Additional measures that have not yet been implemented are assigned to the WAM scenario

Reduction in large coal combustion plants through the accelerated coal phase-out ideally by 2030 (according to the coalition agreement of 2021):

This measure assumes an accelerated phase-out of coal by 2030, according to the federal government's 2021 coalition agreement to meet the climate protection goals. The assumed phase-out of coal by 2030 will also result in further reductions of air pollutant emissions, especially NO_x, by substitution of power and heat generation from coal.

When calculating the reduction potential, it was assumed that all coal-fired power plants would be taken off the grid by December 31st, 2029 and that only a very limited amount of coal would still be used in industrial power plants, for production processes that cannot be alternatively supplied with sufficient energy in the short term, as well as in households beyond 2030. In the projection, the short and medium-term compensation will essentially come from natural gas, and to a smaller extent also through increased expansion of renewable energies and increased use of hydrogen compared to the with measures scenario (MMS) in the 2021 projection report. Coal-fired power generation was gradually phased out until 2030 (December 31st, 2029). It was assumed that the resulting gap in covering final energy consumption of the WM scenario would essentially be closed through increased use of natural gas and the associated expansion of gas power plant capacity. The primary energy consumption for these was derived using an average efficiency of gas-fired power plants of 50 % and of coal-fired power plants of 40 %. By 2030 only a slightly increased expansion of renewables was assumed, compared to the with measures scenario (MMS) in the 2021 projection report. In addition, a higher use of hydrogen in 2025 and onwards was assumed than in the with measures scenario (MMS) of the 2021 projection report, also assuming a further increase of the final energy consumption.

The calculation of the emission mitigation effect was carried out in two stages. First, the reduction in the use of coal was calculated, and then, the compensation through natural gas, hydrogen and renewable energies is calculated. The overall reduction effect of this measure in 2025 and 2030 is:

Table 10: Potential emission reductions of an accelerated coal phase-out compared to WM scenario

Year	NO_x	SO_x	NH_3	$PM_{2.5}$
2025	-27.2 kt	-53.4 kt	-0.1 kt	-1.3 kt
2030	-19.6 kt	-55.3 kt	-0.1 kt	-1.2 kt

Reduction of coal use:

The coal use in a year results for each relevant time series from the proportional distribution of the total coal use in the KIS scenario[1)] (additional scenario to the 2021 projection report) across the individual time series.

Activity for a time series = [assigned activity of the time series in the reference scenario] / [total activity (total coal use) in the reference scenario] * [total activity (total coal use) in the KIS scenario] = $[AR_{Ref,Year}] / [\sum AR_{Ref,Year}] * [\sum AR_{KIS,Year}]$

This calculation results in a new value for each time series regarding coal use for each projection year. The last use of coal in large combustion plants will take place in 2029. Starting from 2030, the activity rate is assumed to drop close to zero.

The calculation of the activity rate of the time series “Heat generation in medium combustion plants of public district heating plants” from raw lignite for the year 2025 is shown as an example.

Calculation of the activity rate for raw lignite for “heat generation in medium combustion plants of public district heating plants” in 2025 = $[AR_{Ref,2025}] / [\sum AR_{Ref,2025}] * [\sum AR_{KIS,2025}]$ = [17.05 TJ] / [1514274 TJ] * [494,321 TJ] = 5.56 TJ

Compensation through natural gas, hydrogen and renewable energies:

A proportional compensation of energy through renewable energies will only be assumed in this measure from 2035 and onwards. Until then the energy will be compensated exclusively through natural gas and hydrogen. This leads to additional emissions from gas use compared to the with measures scenario (MMS) of the 2021 projection report.

Table 11: Substitution of primary energy consumption from coal use in the WAM scenario [in TJ]

Year	2025	2030	2035	2040
Total primary energy consumption from coal use in MMS (= WM scenario)	2007251	1482125	853824	320467
Total primary energy consumption from coal use in KIS	774193	153625	90545	65415
Additional primary energy consumption from natural gas (50 % efficiency) in the WAM scenario	986447	1062800	584977	177924

Year	2025	2030	2035	2040
Additional primary energy consumption from hydrogen in the WAM scenario	41653	156347	412749	701544

Table 11 shows the most important shifts in primary energy consumption in the WAM scenario. All data were derived from the 2021 projection report as well as the KIS report and can be extracted from the UBA projection database.

For power generation from hydrogen only NO_x emissions were preliminary estimated, due to lack of data. Therefore, emission limit values for natural gas were taken from existing regulations and were assumed to fit as emission factors for hydrogen as well. Table 12 shows the derived emission factors for power generation from hydrogen. Measurement data and critical examination for further validation of emission factors for power generation from hydrogen is very welcome.

Table 12: Assumed emission factors for power generation from hydrogen

regulation	in mg/m³	reference oxygen content	in kg/TJ
Industrial emissions directive (IED) (plants > 50 MW)	60	3 %	16.8
44th BImSchV (gas turbines < 50 MW)	70	15 %	65.2

Reductions in waste incineration and co-incineration plants through amendment of the 17th BImSchV:

As part of a draft amendment to the existing 17th BImSchV[2)], among other things, the possible exemptions regarding NO_x in accordance with § 10 (3) of the 17th BImSchV for waste incineration plants shall be deleted. With the implementation of the amendment, the emission limit for NO_x should be set as an annual average of 100 mg/m³ (at 11 % reference oxygen content). This should be applied from January 1st, 2026 including a two-year transition period from 2024.

The assumed emission limit of 100 mg/m³ corresponds to an emission factor of 62.6 kg/TJ. The conversion is done using a conversion factor of 1.6 as shown in equation (5).

```
  (5) NOx emission factor (industrial waste) = (100 mg/Nm^3) / (1.6) = 62.6 kg/TJ
```

In case, it is expected that this measure will be fully implemented in 2030. Thus, in the WAM scenario from 2030 and onwards, the emission factor of the affected time series is set at 62.6 kg/TJ. An alternative conversion factor of 1.79 will lead to a lower emission factor of 55.9 kg/TJ. In the sense of a conservative projection, the former was chosen (see equation (5)).

NO_x reduction in pulp and paper production through an optional amendment of the 13th BImSchV:

According to the existing 13th BImSchV (as of 2017), different maximum amounts of NO_x emissions are permitted according to the production process (sulphate and sulphite process) and the size of the plant (measured in RTI in MW) in pulp and paper production. An optional amendment of the 13th BImSchV would result in reductions in the emission factor in the NFR sector 2.H.1.

It is assumed for the sulphite process that all four plants > 50 MW located in Germany are operated with RTI of 50-300 MW. In the sense of a conservative estimate of the reduction potential, a maximum current emission factor of 300 mg/Nm³ for all plants according to the 13th BImSchV is assumed for the further calculation of the reduction potential. The NO_x emission factor for the sulphite process will be taken over from the 2022 submission in 2020, which is 2 kg/t. The new emission factor results from the current emission factor (2 kg/t) and the maximum emission value proposed in the amendment (85 mg/Nm³) divided by the calculated mean value of the currently applicable law (300 mg/Nm³). This results in an emission factor of 0.57 kg/t for 2025, 2030 and 2035 as shown in (6).

```
  (6) NOx emission factor (sulphite process) = (2 kg/t * 85 mg/Nm^3) / 300 mg/Nm^3 = 0.57
kg/t
```

In the field of the sulphate process there are two plants > 50 MW with different boiler sizes in Germany. To calculate the reduction potential, the percentage distribution of the two plants per boiler size was calculated according to a combustion heat output in the range of 100-300 MW and more than 300 MW over all time series (2006 to 2018). For this purpose, the emission values of the individual years for the individual location or the individual plant are divided by the annual activity of both plants for each considered time series. The data basis for the calculation is the 2022 submission. This results in the estimates of the proportionate use of the various plant sizes for the past years up to 2018 with the plant-size-specific maximum emissions according to the daily mean value with 250 mg/Nm³ for the plant with a thermal output of 100-300 MW and 200 mg/Nm³ for the plant with more than 300 MW. The mean value of the current NO_x emissions from the sulphate process results from the sum of the maximum permitted emissions per boiler size multiplied by the current proportionate NO_x emissions. Equation (7) indicates the calculation.

```
  (7) implied NOx emission factor (sulphate process) = 0.36 t/a * 250 mg/Nm^3 + 0.64 t/a *
200 mg/Nm^3 = 217.78 mg/Nm^3
```

The implied emission factor for the sulphate process will be taken over from the 2022 submission in 2020. The new emission factor results from the emission factor according to the current status and the maximum emission value proposed in the optional amendment of the 13th BImSchV divided by the calculated mean value of the applicable law. This results in an emission factor of 0.68 kg/t for 2025 to 2040, as shown in equation (8).

```
  (8) implied NOx emission factor (sulphate process) = (1.75 kg/t * 85 mg/Nm^3) / 217.78
mg/Nm3 = 0.68 kg/t
```

NO_x reduction in refineries through an optional amendment of the 13th BImSchV:

An optional amendment of the 13th BImSchV would lead to emission reductions in the area of refineries and is assigned to the WAM scenario. It causes a reduction in the emission factors in the affected time series of the NFR sector 1.A.1.b. A distinction must be made between refinery plants and the fuel input used by them. For plants using raw petrol (naphtha), light heating oil or other petroleum products, the proposed NO_x limit value is set to 85 mg/Nm^3 and adopted as the maximum emission level. When using heavy fuel oil, there is a so-called bell-rule applicable for the plants, whereby individual parts of the plant are allowed to exceed the limit value of 85 mg/Nm^3 if other parts of the plant fall below the limit value and the plant emission is on annual average not above the limit value.

For plants using raw petrol (naphtha), light heating oil or other petroleum products as fuel, the new maximum emission level corresponds to the limit value of 85 mg/Nm^3 NO_x. Consequently, only the conversion factor of the specific flue gas volume for heavy fuel oil or light heating oil (Table 1) has to be used to convert to kg/TJ NO_x. The conversion is carried out for all source groups as shown in (9) using the example of refinery underfiring in LCP with light heating oil as fuel.

```
  (9) implied NOx emission factor (refinery underfiring with light heating oil) = 85 mg/Nm^3
/ 3.49 = 24.4 kg/TJ
```

This results in NO_x emission factors of 24.4 kg/TJ for light heating oil and 25.1 kg/TJ for other petroleum products for 2025 to 2040.

For a total of twelve plants with heavy fuel oil as fuel input the bell-rule is applied. First of all, the emission limit value according to the current 13th BImSchV and its specific RTI is assigned to each plant and the mean value is calculated across all plants (274.75 mg/Nm^3). The bell-rule allows parts of plants to exceed the maximum emission level if another part of the plant emits proportionally less. The estimated percentage reduction, taking into account the bell-rule, is calculated as shown in (10) by setting the limit value of 85 mg/Nm^3 NO_x in relation to the mean value of the current emission limit values.

```
  (10) percentage NOx emission reduction (refineries) = 1 - (85 mg/Nm^3 / 274.75 mg/Nm^3) =
0.69
```

A calculated reduction of approximate 69 per cent is assumed for the bell. The projected emission factors for the concerned source categories for 2025 to 2040 are now derived from the current emission factor of the source category under consideration from the 2022 submission minus the proportional reduction.

The conversion is carried out in the same way for all source groups as shown in (11) for the refinery underfiring in LCP with light heating oil as fuel.

```
  (11) NOx emission (refinery underfiring with light heating oil) = [400 mg/Nm^3 * (1 -
0.69)] / 3.39 = 36.5 kg/TJ
```

NO_x reductions in other large combustion plants through an optional amendment of the 13th BImSchV:

Emissions from other LCPs, which emerge from the energy balances, but cannot be clearly assigned to a specific fuel use or fuel mix and also show a reduction potential by an optional amendment of the 13th BImSchV are assigned to the NFR sector 1.A.1.c and a reduction in the NO_x emission factor was calculated.

The NO_x emission factors for all non-gaseous materials other than coal for electricity and heat generation are considered and the maximum emission amount for NO_x is assumed to be 85 mg/Nm^3. According to the 13th BImSchV, only plants with more than 1500 operating hours per year are taken into account for which the new limit value of 85 mg/Nm^3 NO_x applies. Table 13 shows the estimated relative and absolute plant split of the LCP according to its annual operating time assuming an equal fuel use distribution.

Table 13: Estimated relative and absolute plant split of LCP according to annual operating hours

operation time	RTI in MW	proportion
< 1500 h/a	46573	17.8 %
> 1500 h/a	214990	82.2 %
total	261563	100 %

The emission factors will be recalculated for 2025 to 2040. First, the limit value of 85 mg/Nm^3 is converted into kg/TJ using the specific conversion factor (Table 1). The new emission factor results from the sum of the reduction for the 82.2 per cent of the fuel use with an operating time of more than 1500 h/a and the unchanged value from the 2022 submission for the 17.8 per cent of the fuel use with less than 1500 h/a operating time, that is not obliged to be reduced by the optional amendment of the 13th BImSchV.

The calculation is shown using the example of the source category of electricity generation in large industrial power plants using other liquid fuels (reference value in 2020: 42.5 kg/TJ) in (12), whereby the procedure is analogous for all other source categories.

```
  (12) NOx emission factor (electricity generation in large industrial power plants) = (85
mg/Nm^3 / 3.39) * 82.2 % + 42.5 kg/TJ * 17.8 % = 28.2 kg/TJ
```

Increase in emissions due to the implementation of the proposed amendment of the Building Energy Act (GEG):

The amendment of the Building Energy Act (Gebäudeenergiegesetz – GEG) of October 16th, 2023 is assumed to further incentivise the use of solid biomass for heat generation in the building sector in comparison to the 2021 projection report.

The calculation of the potential increase in emissions for the emission projections in 2023 was based upon a decision of the federal cabinet of April 19th, 2023[3)]. A potential increase of the use of solid biomass in small combustion installations of 23 % in 2030 compared to the WM scenario was assumed[4)]. In addition, starting in 2024, the implied emission factor of new small solid biomass boilers (< 1 MW) is assumed to be very low, reflecting the minimum technical requirement of the cabinet decision to reduce dust emissions by 80 per cent below the dust limit value of the 1st BImSchV, which is 20 mg/m^3 for solid biomass boilers. In addition, no changes to the accompanying funding programme (Bundesförderung für effiziente Gebäude – BEG), as it was set at that time, were assumed. Application for funding of a heating system using solid biomass was only possible at that time, as compliance with a maximum of 2,5 mg/m^3 of dust emissions has been demonstrated for the respective boiler. Assuming this, potential additional emissions in 2025 and 2030 compared to the WM scenario were calculated as follows:

Table 14: Potential emission increases as a result of the amended Building Energy Act (GEG)

year	NO_x	SO_x	NMVOC	$PM_{2.5}$
2025	+2.0 kt	+0.2 kt	+1.9 kt	/
2030	+7.1 kt	+0.7 kt	+4.5 kt	+1.2 kt

Both the Building Energy Act (GEG) and the accompanying funding programme (BEG) were later adopted in the end of 2023 with less stricter requirements regarding dust emissions of solid biomass boilers. A consistent scenario quantifying the potential development of biomass use in the building sector is under preparation for the final NECP reporting in mid-2024.

Emission reduction in small combustion installations by tightening the emission limits of the Ecodesign Regulations (EU) 2015/1185 and (EU) 2015/1189:

Through amendment of the Commission regulation (EU) 2015/1189 with regard to ecodesign requirements for solid fuel boilers, it was assumed that requirements for placing on the market and putting into service solid biomass boilers regarding emissions of particulate matter will be set at 2,5 mg/m^3 TSP from January 1st, 2027 (measured according to VDI 2066 Sheet 1, May 2021 edition and based on 13 % reference oxygen content).

Through amendment of the Commission regulation (EU) 2015/1185 with regard to ecodesign requirements for solid fuel local space heaters, it was assumed that requirements for placing on the market and putting into service solid biomass local space heaters regarding emissions of particulate matter will be set at 20 mg/m^3 TSP from January 1st, 2029 (measured according to VDI 2066 Sheet 1, May 2021 edition and based on 13 % reference oxygen content).

Considering these assumptions as well as the potentially increased biomass use described above, a potential emission reduction of 1.4 kt $PM_{2.5}$ in 2030 compared to the WM scenario in combination with a potentially increased biomass use in the building sector due to the proposed amendment of the building energy act (described above) was quantified. The

absolute emission mitigation potential in 2030 depends on the projected biomass use as well as the year, when the proposed amendment applies for new installations. Less stricter requirements regarding particle emissions in the national law will basically increase the mitigation potential of the proposed amendment of the EU ecodesign regulations.

Reduction in agriculture through a bundle of measures quantified as an agricultural package:

Despite compliance with the reduction obligation for ammonia in the WM scenario, additional measures are necessary for three reasons:

- safety buffer due to the uncertainties of the assumed emission reductions in the WM scenario,
- safety buffer due to exceptions to various regulations for small and very small farms and
- compensation for the potentially increased ammonia emissions from a measure of the climate protection program 2030: 70 % of liquid manure from cattle and pig farming should be digested in biogas plants by 2030, which leads to potential additional emissions in 2030 compared to the WM scenario of 12.8 kt NH_3.

For these reasons, three additional measures to reduce ammonia emissions in the agricultural sector, plus the previously mentioned emission-increasing climate protection measure, were summarized in an agricultural package of measures in the WAM scenario.

a) Increase in the share of technically gas-tight stored digestion residues to 100 % by 2030

b) System-integrated measures in dairy cattle housing systems
In dairy farms approximately every 15 years the floors of dairy cattle barns are renewed as part of the regular exchange or renovation. It is assumed, that by financial incentives (at the moment funding of up to 50 % of the costs is possible) low emission floor systems or coverings would be established more and more. Available systems can reduce emissions of ammonia by 25 %[5)].
It is assumed, that until 2030 50 % of all dairy cattle floor systems will be renewed and 50 % of these will be equipped with low emission systems with the help of agricultural investment subsidies. Therefore, in 2030 for 25 % of the slurry-based systems for dairy cattle the emission factor was reduced by 25 %.
The implementation of this measure will be further driven in the scope of the 4th BImSchV (immission control permission following the law on assessment of the effects on the environment – UVPG[6)] or equivalent regulations). Further regulations for dairy farming in the near future are conceivable.

c) Increased application of liquid manure on tilled fields or grassland with injection, slot technology or acidification technology
In 2030 25 % of the liquid manure currently applied on tilled fields or grassland with other technology was added to the proportion of liquid manure applied on tilled fields or grassland using injection or slot technology or acidification technology. This assumption probably requires further political implementation, e.g. via funding. The low emission application of 25 % of the liquid manure previously applied on tilled fields or grassland with other technology in 2030 is an ambitious goal, since the applicability of these technologies on locations with a high clay content or moorland, on slopes and in small farms will only be given to a limited extent.

The expected ammonia emission reduction of these three measures (in addition to the WM scenario) in 2030 is 3.4 kt (12.8 kt additional ammonia emissions due to more slurry digestion in biogas plants and 16.2 kt emission reduction due to the three additional mitigation measures of the WAM scenario).

The main uncertainty in the quantification of the reduction potential lies in the achievement of the assumed degree of implementation in practice by 2030. With the regular update of the emission projections for air pollutants for reporting in accordance with Directive (EU) 2016/2284 by March 15th, 2025 at the latest, the measure and the assumptions for evaluating its reduction potential will be re-examined.

In addition, the amount of ammonia emissions from the previous year will be checked annually in the future. This should be carried out for ammonia emissions from agriculture as part of the previous year's estimate of greenhouse gas emissions in accordance with Section 5 Paragraph 1 of the Federal Climate Protection Act. The previous year's estimate is based on current statistics on important activity data for the previous year (livestock, N-mineral fertiliser sales) and must be submitted annually by March 15th. If the ammonia emissions of the previous year's estimate are above the linear target path according to NEC Directive (EU) 2016/2284, the BMEL, in consultation with the BMUV, will develop a bundle of agricultural measures, that will assure compliance with the linear target path as soon as possible. Because of uncertainties in the emission projections a minimum gap of 10 kt is agreed. If the previous year’s estimate in the following year has again a gap of 10 kt or more, the bundle of agricultural measures enters into force immediately.

Emission reduction in road transport through a bundle of measures quantified as a road transport package:

The road transport package contains two single measures and one bundle of measures. Because most of the measures are

interdependent, the reduction potential is quantified for the package. The package is based on the coalition agreement of 2021. Detailed information is also provided in Allekotte et al. (2023)[7]. However, assumptions presented in Allekotte et al. (2023) can differ from the latest assumptions made for the emission projection reporting in 2023.

a) introduction of Euro 7 standard
In November 2022 the Commission published a proposal for a regulation “on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7)”[8]. The WAM scenario of the emission projections reported in 2023 as well as the draft German NAPCP of 2023 quantifies the proposed emission limit values. It was assumed, that new cars will be entering the fleet for passenger cars and light duty vehicles (LDV) in 2026 and for heavy duty vehicles (HDV) in 2028.
The quantification was done with the models HBEFA version 4.2[9] and TREMOD version 6.21 (see Allekotte et al., 2023). The impact of changes during negotiation of the Euro 7 regulation between Commission, Council and Parliament was not quantified.

b) expansion of the truck toll system
The basis for quantification is the coalition agreement of 2021. It provides that the weight limit should be lowered to 3,5t, introduction of a CO_2-surcharge (but avoiding double burden of the CO_2 pricing for petrol and diesel through the national ETS) and CO_2 differentiation of the toll. The CO_2-surcharge was assumed at 100 €/t CO_2 in 2030 (55 €/t CO_2 in 2025). Because of an announced avoidance of double pricing GHG emissions by the toll and the n-ETS only traffic volume in Germany, that has refueled outside of Germany, was assumed to get more expensive.
Therefore, only a slight shift of road traffic volume of HDV (-0,12 % in 2030) to rail transport (+0,11 % in 2030) and inland shipping (+0,02 % in 2030) was assumed. Because vehicles between 3,5 and 7,5 t become covered by the toll, also a shift (-20 % in 2030) to HDV > 7,5 t and to LDV was assumed. The CO_2 pricing will also lead to more electric HDV in the fleet (+0,25 % traffic volume in 2030).

c) package of measures to promote electromobility (among others to reach 15 million BEV in the passenger car fleet in 2030)
The overarching goal of this bundle of measures is to reach 15 million BEV in the passenger car fleet in 2030 as the coalition agreement 2021 intended and as it was decided in the coalition committee on March 28th, 2023[10]. The coalition further agreed to take additional measures at short notice if necessary. The following measures are part of the WAM package as reported in the emission projections 2023 as well as the draft German NAPCP from June 2023:

- Updating the CO_2 emission performance standards of new vehicles up to 2035
- Purchase bonus for electric cars and promotion of fleet conversion in the municipal and commercial sectors
- Reduced taxation of electric company cars and other tax advantages
- Development of a comprehensive, needs-based and user-friendly charging infrastructure
    - Tender from the BMDV and the federal Autobahn GmbH for the “Deutschlandnetz” (fast charging infrastructure at at least 1,000 locations)
    - Implementation of the federal government's master plan “charging infrastructure II” to accelerate and simplify the expansion of charging infrastructure

For other vehicle categories the share of electric vehicles is assumed to increase through:

- New CO_2 emission performance standards for new HDV and coaches
- Continuation of the promotion of light and heavy duty vehicles with alternative drives as well as the promotion of the development of the associated supply infrastructure for the fleet electrification
- Implementation of the Clean Vehicles Directive (CVD) (EU) 2019/1161
- Continuation of the funding for zero-emission buses

The impact of all these interdependent measures is assumed as follows:

- The share of new registered BEV per year exceeds 50 % in 2024 and reaches 88 % in 2030 for passenger cars. The share of electric mileage in total mileage increases to 38 % in 2030. 15 million BEV will be part of the passenger car fleet in 2030.
- From 2034 for passenger cars and from 2035 for LDV it is assumed, that only electrical cars will be newly registered. However, it is conceivable that vehicles with combustion engines using synthetic or biogenic fuels will continue to be newly registered.
- The overall particle emissions from road transport are assumed to slightly decrease until 2030, because of the lower exhaust emissions (due to increase in electric mileage as well as Euro 7, despite an overall increasing mileage) and the lower emissions from abrasion (due to lower brake wear of BEV, despite higher emissions from tyre wear and road abrasion at the same time, and new emissions standards with Euro 7).

The emission reduction potential of the WAM road transport package in 2025 and 2030 compared to the WM scenario is

given in the table below.

Table 15: Potential emission reductions of the road transport package compared to the WM scenario

year	NO_x	SO_x	NMVOC	NH_3	$PM_{2.5}$
2025	-3.7 kt	-0.1 kt	-2.4 kt	-0.7 kt	-0.2 kt
2030	-28.6 kt	-0.2 kt	-10.3 kt	-2.6 kt	-1.2 kt

1) https://www.umweltbundesamt.de/publikationen/klimaschutzinstrumente-szenario-2030-kis-2030-zur

2) https://www.bmuv.de/gesetz/referentenentwurf-zur-aenderung-der-verordnung-ueber-die-verbrennung-und-die-mitverbrennung-von-abfaellen-und-zur-aenderung-der-chemikalien-verbotsverordnung

3) https://www.bmwsb.bund.de/SharedDocs/gesetzgebungsverfahren/Webs/BMWSB/DE/Downloads/kabinettsfassung/geg-20230419.pdf;jsessionid=FE89F83CDCB7927DFDB9807381826F9B.live871?__blob=publicationFile&v=1

4) Report is not yet published. A link to the reference will be added soon.

5) Chapter 5 in https://www.ktbl.de/fileadmin/user_upload/Artikel/Emissionen/Foerderfaehige_Techniken_zur_Emissionsminderung_in_Stallbauten_2._Auflage.pdf

6) https://www.gesetze-im-internet.de/uvpg/UVPG.pdf

7) https://www.umweltbundesamt.de/publikationen/bewertung-von-emissionsminderungspotenzialen

8) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A586%3AFIN

9) https://www.hbefa.net/en/methodology#reports

10) p. 12 in https://www.spd.de/fileadmin/Dokumente/Beschluesse/20230328_Koalitionsausschuss.pdf