

Climate forcers which increase or decrease warming and emissions in Europe 1990–2015

Below are tables of emissions for non-Kyoto gases which however still act as climate forcers either as warming or cooling agents. They are carbon monoxide (CO), ammonia (NH₃), non-methane volatile organic compounds (NMVOCs), nitrogen oxides (NO_x), sulphur oxides (SO_x), and black carbon (BC).

Data from EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emepdatabase/reported_emissiondata/

The years covered are 1990, 2005, 2014 and 2015. 1990 is the base year for the Climate Convention. 2005 is the base year for some Paris Agreement commitments, and is also fairly representative for the period before the 2008 financial crisis. 2015 is the last year for which there is data, and 2014 is included to show the latest trend.

Emissions of carbon monoxide, CO, in kilotons

| | 1990 | 2005 | 2014 | 2015 |
|---|-------|-------|------|------|
| Albania | 191 | 151 | 171 | 196 |
| Austria | 1287 | 688 | 538 | 567 |
| Belarus | 1722 | 969 | 843 | |
| Belgium | 1413 | 771 | 347 | 398 |
| Bulgaria | 781 | 408 | 291 | 288 |
| Croatia | 557 | 417 | 202 | 216 |
| Cyprus | 43 | 27 | 15 | 14 |
| Czech Republic | 1257 | 643 | 482 | 503 |
| Denmark | 741 | 463 | 316 | 327 |
| Estonia | 215 | 153 | 128 | 128 |
| Finland | 724 | 478 | 343 | 325 |
| France | 10426 | 5278 | 3072 | 2994 |
| Germany | 12500 | 3722 | 2720 | 2683 |
| Greece | 1134 | 724 | 463 | |
| Hungary | 1372 | 486 | 465 | 458 |
| Iceland | 58 | 51 | 117 | 119 |
| Ireland | 350 | 216 | 112 | 109 |
| Italy | 7246 | 3430 | 2258 | 2356 |
| Latvia | 386 | 203 | 137 | 131 |
| Lithuania | 461 | 194 | 137 | 127 |
| Luxembourg | 463 | 38 | 25 | 22 |
| Malta | | 1 | 0 | 0 |
| Montenegro | 58 | 37 | | |
| Netherlands | 1143 | 723 | 563 | 570 |
| Norway | 825 | 549 | 377 | 383 |
| Poland | 3593 | 3051 | 2407 | 2401 |
| Portugal | 805 | 445 | 277 | 272 |
| Republic of Moldova | 222 | 49 | 78 | 78 |
| Romania | 3186 | 957 | 774 | 751 |
| Russian Federation | 13329 | 12277 | | |
| Serbia | 438 | 351 | 248 | 277 |
| Slovakia | 528 | 277 | 231 | 231 |
| Slovenia | 324 | 154 | 108 | 110 |
| Spain | 4782 | 2108 | 1645 | 1643 |
| Sweden | 1102 | 585 | 466 | 461 |
| Switzerland | 798 | 331 | 195 | 186 |
| The former Yugoslav Republic of Macedonia | 132 | 115 | 97 | 82 |
| Turkey | 2023 | 2366 | 1993 | 2351 |
| Ukraine | 8141 | 2923 | 857 | 1057 |
| United Kingdom | 7377 | 2921 | 1709 | 1645 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emepdatabase/reported_emissiondata/

Emissions of NH₃ ammonia in kilotonnes

| | 1990 | 2005 | 2014 | 2015 |
|---|------|------|------|------|
| Albania | 29 | 27 | 25 | 25 |
| Austria | 66 | 65 | 67 | 67 |
| Belarus | 215 | 135 | 141 | |
| Belgium | 117 | 68 | 66 | 66 |
| Bulgaria | 113 | 48 | 31 | 34 |
| Croatia | 48 | 38 | 27 | 30 |
| Cyprus | 5 | 6 | 4 | 5 |
| Czech Republic | 156 | 74 | 69 | 70 |
| Denmark | 125 | 88 | 72 | 73 |
| Estonia | 22 | 10 | 11 | 12 |
| Finland | 34 | 37 | 33 | 32 |
| France | 686 | 659 | 669 | 679 |
| Germany | 793 | 678 | 737 | 759 |
| Greece | 85 | 68 | 61 | |
| Hungary | 139 | 77 | 73 | 76 |
| Iceland | 6 | 5 | 6 | 6 |
| Ireland | 106 | 111 | 106 | 108 |
| Italy | 471 | 422 | 394 | 393 |
| Latvia | 43 | 16 | 19 | 19 |
| Lithuania | 66 | 32 | 29 | 29 |
| Luxembourg | 6 | 6 | 6 | 6 |
| Malta | | 2 | 2 | 1 |
| Montenegro | 6 | 4 | | |
| Netherlands | 369 | 156 | 127 | 128 |
| Norway | 24 | 27 | 27 | 27 |
| Poland | 441 | 299 | 269 | 267 |
| Portugal | 75 | 55 | 50 | 51 |
| Republic of Moldova | 52 | 24 | 23 | 23 |
| Romania | 300 | 204 | 162 | 163 |
| Russian Federation | 1191 | 531 | | |
| Serbia | 96 | 81 | 68 | 64 |
| Slovakia | 70 | 34 | 30 | 30 |
| Slovenia | 24 | 21 | 19 | 19 |
| Spain | 448 | 495 | 455 | 476 |
| Sweden | 65 | 63 | 60 | 60 |
| Switzerland | 73 | 64 | 62 | 61 |
| The former Yugoslav Republic of Macedonia | 16 | 12 | 11 | 11 |
| Turkey | 778 | 771 | 932 | 907 |
| Ukraine | 729 | 260 | 20 | 18 |
| United Kingdom | 326 | 307 | 288 | 293 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emeppdatabase/reported_emissiondata/

Emissions of non-methane volatile organic compounds in kilotons

| | 1990 | 2005 | 2014 | 2015 |
|---|------|------|------|------|
| Albania | 44 | 33 | 33 | 39 |
| Austria | 281 | 137 | 110 | 113 |
| Belarus | 533 | 349 | 330 | |
| Belgium | 330 | 178 | 121 | 120 |
| Bulgaria | 606 | 104 | 95 | 93 |
| Croatia | 151 | 103 | 59 | 61 |
| Cyprus | 13 | 14 | 7 | 7 |
| Czech Republic | 441 | 209 | 138 | 139 |
| Denmark | 204 | 149 | 107 | 109 |
| Estonia | 65 | 33 | 23 | 23 |
| Finland | 270 | 151 | 93 | 88 |
| France | 2395 | 1166 | 646 | 623 |
| Germany | 3390 | 1312 | 1016 | 1020 |
| Greece | 238 | 178 | 125 | |
| Hungary | 297 | 157 | 137 | 139 |
| Iceland | 14 | 8 | 7 | 7 |
| Ireland | 142 | 113 | 100 | 101 |
| Italy | 1936 | 1232 | 821 | 842 |
| Latvia | 82 | 49 | 42 | 41 |
| Lithuania | 144 | 75 | 60 | 59 |
| Luxembourg | 21 | 13 | 9 | 10 |
| Malta | | 3 | 2 | 2 |
| Montenegro | 10 | 8 | | |
| Netherlands | 490 | 181 | 143 | 139 |
| Norway | 301 | 229 | 158 | 156 |
| Poland | 484 | 543 | 517 | 531 |
| Portugal | 276 | 216 | 174 | 180 |
| Republic of Moldova | 100 | 47 | 48 | 48 |
| Romania | 616 | 388 | 319 | 313 |
| Russian Federation | 3668 | 2567 | | |
| Serbia | 191 | 150 | 123 | 132 |
| Slovakia | 167 | 105 | 81 | 89 |
| Slovenia | 72 | 46 | 32 | 32 |
| Spain | 1048 | 811 | 569 | 584 |
| Sweden | 359 | 215 | 163 | 164 |
| Switzerland | 298 | 102 | 80 | 77 |
| The former Yugoslav Republic of Macedonia | 49 | 38 | 34 | 29 |
| Turkey | 943 | 1017 | 1081 | 1115 |
| Ukraine | 1369 | 324 | 252 | 223 |
| United Kingdom | 2947 | 1174 | 841 | 835 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emepdatabase/reported_emissiondata/

Emissions of NO_x as NO₂ in kilotons

| | 1990 | 2005 | 2014 | 2015 |
|---|------|------|------|------|
| Albania | 24 | 25 | 33 | 33 |
| Austria | 221 | 238 | 153 | 149 |
| Belarus | 285 | 171 | 159 | |
| Belgium | 412 | 319 | 200 | 197 |
| Bulgaria | 270 | 185 | 133 | 132 |
| Croatia | 106 | 85 | 53 | 53 |
| Cyprus | 16 | 22 | 18 | 15 |
| Czech Republic | 544 | 277 | 170 | 165 |
| Denmark | 301 | 203 | 115 | 114 |
| Estonia | 77 | 41 | 34 | 31 |
| Finland | 285 | 202 | 153 | 140 |
| France | 1949 | 1415 | 869 | 835 |
| Germany | 2883 | 1574 | 1221 | 1187 |
| Greece | 328 | 419 | 248 | |
| Hungary | 235 | 169 | 119 | 123 |
| Iceland | 28 | 26 | 21 | 21 |
| Ireland | 136 | 137 | 77 | 80 |
| Italy | 2032 | 1233 | 787 | 763 |
| Latvia | 94 | 45 | 36 | 37 |
| Lithuania | 133 | 60 | 54 | 55 |
| Luxembourg | 40 | 55 | 25 | 22 |
| Malta | | 9 | 3 | 3 |
| Montenegro | 8 | 8 | | |
| Netherlands | 604 | 369 | 234 | 228 |
| Norway | 199 | 204 | 157 | 151 |
| Poland | 1053 | 848 | 720 | 714 |
| Portugal | 247 | 269 | 173 | 180 |
| Republic of Moldova | 91 | 22 | 27 | 27 |
| Romania | 546 | 317 | 218 | 214 |
| Russian Federation | 3600 | 2795 | | |
| Serbia | 165 | 168 | 124 | 144 |
| Slovakia | 228 | 108 | 89 | 86 |
| Slovenia | 67 | 52 | 39 | 35 |
| Spain | 1500 | 1545 | 881 | 905 |
| Sweden | 278 | 183 | 134 | 130 |
| Switzerland | 144 | 94 | 69 | 64 |
| The former Yugoslav Republic of Macedonia | 44 | 37 | 29 | 28 |
| Turkey | 562 | 722 | 787 | 883 |
| Ukraine | 1097 | 513 | 503 | 452 |
| United Kingdom | 2918 | 1608 | 957 | 918 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emepdatabase/reported_emissiondata/

Emissions of SO_x as SO₂, in kilotons

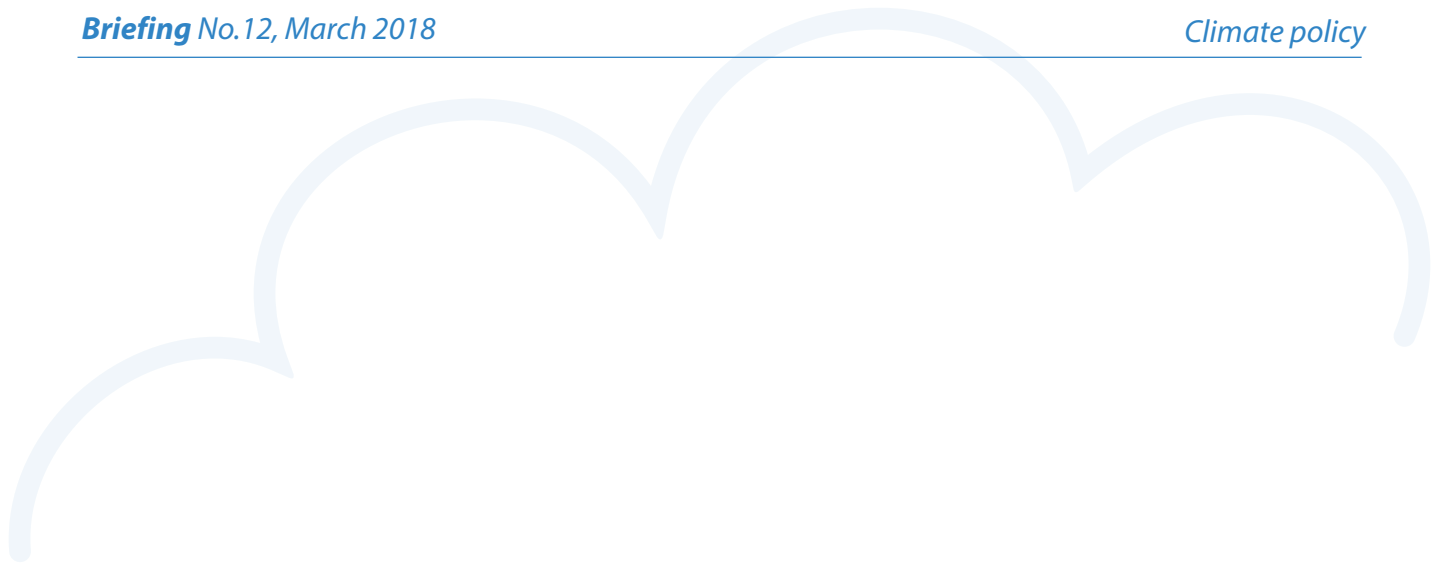
| | 1990 | 2005 | 2014 | 2015 |
|---|------|------|------|------|
| Albania | 86 | 34 | 24 | 23 |
| Austria | 75 | 26 | 15 | 15 |
| Belarus | 637 | 79 | 53 | |
| Belgium | 365 | 142 | 42 | 43 |
| Bosnia and Herzegovina | 480 | | | |
| Bulgaria | 1101 | 779 | 189 | 142 |
| Croatia | 171 | 59 | 14 | 15 |
| Cyprus | 31 | 38 | 17 | 13 |
| Czech Republic | 1881 | 208 | 127 | 123 |
| Denmark | 179 | 26 | 11 | 11 |
| Estonia | 272 | 76 | 41 | 32 |
| Finland | 263 | 70 | 43 | 42 |
| France | 1314 | 455 | 160 | 153 |
| Germany | 5485 | 472 | 357 | 352 |
| Greece | 478 | 541 | 138 | |
| Hungary | 825 | 42 | 28 | 24 |
| Iceland | 21 | 39 | 64 | 56 |
| Ireland | 184 | 74 | 19 | 18 |
| Italy | 1783 | 408 | 131 | 123 |
| Latvia | 100 | 8 | 4 | 4 |
| Lithuania | 173 | 31 | 17 | 18 |
| Luxembourg | 15 | 2 | 2 | 1 |
| Malta | | 11 | 5 | 3 |
| Montenegro | 14 | 13 | | |
| Netherlands | 193 | 64 | 29 | 30 |
| Norway | 52 | 24 | 16 | 16 |
| Poland | 2648 | 1164 | 715 | 690 |
| Portugal | 324 | 195 | 48 | 50 |
| Republic of Moldova | 152 | 5 | 9 | 9 |
| Romania | 1311 | 601 | 176 | 152 |
| Russian Federation | 4671 | 1847 | | |
| Serbia | 422 | 428 | 327 | 416 |
| Slovakia | 524 | 92 | 49 | 71 |
| Slovenia | 201 | 41 | 9 | 5 |
| Spain | 2157 | 1277 | 257 | 273 |
| Sweden | 105 | 36 | 21 | 19 |
| Switzerland | 40 | 15 | 8 | 7 |
| The former Yugoslav Republic of Macedonia | 110 | 97 | 84 | 76 |
| Turkey | 1750 | 2005 | 2148 | 1939 |
| Ukraine | 2783 | 1192 | 922 | 854 |
| United Kingdom | 3685 | 711 | 305 | 236 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emeppdatabase/reported_emissiondata/

Emissions of black carbon in kilotons

| | 1990 | 2005 | 2014 | 2015 |
|--|------|------|------|------|
| Austria | NR | NR | NR | NR |
| Belarus | | | NE | |
| Belgium | NR | 7,8 | 4,3 | 4,2 |
| Bulgaria | 0,7 | 1,6 | 1,2 | 1,3 |
| Croatia | 5,4 | 5,9 | 3,1 | 3,4 |
| Cyprus | NR | 0,6 | 0,3 | 0,3 |
| Czech Republic | | 5,6 | 3,1 | 3,1 |
| Denmark | 7,3 | 5,9 | 3,9 | 3,9 |
| Estonia | NR | 3,4 | 2,0 | 2,5 |
| Finland | 6,5 | 6,6 | 4,8 | 4,6 |
| France | 72,9 | 57,4 | 33,5 | 31,8 |
| Germany | NR | 29,0 | 15,6 | 14,7 |
| Hungary | NR | 6,5 | 7,3 | 7,7 |
| Iceland | 0,1 | 0,1 | 0,2 | 0,2 |
| Ireland | 4,0 | 3,8 | 2,3 | 2,2 |
| Italy | 46,6 | 37,8 | 24,0 | 23,6 |
| Latvia | 2,9 | 3,5 | 2,9 | 2,9 |
| Lithuania | 3,0 | 2,8 | 2,5 | 2,3 |
| Luxembourg | NR | NR | NR | NR |
| Malta | | 0,0 | 0,1 | 0,1 |
| Netherlands | 13,1 | 7,7 | 3,4 | 3,2 |
| Norway | 4,7 | 4,4 | 3,4 | 3,3 |
| Poland | 20,0 | 25,6 | 19,7 | 19,8 |
| Portugal | 6,9 | 7,5 | 5,3 | 4,9 |
| Republic of Moldova | 27,0 | 0,6 | 0,7 | 0,7 |
| Romania | | 9,9 | 10,4 | 10,0 |
| Russian Federation | | | | |
| Serbia | 4,6 | 3,4 | 3,3 | 3,6 |
| Slovakia | 1,5 | 1,1 | 1,0 | 1,1 |
| Slovenia | NR | 2,5 | 2,3 | 2,2 |
| Spain | 0,0 | 45,4 | 35,6 | 35,3 |
| Sweden | 0,0 | 4,4 | 3,4 | 3,3 |
| Switzerland | 5,0 | 3,2 | 1,7 | 1,6 |
| The former Yugoslav Republic of Macedonia | 3,0 | 2,6 | 2,1 | 1,7 |
| Ukraine | | | NE | NE |
| United Kingdom | 38,3 | 31,0 | 18,3 | 17,8 |

Source: EMEP, http://www.ceip.at/ms/ceip_home1/ceip_home/webdab_emepdatabase/reported_emissiondata/



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