

# **GHG PROJECTIONS AND ASSESSMENT OF POLICIES AND MEASURES IN AUSTRIA**

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SUMMARY – ACCESSIBLE FORMAT  
REP-0766

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## SUMMARY

This summary provides an overview of the projections for the scenario “with existing measures” (WEM) and the scenario “with additional measures” (WAM).

The main results of the five CRF sectors (without LULUCF) and of all greenhouse gases are presented in CO<sub>2</sub> equivalent units. Trend graphs include GHG totals by category and by gas.

### Total GHG emissions

Emissions (without LULUCF) increased by 1.8% from 1990 to 2019, i.e. from 78.4 Mt of CO<sub>2</sub> equivalent in 1990 to 79.8 Mt in 2019. The “with existing measures” (WEM) scenario shows a decrease of 11.6% from 1990 to 2040, i.e. from 78.4 Mt of CO<sub>2</sub> equivalent in 1990 to 69.3 Mt of CO<sub>2</sub> equivalent in 2040. The WAM scenario shows a decrease of 22.1% between 1990 and 2040 to 61.1 Mt CO<sub>2</sub> equivalent in 2040.

Figure 1:  
Past trend and scenarios  
(2020–2040):  
total GHG emissions  
(without LULUCF).

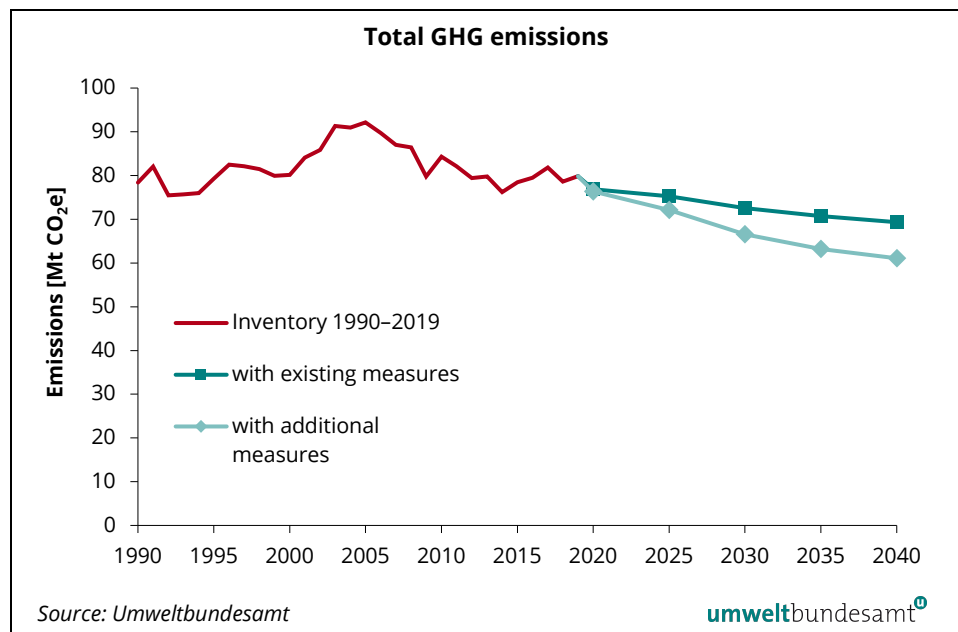


Table 1: Historical trends and projections (2020–2040): greenhouse gas emissions (without LULUCF) – scenario “with existing measures” (WEM). (Umweltbundesamt)

|                        | Inventory trend<br>[kt CO <sub>2</sub> eq] |        |        |        | Emissions ‘with existing measures’<br>[kt CO <sub>2</sub> eq] |        |        |        |        |
|------------------------|--|--------|--------|--------|---|--------|--------|--------|--------|
|                        | 1990                                       | 2005   | 2015   | 2019   | 2020  | 2025   | 2030   | 2035   | 2040   |
| Total (without LULUCF) | 78 420                                     | 92 147 | 78 462 | 79 842 | 76 885  | 75 232 | 72 540 | 70 719 | 69 329 |
| 1 Energy               | 52 804                                     | 66 869 | 53 085 | 55 048 | 53 715  | 52 207 | 50 077 | 48 485 | 47 142 |
| 2 Industrial Processes | 13 570                                     | 15 467 | 16 552 | 16 383 | 14 854  | 14 828 | 14 316 | 14 076 | 13 986 |
| 3 Agriculture          | 8 120                                      | 7 017  | 7 274  | 7 152  | 7 110   | 7 192  | 7 272  | 7 364  | 7 458  |
| 5 Waste                | 3 926                                      | 2 794  | 1 551  | 1 260  | 1 206   | 1 005  | 874    | 794    | 742    |

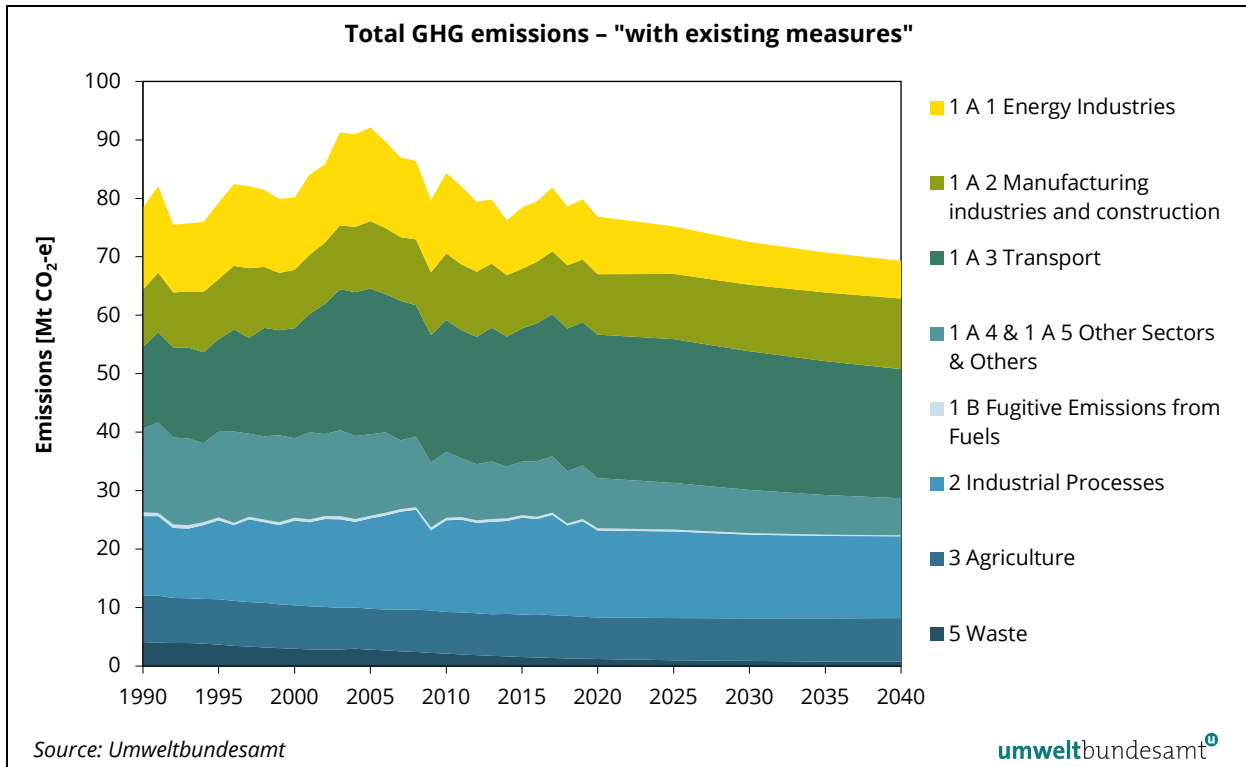
Table 2: Historical trends and projections (2020–2040): greenhouse gas emissions (without LULUCF) – scenario “with additional measures” (WAM). (Umweltbundesamt)

|                        | Inventory trend<br>[kt CO <sub>2</sub> eq] |        |        |        | Emissions ‘with additional measures’<br>[kt CO <sub>2</sub> eq] |        |        |        |        |
|------------------------|--|--------|--------|--------|---|--------|--------|--------|--------|
|                        | 1990                                       | 2005   | 2015   | 2019   | 2020  | 2025   | 2030   | 2035   | 2040   |
| Total (without LULUCF) | 78 420                                     | 92 147 | 78 462 | 79 842 | 76 384  | 72 108 | 66 536 | 63 163 | 61 078 |
| 1 Energy               | 52 804                                     | 66 869 | 53 085 | 55 048 | 53 213  | 49 422 | 44 852 | 41 892 | 40 042 |
| 2 Industrial Processes | 13 570                                     | 15 467 | 16 552 | 16 383 | 14 854  | 14 811 | 14 245 | 13 948 | 13 803 |
| 3 Agriculture          | 8 120                                      | 7 017  | 7 274  | 7 152  | 7 110   | 6 870  | 6 566  | 6 528  | 6 490  |
| 5 Waste                | 3 926                                      | 2 794  | 1 551  | 1 260  | 1 206   | 1 005  | 874    | 794    | 742    |

The WEM scenario predicts a decrease in total GHG emissions of 13% or 10.5 Mt of CO<sub>2</sub> equivalent between 2019 and 2040.

This change is mainly driven by a decrease in the energy (minus 14% or 7.9 Mt of CO<sub>2</sub> equivalent) and industrial processes sector (minus 15% or 2.4 Mt of CO<sub>2</sub> equivalent). Emissions from the agricultural sector are predicted to increase by 4.3% or 0.3 Mt of CO<sub>2</sub> equivalent. Emissions in the waste sector are projected to decrease by 41% or 0.5 Mt of CO<sub>2</sub> equivalent. In the energy sector, emissions from the sub-sector 1.A.1 Energy industries are projected to decrease by 37% or 3.8 Mt of CO<sub>2</sub> equivalent and emissions from 1.A.2 Manufacturing industries and construction are projected to increase by 12% or 1.3 Mt of CO<sub>2</sub> equivalent. Emissions from the sub-sector 1.A.3 Transport are predicted to decrease by 9.8% or 2.4 Mt of CO<sub>2</sub> equivalent between 2019 and 2040, and emissions from the sub-sector 1.A.4 and 1.A.5 ‘Other sectors’ are predicted to decrease by 31% or 2.8 Mt of CO<sub>2</sub> equivalent.

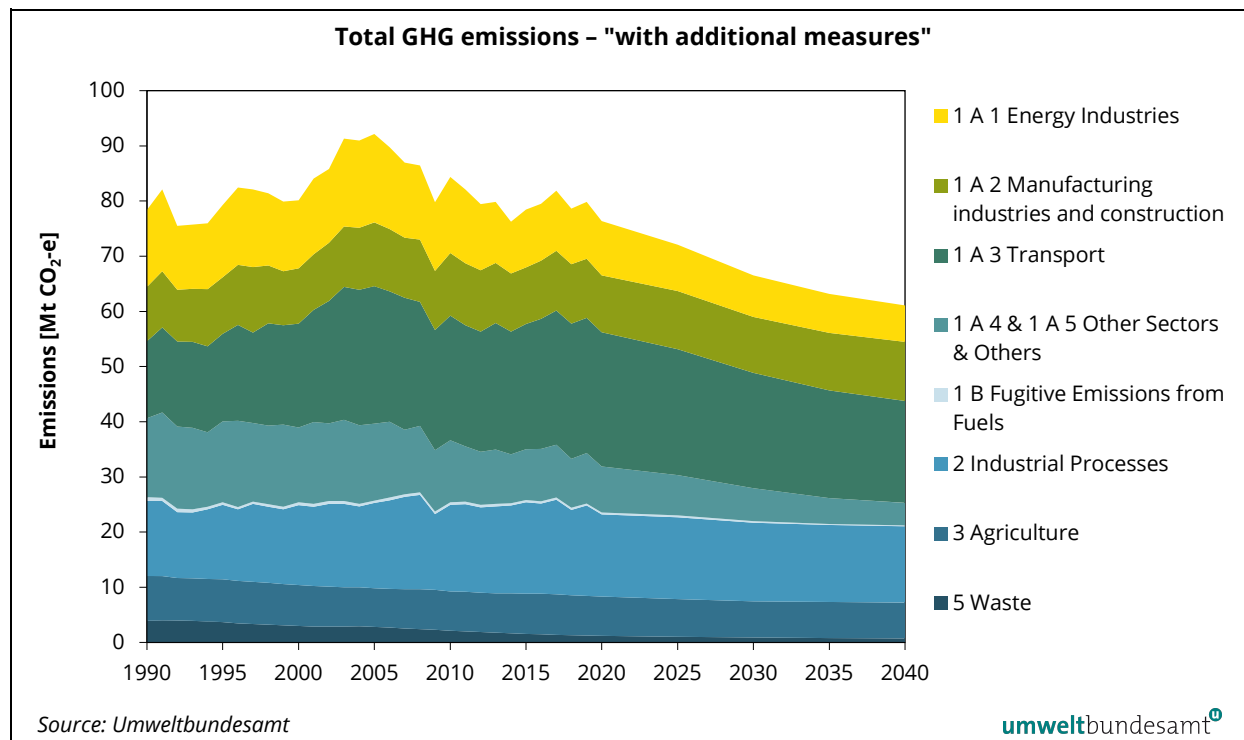
Figure 2: Past trend and scenario (2020–2040): total GHG emissions by sector) – scenario “with existing measures”.



In the scenario “with additional measures” total GHG emissions are predicted to decrease by 24 % or 18.8 Mt CO<sub>2</sub> equivalent between 2019 and 2040. This decrease is mainly driven by an expected decrease in emissions from the energy sector (minus 27% or 15 Mt CO<sub>2</sub> equivalent) and the industrial processes sector (minus 16% or 2.6 Mt CO<sub>2</sub> equivalent). Emissions are projected to decrease in the waste sector by 41.0% or 0.5 Mt CO<sub>2</sub> equivalent and in the agriculture sector by 9.2% or 0.7 Mt CO<sub>2</sub> equivalent.

In the energy sector, emissions from the sub-sector 1.A.4 and 1.A.5 ‘Other sectors’ are predicted to decrease by 56% or 5.1 Mt CO<sub>2</sub> equivalent. Emissions are also predicted to decrease in the sub-sector 1.A.1 Energy industries (by 36% 3.7 Mt CO<sub>2</sub> equivalent) and in the sub-sector 1.A.3 Transport by 25 % or 6.0 Mt CO<sub>2</sub> equivalent. Emissions from the sub-sector 1.A.2 Manufacturing industries and construction are projected to remain more or less constant.

Figure 3: Past trend and scenario (2020–2040): total GHG emissions by sector – scenario “with additional measures” (WAM).



Source: Umweltbundesamt

umweltbundesamt<sup>®</sup>

According to the WEM scenario, the dominant GHG emitted in Austria will still be CO<sub>2</sub> with a minor increase between 2019 (85.1 %) and 2040 (85.6 %). Between 2019 and 2040, Austria's total CH<sub>4</sub> emissions and N<sub>2</sub>O emissions (in CO<sub>2</sub> equivalent) are projected to increase from 12.1 % to 13.2 %, whereas the percentage of emissions of fluorinated gases (HFC, PFC, SF<sub>6</sub> and NF<sub>3</sub>) is expected to decrease from 2.8 % in 2019 to 1.2 % in 2040.

Table 3:  
Past trend and scenario  
(2020–2040):  
GHG emissions by gas  
(without LULUCF) – sce-  
nario “with existing  
measures” (WEM).  
(Umweltbundesamt)

|                  | Emission trend<br>[kt CO <sub>2</sub> eq] |               |               |               | Emissions ‘with existing measures’<br>[kt CO <sub>2</sub> eq] |               |               |               |               |
|------------------|---|---------------|---------------|---------------|---|---------------|---------------|---------------|---------------|
|                  | 1990                                      | 2005          | 2015          | 2019          | 2020  | 2025          | 2030          | 2035          | 2040          |
| CO <sub>2</sub>  | 62 140                                    | 79 068        | 66 352        | 67 962        | 65 211  | 64 536        | 62 484        | 60 748        | 59 358        |
| CH <sub>4</sub>  | 10 394                                    | 7 801         | 6 607         | 6 194         | 6 103   | 5 909         | 5 801         | 5 745         | 5 748         |
| N <sub>2</sub> O | 4 231                                     | 3 515         | 3 450         | 3 447         | 3 344   | 3 347         | 3 347         | 3 361         | 3 377         |
| F gases          | 1 656                                     | 1 764         | 2 053         | 2 239         | 2 227   | 1 441         | 908           | 864           | 847           |
| <b>Total</b>     | <b>78 420</b>                             | <b>92 147</b> | <b>78 462</b> | <b>79 842</b> | <b>76 885</b>   | <b>75 232</b> | <b>72 540</b> | <b>70 719</b> | <b>69 329</b> |

In the WAM scenario, the most important GHG emitted in Austria in 2040 will also be CO<sub>2</sub>, with an increasing share in national total emissions (from 85.1 % in 2019 to 85.3 % in 2040). Between 2019 and 2040, CH<sub>4</sub> and N<sub>2</sub>O emissions are predicted to increase from 12.1 % to 13.4 %. Emissions of fluorinated gases (HFC, PFC, SF<sub>6</sub> and NF<sub>3</sub>) are predicted to decrease from 2.8 % in 2019 to 1.4 % in 2040.

Table 4:  
Past trend and scenario  
(2020–2040):  
GHG emissions by gas  
(without LULUCF) – scenario “with additional measures” (WAM).  
(Umweltbundesamt)

|                  | Emission trend<br>[kt CO <sub>2</sub> eq] |               |               |               | Emissions ‘with existing measures’<br>[kt CO <sub>2</sub> eq] |               |               |               |               |
|------------------|---|---------------|---------------|---------------|---|---------------|---------------|---------------|---------------|
|                  | 1990                                      | 2005          | 2015          | 2019          | 2020  | 2025          | 2030          | 2035          | 2040          |
| CO <sub>2</sub>  | 62 140                                    | 79 068        | 66 352        | 67 962        | 64 724  | 61 754        | 57 200        | 54 030        | 52 076        |
| CH <sub>4</sub>  | 10 394                                    | 7 801         | 6 607         | 6 194         | 6 087   | 5 720         | 5 394         | 5 224         | 5 104         |
| N <sub>2</sub> O | 4 231                                     | 3 515         | 3 450         | 3 447         | 3 346   | 3 194         | 3 033         | 3 044         | 3 051         |
| F gases          | 1 656                                     | 1 764         | 2 053         | 2 239         | 2 227   | 1 441         | 908           | 864           | 847           |
| <b>Total</b>     | <b>78 420</b>                             | <b>92 147</b> | <b>78 462</b> | <b>79 842</b> | <b>76 384</b>   | <b>72 108</b> | <b>66 536</b> | <b>63 163</b> | <b>61 078</b> |

An analysis of past trends and scenarios by sector is presented in chapter 2 ‘Sectoral Scenario Results’. Tables with detailed emissions by sub-sector and gas are included in the Annex. Specific sectoral assumptions and activities are given in the sub-chapters 3.1 to 3.5.

### EU ETS/EU ESR emissions

GHG emissions covered by the EU’s Emissions Trading Scheme (ETS) show a downward trend in the “with existing measures” scenario until 2040. The driving force is the energy sector with a projected decrease of about 24% from 2019 to 2040. A decrease is also projected for the industrial processes sector (– 8%).

The EU’s total GHG emissions under the Effort Sharing Regulation (ESR) are expected to decrease by 11% over the same period.

Table 5: EU ETS and EU ESR GHG emissions – scenario “with existing measures” (WEM). (Umweltbundesamt)

|                               | with existing measures [kt CO <sub>2</sub> eq] |               |               |               |               |               |               |
|-------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|
|                               | 2015   | 2019          | 2020          | 2025          | 2030          | 2035          | 2040          |
| <b>EU ETS GHG emissions</b>   |  |               |               |               |               |               |               |
| <b>Total (without LULUCF)</b> | <b>29 492</b>                                  | <b>29 564</b> | <b>26 953</b> | <b>26 244</b> | <b>25 514</b> | <b>24 992</b> | <b>24 713</b> |
| 1. Energy                     | 15 354   | 15 809        | 14 751        | 13 292        | 12 546        | 12 225        | 12 022        |
| 2. Industrial Processes       | 14 138   | 13 754        | 12 201        | 12 952        | 12 968        | 12 767        | 12 691        |
| <b>EU ESR GHG emissions</b>   |  |               |               |               |               |               |               |
| <b>Total (without LULUCF)</b> | <b>48 920</b>                                  | <b>50 232</b> | <b>49 887</b> | <b>48 941</b> | <b>46 977</b> | <b>45 675</b> | <b>44 561</b> |
| 1. Energy                     | 37 682   | 39 192        | 38 917        | 38 869        | 37 482        | 36 208        | 35 065        |
| 2. Industrial Processes       | 2 414  | 2 629         | 2 653         | 1 876         | 1 349         | 1 309         | 1 295         |
| 3. Agriculture                | 7 274  | 7 152         | 7 110         | 7 192         | 7 272         | 7 364         | 7 458         |
| 5. Waste                      | 1 551  | 1 260         | 1 206         | 1 005         | 874           | 794           | 742           |

Due to additional measures, the decrease in EU ETS emissions from 2019 to 2040 is expected to be more substantial in the WAM scenario (about 18 %) than in the WEM scenario (16 %). More specifically, the projected decrease in EU ETS GHG emissions in the energy sector is assumed to be about 25 % and the increase in the industrial processes sector 9%. The total ESR GHG emissions in the WAM scenario are expected to decrease by 27 % over the same period.

Table 6: EU ETS and EU ESR GHG emissions – scenario “with additional measures” (WAM). (Umweltbundesamt)

|                               | with additional measures [kt CO <sub>2</sub> eq] |               |               |               |               |               |               |
|-------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>EU ETS GHG emissions</b>   | <b>2015</b>                                      | <b>2019</b>   | <b>2020</b>   | <b>2025</b>   | <b>2030</b>   | <b>2035</b>   | <b>2040</b>   |
| <b>Total (without LULUCF)</b> | <b>29 492</b>                                    | <b>29 564</b> | <b>26 932</b> | <b>26 333</b> | <b>25 384</b> | <b>24 809</b> | <b>24 385</b> |
| 1. Energy                     | 15 354   | 15 809        | 14 731        | 13 398        | 12 503        | 12 184        | 11 891        |
| 2. Industrial Processes       | 14 138   | 13 754        | 12 201        | 12 935        | 12 881        | 12 625        | 12 494        |
| <b>EU ESR GHG emissions</b>   | <b>2015</b>                                      | <b>2019</b>   | <b>2020</b>   | <b>2025</b>   | <b>2030</b>   | <b>2035</b>   | <b>2040</b>   |
| <b>Total (without LULUCF)</b> | <b>48 920</b>                                    | <b>50 232</b> | <b>49 406</b> | <b>45 729</b> | <b>41 103</b> | <b>38 302</b> | <b>36 638</b> |
| 1. Energy                     | 37 682   | 39 192        | 38 436        | 35 978        | 32 300        | 29 656        | 28 097        |
| 2. Industrial Processes       | 2 414  | 2 629         | 2 653         | 1 876         | 1 363         | 1 323         | 1 309         |
| 3. Agriculture                | 7 274  | 7 152         | 7 110         | 6 870         | 6 566         | 6 528         | 6 490         |
| 5. Waste                      | 1 551  | 1 260         | 1 206         | 1 005         | 874           | 794           | 742           |