

# Recalculations - Carbon monoxide (CO)

The significant changes in the **National Total** reported for **1990 (-125 kt or -1 %)** are dominated by a revision in NFR **1.A.2.f** (-159 kt) together with re-allocated estimates for NFR **2.A.2** (IE -> 15.4 kt). Furthermore, emissions from NFR **2.B.6** have been estimated for the first time (NE -> 19.5 kt).

Additional smaller changes occur throughout NFRs 1 and 2.

Table 1: Changes in emission estimates for 1990

|                       | Submission 2022  | Submission 2023  | Difference    |              | Reasoning                         |
|-----------------------|------------------|------------------|---------------|--------------|-----------------------------------|
| NFR Sector            | [kt]             |                  | absolute      | relative     | see description and reasoning in: |
| <b>NATIONAL TOTAL</b> | <b>13.046,02</b> | <b>13.319,09</b> | <b>273,07</b> | <b>2,09%</b> | <b>sub-category chapters</b>      |
| <b>NFR 1 - Energy</b> | <b>11.772,32</b> | <b>12.045,28</b> | <b>272,96</b> | <b>2,32%</b> | <b>sub-category chapters</b>      |
| <b>1.A.2.g vii</b>    | <b>82,70</b>     | <b>82,82</b>     | <b>0,12</b>   | <b>0,15%</b> | <a href="#">here</a>              |
| 1.A.2.g viii          | 65,70            | 65,70            | 0,00          | 0,00%        | <a href="#">here</a>              |
| 1.A.3.a i(i)          | 3,64             | 3,42             | -0,22         | -5,96%       | <a href="#">here</a>              |
| 1.A.3.a ii(i)         | 6,31             | 6,18             | -0,13         | -2,07%       | <a href="#">here</a>              |
| 1.A.3.b i             | 6.647            | 6.915            | 268           | 4,03%        | <a href="#">here</a>              |
| 1.A.3.b ii            | 315,30           | 328,37           | 13,07         | 4,15%        | <a href="#">here</a>              |
| 1.A.3.b iii           | 135,46           | 128,59           | -6,87         | -5,07%       | <a href="#">here</a>              |
| 1.A.3.b iv            | 226,62           | 225,59           | -1,03         | -0,46%       | <a href="#">here</a>              |
| 1.A.4.a ii            | 7,04             | 7,03             | -0,01         | -0,16%       | <a href="#">here</a>              |
| 1.A.4.b ii            | 54,00            | 54,02            | 0,02          | 0,04%        | <a href="#">here</a>              |
| 1.A.4.c ii            | 100,83           | 100,78           | -0,05         | -0,05%       | <a href="#">here</a>              |
| <b>NFR 2 - IPPU</b>   | <b>1.248,66</b>  | <b>1.248,77</b>  | <b>0,11</b>   | <b>0,01%</b> | <b>sub-category chapters</b>      |
| 2.A.1                 | IE               | IE               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.A.2                 | 15,38            | 15,38            | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.A.3                 | 1,72             | 1,72             | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.A.5.a               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.A.5.b               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.A.5.c               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.A.6                 | IE               | IE               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.B.1                 | 0,27             | 0,27             | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.B.2                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.B.3                 | 0,06             | 0,06             | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.B.5                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.B.6                 | 19,48            | 19,48            | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.B.7                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.B.10.a              | 1,93             | 1,93             | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.B.10.b              | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.1                 | 1.079,56         | 1.079,56         | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.C.2                 | NE               | NE               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.3                 | 111,04           | 111,04           | 0,00          | 0,00%        | <a href="#">here</a>              |
| 2.C.4                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.5                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.6                 | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.7.a               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.7.b               | NE               | NE               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.7.c               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.C.7.d               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.D.3.a               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.D.3.b               | IE               | IE               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.D.3.c               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.D.3.d               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |
| 2.D.3.e               | NA               | NA               | #WERT!        | #WERT!       | <a href="#">here</a>              |

|                     |       |       |        |         |                       |
|---------------------|-------|-------|--------|---------|-----------------------|
| 2.D.3.f             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.D.3.g             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.D.3.h             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.D.3.i             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.G                 | 19,23 | 19,23 | 0,00   | 0,00%   | <a href="#">here</a>  |
| 2.H.1               | NE    | 0,11  | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.H.2               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.H.3               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.I                 | IE    | IE    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.J                 | NE    | NO    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.K                 | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 2.L                 | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| NFR 3 - Agriculture | 0,00  | 0,00  | 0,00   | #DIV/0! | sub-category chapters |
| 3.B.1.a             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.1.b             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.2               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.3               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.a             | NO    | NO    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.d             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.e             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.f             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.g i           | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.g ii          | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.g iii         | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.g iv          | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.B.4.h             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.1             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.2.a           | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.2.b           | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.2.c           | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.3             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.a.4             | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.b               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.c               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.d               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.e               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.D.f               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 3.F                 | NO    | NO    | #WERT! | #WERT!  |                       |
| 3.I                 | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| NFR 5 - Waste       | 25,04 | 25,04 | 0,00   | 0,00%   | sub-category chapters |
| 5.A                 | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 5.B.1               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 5.B.2               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 5.C.1.a             | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.C.1.b i           | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.C.1.b ii          | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.C.1.b iii         | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.C.1.b iv          | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.C.1.b v           | 0,02  | 0,02  | 0,00   | 0,00%   | <a href="#">here</a>  |
| 5.C.1.b vi          | NA    | NA    | #WERT! | #WERT!  |                       |
| 5.C.2               | 25,02 | 25,02 | 0,00   | 0,00%   | <a href="#">here</a>  |
| 5.D.1               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 5.D.2               | NA    | NA    | #WERT! | #WERT!  | <a href="#">here</a>  |
| 5.D.3               | NO    | NO    | #WERT! | #WERT!  |                       |
| 5.E                 | NE    | NE    | #WERT! | #WERT!  | <a href="#">here</a>  |
| NFR 6 - Other       | 0,00  | 0,00  | 0,00   | #DIV/0! |                       |

The remarkable changes in the **National Total** reported for **2019 ( -132 kt | -4.60 %)** result mainly from a revision within **NFR 1.A.2.f (-141 kt)** together with other more or less significant revisions in NFRs 1, 2, 3 and 5.

Table 2: Changes in emission estimates for 2019

| NFR Sector                 | Submission 2021 | Submission 2022 | Difference     |               | Reasoning                         |
|----------------------------|-----------------|-----------------|----------------|---------------|-----------------------------------|
|                            | [kt]            |                 |                | relative      | see description and reasoning in: |
| <b>NATIONAL TOTAL</b>      | <b>2.882,74</b> | <b>2.750,27</b> | <b>-132,47</b> | <b>-4,60%</b> | <b>sub-category chapters</b>      |
| <b>NFR 1 - Energy</b>      | <b>2.061,08</b> | <b>1.894,50</b> | <b>-166,59</b> | <b>-8,08%</b> | <b>sub-category chapters</b>      |
| 1.A.1.a                    | 94,47           | 91,42           | -3,05          | -3,23%        | <a href="#">here</a>              |
| 1.A.1.b                    | 2,15            | 2,14            | -0,01          | -0,43%        | <a href="#">here</a>              |
| 1.A.1.c                    | 10,74           | 12,92           | 2,18           | 20,27%        | <a href="#">here</a>              |
| 1.A.2.a                    | 32,14           | 29,16           | -2,98          | -9,27%        | <a href="#">here</a>              |
| 1.A.2.b                    | 0,150           | 0,146           | -0,005         | -3,15%        | <a href="#">here</a>              |
| 1.A.2.e                    | 0,081           | 0,077           | -0,005         | -5,62%        | <a href="#">here</a>              |
| 1.A.2.f                    | 142,36          | 1,42            | -140,93        | -99,00%       | <a href="#">here</a>              |
| 1.A.2.g vii                | 126,74          | 124,61          | -2,13          | -1,68%        | <a href="#">here</a>              |
| 1.A.2.g viii               | 17,93           | 17,77           | -0,15          | -0,85%        | <a href="#">here</a>              |
| 1.A.3.a i(i)               | 6,56            | 6,26            | -0,30          | -4,53%        | <a href="#">here</a>              |
| 1.A.3.a ii(i)              | 6,23            | 2,91            | -3,33          | -53,37%       | <a href="#">here</a>              |
| 1.A.3.b i                  | 796,91          | 778,21          | -18,70         | -2,35%        | <a href="#">here</a>              |
| 1.A.3.b ii                 | 38,16           | 38,03           | -0,14          | -0,36%        | <a href="#">here</a>              |
| 1.A.3.b iii                | 38,78           | 38,89           | 0,10           | 0,27%         | <a href="#">here</a>              |
| 1.A.3.b iv                 | 71,40           | 70,62           | -0,78          | -1,10%        | <a href="#">here</a>              |
| 1.A.3.c                    | 1,06            | 1,17            | 0,11           | 10,48%        | <a href="#">here</a>              |
| 1.A.3.d ii                 | 3,60            | 3,81            | 0,21           | 5,75%         | <a href="#">here</a>              |
| 1.A.4.a i                  | 46,73           | 47,70           | 0,98           | 2,09%         | <a href="#">here</a>              |
| 1.A.4.a ii                 | 2,375           | 2,372           | -0,003         | -0,12%        | <a href="#">here</a>              |
| 1.A.4.b i                  | 424,49          | 427,59          | 3,10           | 0,73%         | <a href="#">here</a>              |
| 1.A.4.b ii                 | 113,39          | 111,87          | -1,51          | -1,33%        | <a href="#">here</a>              |
| 1.A.4.c i                  | 14,03           | 15,05           | 1,02           | 7,30%         | <a href="#">here</a>              |
| 1.A.4.c ii                 | 52,76           | 52,24           | -0,52          | -0,99%        | <a href="#">here</a>              |
| 1.A.4.c iii                | 0,05            | 0,03            | -0,02          | -33,19%       | <a href="#">here</a>              |
| 1.A.5.a                    | 0,78            | 1,09            | 0,31           | 39,74%        | <a href="#">here</a>              |
| 1.A.5.b                    | 11,49           | 11,44           | -0,05          | -0,46%        | <a href="#">here</a>              |
| 1.B.1.b                    | 4,71            | 4,73            | 0,02           | 0,33%         | <a href="#">here</a>              |
| 1.B.2.a iv                 | 0,3537          | 0,3538          | 0,0001         | 0,01%         |                                   |
| 1.B.2.c                    | 0,12009         | 0,12011         | 0,00002        | 0,01%         |                                   |
| <b>NFR 2 - IPPU</b>        | <b>803,293</b>  | <b>837,145</b>  | <b>33,85</b>   | <b>4,21%</b>  | <b>sub-category chapters</b>      |
| 2.A.2                      | IE              | 11,76           | 11,76          |               | <a href="#">here</a>              |
| 2.A.3                      | IE              | 0,87            | 0,87           |               | <a href="#">here</a>              |
| 2.B.1                      | NA              | 0,29            | 0,29           |               | <a href="#">here</a>              |
| 2.B.6                      | NE              | 20,93           | 20,93          |               | <a href="#">here</a>              |
| <b>NFR 3 - Agriculture</b> | <b>NA</b>       |                 |                |               |                                   |
| <b>NFR 5 - Waste</b>       | <b>18,36</b>    | <b>18,62</b>    | <b>0,26</b>    | <b>1,44%</b>  | <b>sub-category chapters</b>      |
| 5.C.2                      | 18,27           | 18,53           | 0,26           | 1,44%         | <a href="#">here</a>              |
| <b>NFR 6 - Other</b>       | <b>19,55</b>    | <b>19,55</b>    | <b>0,00</b>    | <b>0,00%</b>  |                                   |