this will be accompanied by a reduction in inner-city car mileage of -5 % in 2020 and -15 % in 2030. This corresponds to a NOx reduction potential of 3.23 kt/a in 2020 and 3.57 kt/a in 2030. However, the description of the measures is so vague that it is not at all clear how the reduction potential could be quantified.

A non-binding Commission proposal to update the $_{CO2\ limits\ is}$ expected to increase the proportion of new passenger car registrations for electric vehicles. According to this proposal, the share of e-vehicles in new passenger car registrations is to be 15% in 2020 and 30% in 2030. This is unrealistic. In 2018, the share of electric vehicles in new registrations was 1.0%. The year-on-year growth rate was +43.9% In 2019, electric vehicles accounted for 1.8% of new registrations and the year-on-year growth rate was + 75%. Even under the optimistic assumption that this rate of increase should continue to rise, the share of electric vehicles in new registrations in 2020 will be a maximum of 4.0%. This is confirmed by the registration figures for the first 4 months of 2020. From January to April 2020, the share of electric vehicles in new registrations was 3.7 % overall. In any case, the annual average share will be well below 15%. The assumption underlying the forecasts of an increase in the share of electric vehicles is therefore completely unrealistic.

As a precautionary measure, we would like to point out that the measures in the transport sector now specified in the Climate Protection Programme 2030 will not have a significant reduction effect. As impact assessments by Öko-Institut e.V. and Prognos AG show,

the measures of the Climate Protection Programme planned for the transport sector are not at all suitable for meeting the annual emission ceilings laid down in Annex 2 KSG. Accordingly, no significant reduction effect can be assumed with regard to the emission of air pollutants.

(f) Package of measures Agriculture

The package of measures for agriculture should lead to a reduction of NH3 emissions by 60.1 kt from 2025 and 133 kt from 2030 (NLRP, p. 98).

These reduction effects are not discussed in a comprehensible manner and are unrealistic.

It is already unclear whether, when and how the options for measures described on p. 91 f. are to be implemented. Reference is only made to implementation through "fertiliser law or support measures" or "sub-legislative regulations". A concrete implementation timetable is not given. However, if it is not even certain whether the measures will be implemented by regulatory law or by means of support measures, no serious impact calculation can be made. It is obvious that the effect of a measure depends largely on how effectively it is implemented in practice. In this context, regulatory implementation is not at all comparable to implementation by means of support measures, in particular because its effectiveness depends to a large extent on the amount of support provided and the acceptance of those entitled to support. However, the Clean Air Programme does not make any statements in this regard. Even in the case of a binding implementation in regulatory law, the effectiveness, as explained above, depends to a large extent on the existence of exceptional regulations and enforcement deficits. The assumptions made by the forecast in this respect are not transparently presented. Instead, p. 92 of the Clean Air Plan admits uncertainties regarding the application of exemption provisions.

A regulatory implementation of the measures envisaged in the WAM scenario for the agricultural sector did not take place even with the latest amendment to the Fertiliser Ordinance of 27 March 2020. The only additional measure for ammonia reduction here is the shortening of the incorporation period in Section 6, Paragraph 1, Sentence 1 of the DüV to one hour from 2025. However, the much more effective immediate incorporation,

which is taken into account in the WAM scenario, is not implemented. As explained above, the forecast also changes to a negative one as a result of the latest amendment to the fertiliser law in so far as the deletion of the provisions of §§ 8 and 9 DüV on nutrient comparison should lead to an increase in ammonia emissions.

Nor is there any prospect of real implementation of the measures considered in the WAM scenario for covering slurry and fermentation residue stores, N-reduced feeding, exhaust air purification in stables and other system-integrated measures in stables. It is completely open when and with what content the planned amendment of TA Luft or other sub-legislative regulations or support measures will be adopted.

The individual measure with by far the greatest reduction potential is the mandatory use of injection and slitting techniques. When and how this measure is to be implemented, however, is not specified in detail. The general availability of this measure appears to be highly questionable in that there are indications that the use of injection equipment can lead to significantly increased nitrous oxide emissions. A study commissioned by the Federal Ministry of Agriculture in 2014 (Annex K) states in this respect (p. 24):

> "Injection techniques have a very high potential for reducing NH3 emissions. However, there is a risk of increased N2O emissions if the liquid farm manure is not mixed into the soil as with the liquid manure cultivator, but is deposited in concentrated form in a channel in the soil. There are still considerable uncertainties about the extent of N2O emissions at various site conditions and injection depths. A large part of the additional N2O emissions as well as the emissions resulting from increased energy input during liquid manure spreading can be offset by the avoided NH3 losses and the resulting increased fertilisation efficiency and savings of mineral fertilisers. A reliable overall assessment of the climate impact of different injection techniques is not yet possible. It is also insufficiently clarified by which techniques the danger of N2O emission can be reduced.

There is therefore a considerable risk that this measure, on which compliance with the reduction commitments in the WAM scenario is largely based, is associated with undesirable greenhouse gas emissions. Against the background of the defendant's legal obligations to reduce national greenhouse gas emissions and the concern of the NEC Directive to promote synergies with the Union's climate policy (Art. 1 para. 2 lit. c) NEC Directive), the availability of this measure appears extremely uncertain.

The implementation of the measure "reduction of the overall surplus by 20 kg/ha" is not foreseeable either. The Fertilizer Ordinance, which was amended on 27 March 2019, does not contain any suitable measures for this. On the contrary, there is a risk that even higher nitrogen surpluses will occur as a result of the deletion of the nutrient balancing requirements without replacement.

The impact assessment on p. 90 f. of the Clean Air Plan is also incomprehensible and unrealistic.

The impact assessment is based on numerous undisclosed assumptions and uncertainties. On p. 91, the Clean Air Programme indicates this:

> "Under the assumptions made, the package of further action options achieves the necessary reduction of 126 kt by 2030 compared to the coaction scenario. The calculation of the reduction potential in 2025 was based on various assumptions regarding the technical feasibility and proportionality of the individual measures, with which the necessary reduction of around 60 kt can just about be achieved.

The exact assumptions made are not transparently explained.

On p. 92, further uncertainties are also pointed out regarding the proportion of farms that will comply with the current Best Available Techniques definitions by 2030 and the envisaged derogation for small and micro-agricultural enterprises under Annex III, Part 2, Section C of the NEC Directive.

Furthermore, the NLRP points out on p. 88 f. that there are strong interactions between the listed measures and that the stated reduction potentials are based on the assumption that all measures listed before have already been implemented. As already explained above, due to exceptions and enforcement difficulties, it cannot be assumed that the measures considered in the baseline (urea incorporation within 4 h or after stabilisation by urease inhibitors; no use of broad-spreaders, incorporation of poultry manure on uncultivated farmland within 4 h) and the other measures considered in the World Cup scenario will be fully implemented. For this reason alone, the forecast is based on an incorrect foundation.

In the absence of more detailed information on the content and implementation schedule, it is also not at all comprehensible why the reduction potential of one and the same measure will increase significantly between 2025 and 2030, in some cases even tripled. For example, the immediate incorporation of solid fertilizers on uncultivated farmland is expected to have an impact potential of -5 kt in 2025, but of -30 kt in 2030. The application of liquid fertilizers on cultivated arable land and grassland using injection/slotting techniques only or with the addition of acid is expected to have an effect of -16 kt in 2025 and -48 kt in 2030 (Air Pollution Control Programme, p. 90 f.). It is not possible to understand how these increases in the impact potential come about.

In view of all these uncertainties and inconsistencies, it cannot be assumed that the measures provided for in the package of agricultural measures can lead to compliance with the reduction commitments. The forecast that the reduction targets will be narrowly met is based on mere wishful thinking.

Finally, the Clean Air Programme also recognises the need for a safety buffer due to the considerable uncertainties. On page 91 it says:

> "For the following reasons, it is necessary for the coordinated package of measures to provide a buffer against the additional emission reductions required to meet the reduction commitments. From this point of view, possibilities for the targeted promotion of emission-reducing measures should also be examined. “

However, the Clean Air Programme does not provide for such a buffer. On the contrary, in the WAM scenario the reduction commitments applicable from 2020 are not met at all and the reduction targets for 2025 and from 2030 are only very narrowly met with a buffer of just 1%. Therefore, even if the measures of the package of measures for agriculture were to be implemented, it could not be assumed with the necessary certainty that the reduction commitments for ammonia would be met.

Finally, the table presented in Section 5.8 of the Clean Air Programme does not indicate whether and to what extent the specific measures for the reduction of ammonia emissions listed in Annex III, Part 2, Section A, which are to be included on a mandatory or optional basis under Art. 6 para. 2 sentence 2 NEC Directive, should be implemented.

(g) Encouraging the use of lower sulphur fuels where appropriate

The promotion of a change in the fuels used in industrial production towards lower-sulphur fuels or more efficient technologies for exhaust gas cleaning should lead to a further reduction in SO2 emissions of 8.6 kt from 2025 and 8.2 kt from 2030 (NLRP, p. 98).

This measure is not specified in the NLRP. It is merely a reserve measure that is to be taken "if necessary" if the other measures are not sufficient to meet the reduction targets (NLRP, p. 87).

Particularly as the measure is not at all specified in terms of content or time, the assumed reduction potential cannot be understood to any extent.

(h) Possible amendment of the 13th BImSchV for selected fuels other than coal

A further potential reduction in NOx emissions is to be achieved, if necessary, by amending the 13th BImSchV for selected fuels other than coal (-2.0 kt from 2025 and -2.1 kt from 2030).

This measure, too, is mentioned only conditionally and is not substantiated in terms of content or timing. The reduction potential mentioned in the NLRP cannot be understood in this way.

(3) Summary of the results for the individual air pollutants

Due to the uncertainties described above, the following can be stated with regard to compliance with the reduction targets for the individual pollutants:

(a) NOx

According to current emission data, national NOx emissions in 2018 were 1.084 kt, leaving a gap of 155 kt to meet reduction commitments from 2020, a gap of 353 kt to reach the interim target for 2025 and a gap of 551 kt to meet reduction commitments from 2030.

For the World Cup scenario, a slight overfulfilment of the reduction commitments applicable from 2020 is forecast by 16 kt. A gap of 30 kt is forecast for the interim target for 2025, and a gap of 91 kt for the reduction target for 2030. As explained above, this is based on the outdated and over-optimistic assumptions on activity rate development of the 2017 projection report and unrealistic assumptions on the full implementation of the limit values of the 13th BImSchV for large combustion, gas turbine and internal combustion engine plants and on the implementation of the more stringent BAT conclusions. The World Cup scenario already underestimates the expected emission level.

For the WAM scenario, compliance with the interim target for 2025 is projected with a safety buffer of 45 kt and the narrow compliance with the reduction commitment for 2030 without any safety buffer. However, the measures that are to contribute to the reduction of NOx emissions in the WAM scenario, i.e. the climate protection measures of the MWMS, the phase-out of coal-fired power generation, the national implementation of the MCP Directive and the package of measures for road transport, cannot achieve the reduction effect assigned to them. Even the inadequate implementation of the WSB Commission's recommendations on the coal phase-out means that the interim target for 2025 and thus the linear reduction path cannot be met, contrary to the forecast. Nor can the implementation of the other measures and the reduction potential allocated to them be assumed with the necessary certainty. With regard to the reduction targets for 2030, the programme does not provide any safety buffer. Rather, due to the uncertainties recognised in the programme, it must be readily assumed that the reduction commitments for 2030 for NOx cannot be met.

It can therefore be concluded that the clean air programme is not suitable for limiting NOx emissions along a linear reduction path in line with the reduction targets of the NEC Directive.

(b) NH3

The national ammonia emissions in 2018 were still 636 kt. This leaves a gap of 27 kt to meet the reduction commitments that apply from 2020, a gap of 104 kt to meet the interim target for 2025 and a gap of 181 kt to meet the reduction commitments that apply from 2030.

For the World Cup scenario, a shortfall of 5 kt in the emission reduction targets applicable from 2020 is forecast. A gap of 58 kt remains to reach the interim target for 2025 and the reduction commitments applicable from 2030 are missed by 115 kt. This forecast is already too optimistic because it is based on unrealistic assumptions regarding the implementation of the ammonia-reducing measures of the DüV 2017. In fact, significantly higher emissions are to be expected.

Even for the WAM scenario, a gap to meet the 2020 reduction target of 4 kt is projected. However, the interim target for 2025 is to be achieved with a safety buffer of 6 kt. In addition, tight compliance with the reduction commitment for 2030 is predicted with a safety buffer of 19 kt. These safety buffers are not sufficient to ensure compliance with the reduction targets, even in view of the considerable uncertainties admitted in the Clean Air Programme itself. The options for measures in the agriculture package cannot reliably realise the considerable reduction potential of 133 kt allocated to them. This is already the case because the implementation of these measures is not provided for in a binding manner and is not even rudimentarily specified in terms of content and time. Nor are the reduction effects assumed for the individual measures plausibly justified.

It must therefore be stated that the Clean Air Programme is already, according to its own statements, not suitable for meeting the reduction targets for NH3 applicable from 2020. Due to the numerous forecast deficiencies, it cannot be assumed that the reduction targets of the NEC Directive for ammonia will be met along a linear reduction path.

(c) SO2

According to the current emission data, national SO2 emissions in 2018 were 377 kt, so that the reduction commitments applicable from 2020 have already been met. The interim target for 2025 would also already be just about reached. However, with regard to the reduction targets applicable from 2030, a gap of 89 kt remains.

The World Cup scenario forecasts a slight overfulfilment of the reduction targets for 2020 and 2025. With regard to the reduction obligations from 2030, however, a gap of 34 kt remains. As explained above, however, the WM scenario is based on an underestimation

of the activity rate development and an overestimation of the effectiveness of existing measures in the field of air pollution control.

In the WAM scenario, the interim target for SO2 is achieved with a safety buffer of 84 kt. However, this safety buffer is likely to be significantly lower, in particular due to the failure to implement the coal phase-out recommendations. The safety buffer of 38 kt for compliance with the reduction targets for 2030 is insufficient in view of the general forecasting uncertainties and the considerable uncertainties regarding the effect of climate protection measures and the coal phase-out.

The air pollution control programme is therefore not suitable for ensuring that the reduction targets of the NEC Directive for SO2, in particular those foreseen for 2030, can be safely met and that a linear reduction path can be followed.

(d) $PM2_{.5}$

The national $PM2_{.5\ emissions}$ in 2018 were 97 kt. This means that the reduction obligation applicable from 2020. With regard to the interim target for 2025, however, a gap of 5 kt remains, and with regard to the reduction target applicable from 2030, a gap of 17 kt.

In the WM scenario, an overfulfilment of the reduction targets for $PM2_{.5}$ is forecast for 2020 and 2025. With regard to the reduction obligations from 2030, however, a gap of 3 kt remains. Based on the optimistic assumptions on the development of activity rates, it can be assumed that this gap is in fact much larger.

The measures considered in the WAM scenario cannot fill this gap with the necessary certainty. This is because the implementation and effect of the central reduction measures, i.e. the climate protection measures of the MWMS, the phase-out of coal-fired power generation and the retention of the regulation for solid fuel boilers of the 1st BImSchV are subject to great uncertainty.

It must therefore be concluded that the air pollution control programme is not suitable for ensuring that the reduction targets of the NEC Directive for $PM2_{.5,\ in}$ particular those foreseen for 2030, are met.

e. Result

In summary, the forecast underlying the Clean Air Programme, according to which the measures considered in the WAM scenario will meet the emission reduction commitments of the NEC Directive, is based on incorrect assumptions and is not substantiated in a comprehensible manner. It cannot be assumed with the necessary certainty that the Clean Air Programme will be able to limit emissions in line with the reduction commitments. With the forecast deficits discussed above as examples, the plaintiff has shown that the forecast is based on pure wishful thinking.

It is ultimately not the task of the plaintiff to prove the incorrectness of the forecast. Rather, it is up to the defendant to justify its forecast result in a comprehensible manner.

For example, in the Craeynest case, the ECJ clarified that it is for the competent national authorities "to base their decisions on sound scientific data and to produce comprehensive documentation to support the choice of the location of all measuring stations" (ECJ, judgment of 26 June 2019, C-723/17, para. 51 - Craeynest). This approach is further specified in the opinion of the WG. According to Advocate General Kokott, "...it is up to the competent authorities to convince the courts, in particular by presenting well-founded arguments. ...] The opposing party is free to counter such claims with its own scientifically substantiated arguments. Of course, it is also conceivable that the court may have recourse to independent experts to assist in the assessment of such a scientific dispute" (Opinion in Case C-723/17, para. 64).

In its case law on the Nitrates Directive 91/676/EEC, the ECJ has also made clear that there is a material shift in the burden of proof as regards the suitability of plans and programmes to achieve binding environmental quality objectives. Thus, in the infringement proceedings against the Federal Republic of Germany, the ECJ rejected the view of the Federal Government that the obligation to take additional measures under Article 5(5) of the Nitrates Directive only applies "if there can no longer be reasonable doubt that the measures in force are not sufficient". The ECJ stated

> "that such an interpretation is not consistent with the case-law cited in paragraph 53 of this judgment, according to which such measures and reinforced measures must be adopted as soon as it is established that they are necessary".

> (ECJ, judgment of 21 June 2018, C-543/16, paragraph 63- Commission v Germany)

Furthermore, the ECJ states with regard to the principle of effet-utile

> "Moreover, that interpretation renders Article 5(5) of Directive 91/676 null and void. According to that interpretation, even if a need within the meaning of that case-law were to be established, the Member State concerned could postpone the adoption of additional measures or reinforced action for a long period, justifying that postponement solely on the ground that it had to be satisfied that the measures taken in the past were inadequate".
> (ECJ, judgment of 21 June 2018, C-543/16, paragraph 64 - Commission v Germany)

Finally, the ECJ also rejected the argument of the Federal Government that, because of the complexity of the forecast of future trends in nitrate pollution of groundwater, the Member States should be given a wide margin of assessment. For the necessity of forecasts does not alter the obligation to update the action programmes if the assessment to be carried out shows that the measures taken so far are not suitable for achieving the objectives (ECJ, judgment of 21 June 2018, C-543/16, para. 65 et seq. - Commission v Germany).

This case law was confirmed by the ECJ in its decision of 3 October 2019 on a reference for a preliminary ruling from the Vienna Administrative Court in the case Wasserleitungsverband Nördliches Burgenland. Here it states

> "Moreover, according to the case law of the Court of Justice, in order to establish that additional measures or reinforced action under Article 5(5) of Directive 91/676 are necessary, it is not necessary to prove that the measures already adopted are ineffective (judgment of 21 June 2018, Commission v Germany, C543/16, not published, EU:C:2018:481, paragraphs 63 and 64).
> (ECJ, judgment of 3 October 2019, C-197/18, paragraph 61 - Wasserleitungsverband Nördliches Burgenland and others).

Accordingly, the burden of proof that the programme to be drawn up is suitable for achieving the environmental quality objectives or reduction targets laid down in Union law lies with the authorities appointed to draw up the plan. It is their task to counter reasonable doubts that the programme is sufficient to meet the reduction obligations with

comprehensible and, in particular, consistent statements. In the case of the NEC Directive, this is also made clear by the fact that, according to Art. 6 para. 4 NEC Directive, the risk of failing to meet the reduction targets already triggers the obligation to adapt the clean air programme.

As long as the defendant has not demonstrated, on the basis of a sufficiently reliable and comprehensibly substantiated forecast, that the measures provided for in the clean-air programme are suitable for meeting the binding reduction obligations along a linear reduction path, there is accordingly an obligation to update the clean-air programme.

The main claim is therefore well founded.

III. Admissibility and merits of the alternative claim in 2.

In the first auxiliary request, the plaintiff seeks, in the event that the Senate should deny the existence of an obligation to adhere to a linear reduction path, at least the establishment of a clean-air programme which would contribute to compliance with the requirements set out in Article 4(1) in conjunction with Article 4(2). Annex II NEC Directive for the period 2020 to 2029 and the period from 2030.

As regards the admissibility of the action, the same applies as above.

The action is also well founded. As stated above, the defendant is obliged to create a program which is necessary to fulfill the requirements set forth in Art. 4 Par. 1 in conjunction with Annex II NEC Directive. The existing Clean Air Programme of 22 May 2019 is not suitable to fulfil this obligation because it does not specify any additional measures and is based on an uncertain and unrealistic emission forecast.

IV. Admissibility and merits of the third and fourth heads of claim

In the two subsidiary submissions to 3. and 4., a request for a declaratory judgment is made as a precautionary measure in the event that the court should have doubts as to the validity of a claim for benefits.

The admissibility of the remainder and the merits of the action are apparent from the foregoing.

C. Summary

The national clean air programme adopted on 22 May 2019 does not meet the requirements of the NEC Directive.

Although both current emission data and the (optimistic) emission forecast of the Clean Air Programme for the WM scenario show that the reduction targets of the NEC Directive for the pollutants NOx, NH3, SO2 and $PM2_{.5}$ cannot be fully achieved on the basis of the measures in force, the Clean Air Programme, contrary to the requirements of Art. 6 para. 1 in conjunction with Annex III Part 1 No. 1 c NEC Directive does not contain any "strategies and measures intended for adoption and the timetable for their adoption, implementation and review with indication of the competent authority". Rather, the Clean Air Programme merely lists completely non-binding options for measures, whose implementation and timetable for implementation remains open. Measures whose implementation is uncertain must not be taken into account in the forecast. Furthermore, the reduction potential allocated to the individual options for action is not discussed in a comprehensible manner. The Clean Air Programme, which itself admits numerous uncertainties in the forecast, cannot guarantee with sufficient certainty that the reduction commitments of the NEC Directive will be met along a linear reduction path.

A certified and a simple copy is attached.

Dr. Caroline Douhaire
(attorney)