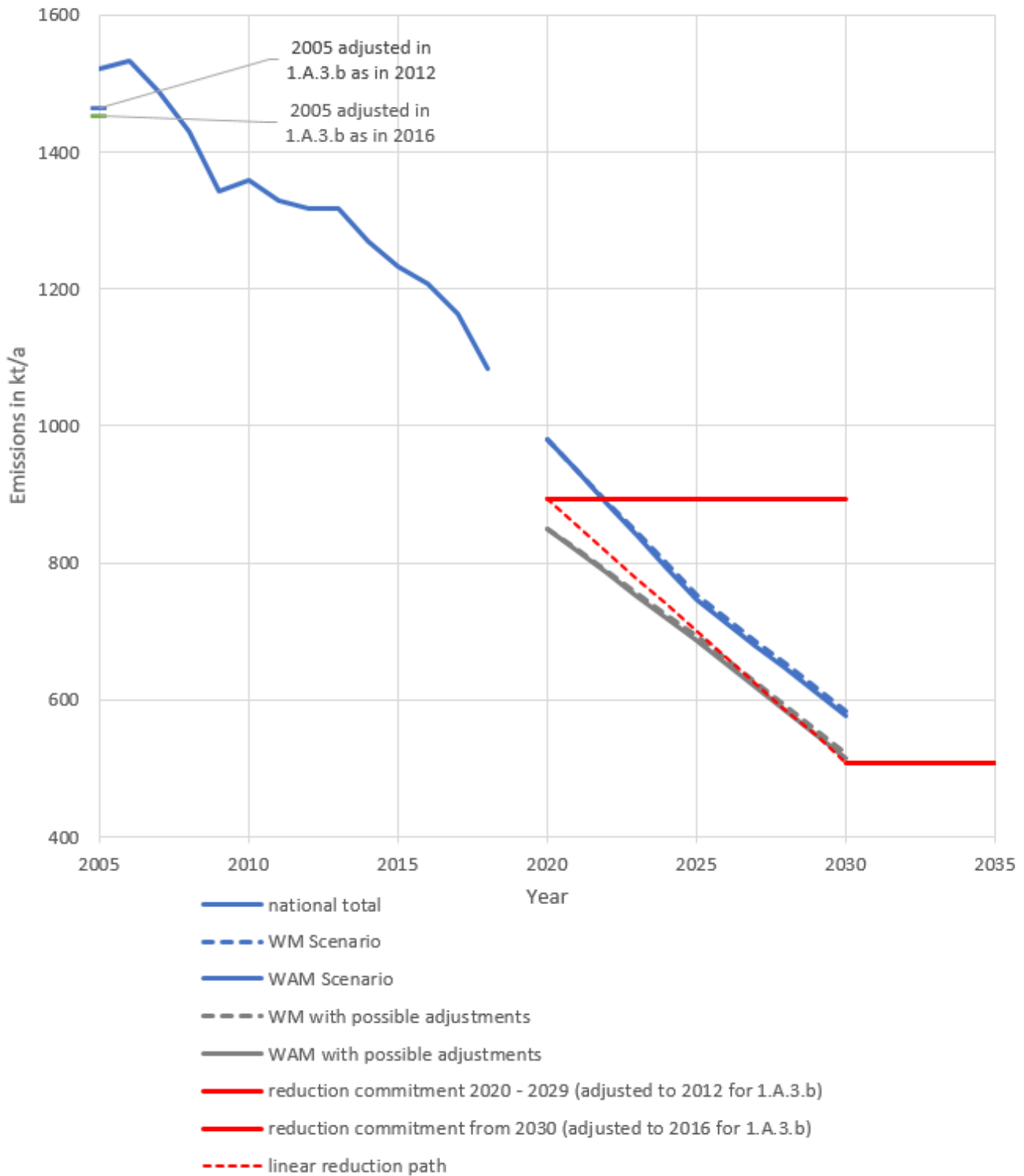


## Adjustments

The projections of the pollutant emission development in accordance with Directive (EU) 2016/2284 shows that the reduction obligations in accordance with Annex II of this directive for NO<sub>x</sub> cannot be met in the years 2020 to 2029 and from 2030 onwards without the flexibility provisions given in Art 5(1). It can therefore be assumed that Germany will apply for an adjustment of its national emission inventory in order to attain compliance with reduction commitments for 2020 to 2029 and from 2030 onwards.

Nitrogen Oxides - NO<sub>x</sub> (as NO<sub>2</sub>) with possible adjustments



### NO<sub>x</sub> adjustment in 1.A.3.b road transport

According to Annex IV Part 4 Paragraph 1 of Directive (EU) 2016/2284, an adjustment must be made for the calculation of

NO<sub>x</sub> emissions for “1.A.3.b Road transport”. The admissibility of the adjustment results from the projected exceedance of the NO<sub>x</sub> emission reduction commitment (Annex IV Part 4 Paragraph 1 a) and the fact that very different emission factors were used when determining the emission reductions and the current calculations (Annex IV Part 4 Paragraph 1 d ii).

Without the application of these adjustments, the emissions in the emissions projection submitted in 2021 for NO<sub>x</sub> will exceed the permissible absolute maximum amount by 52 kt in 2020 and 44 kt in 2030. Taking into account the adjustment in category 1.A.3.b, the additional reduction corresponds to 130 kt NO<sub>x</sub> in 2020 and 62 kt NO<sub>x</sub> in 2030. With this adjustment, the reduction commitments are met.

The adjustment takes into account the application of different emission factors from the Handbook Emission Factors for Road Transport (HBEFA<sup>1)</sup>). According to Directive (EU) 2016/2284 Art. 5 Paragraph 1 for the purpose of determining whether the relevant conditions set out in Part 4 of Annex IV are fulfilled, the emission reduction commitments for the years 2020 to 2029 shall be considered as having been set on 4 May 2012. Therefore, the emission factors known on 4 May 2012 for the period from 2020 to 2029 in the category “1.A.3. b Road transport” - in this case the emission factors based on the HBEFA version 3.1 (published in January 2010) - must be used as a basis.

To determine the adjustment according to Annex IV Part 4 from 2030 onwards, the emission factors of the HBEFA known in 2016 must be used as a basis, in this case the emission factors of the HBEFA version 3.2 (published in July 2014).

The additional conditions for an applicability of the adjustment from the year 2025 onwards as listed in the last subparagraph of Article 5 Paragraph 1 are fulfilled, since the emission factors in different versions of HBEFA do not arise from Germany’s implementation or enforcement of Union source-based air pollution control legislation.

For calculating the projections submitted in 2021, new emission factors were used according to HBEFA version 4.1 (published in August 2019). In version 4.1, many parameters were updated on which the determination of the emission factors is based, whereby the emission factors for NO<sub>x</sub>, especially for diesel cars, light- and heavy-duty vehicles, have been corrected significantly upwards. This leads to significant changes in the emission calculation in “1.A.3.b road transport” and makes the described adjustment of the NO<sub>x</sub> emissions necessary.

<sup>1)</sup>

<https://www.hbefa.net/e/documents/reports.html>