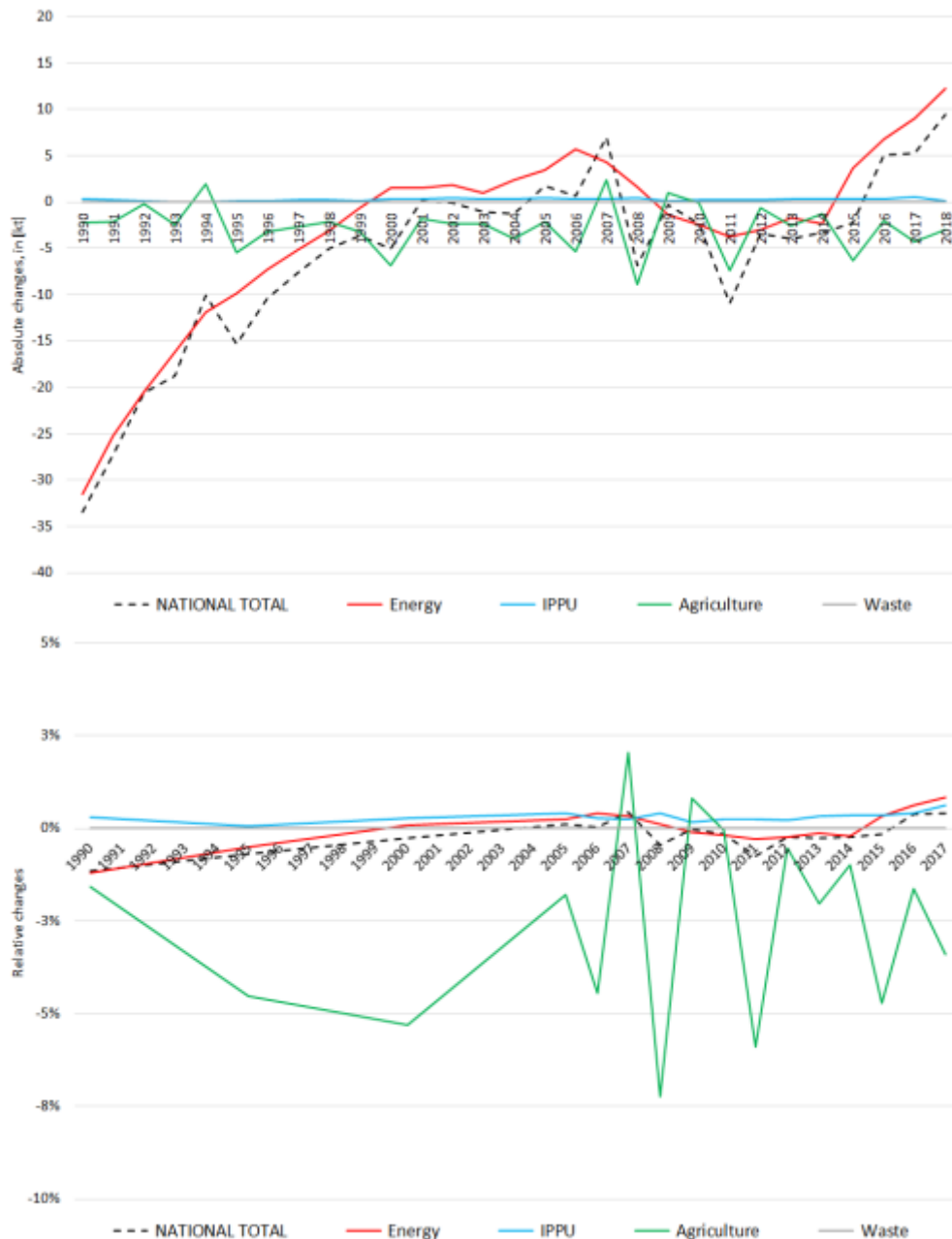


# Recalculations - Nitrogen Oxides

## Revision of NO<sub>x</sub> emissions over time:



Changes within the **National Total reported for 1990 (-34 kt | -1.19 %)** are dominated by changes in **NFRs 1.A.3.b i, 1.A.3.b ii and 1.A.3.b iii** together with less significant revisions throughout NFRs 1, 2 and 3.

The most significant relative change occurs for **NFR 2.G with minus 58 %**.

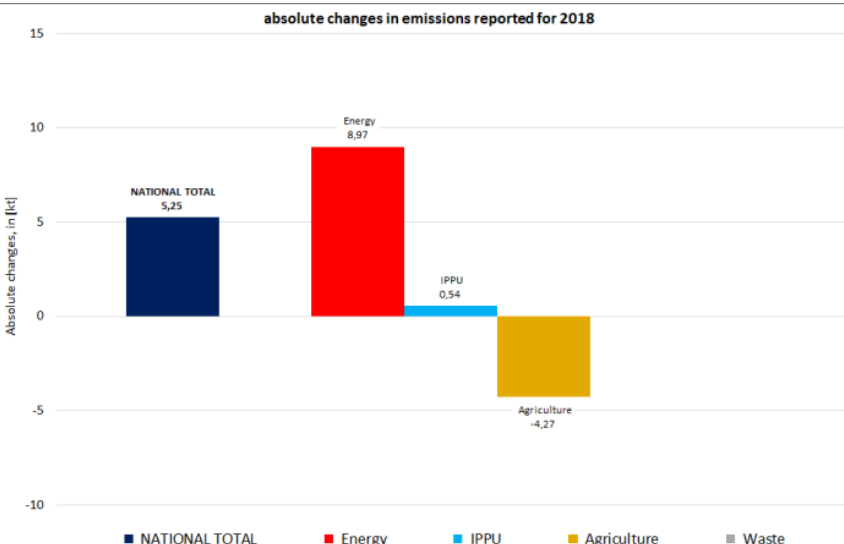
Table 1: Changes of emission estimates 1990

|                                                                                                                                                                      |          |          |         |          |                                  |                 |            |           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------|----------|----------------------------------|-----------------|------------|-----------|
| <p>absolute changes in emissions reported for 1990</p> <p>Legend: NATIONAL TOTAL (dark blue), Energy (red), IPPU (light blue), Agriculture (green), Waste (grey)</p> |          |          |         |          | Submission 2020                  | Submission 2021 | Difference | Reasoning |
| NFR Code                                                                                                                                                             | [kt]     |          |         | relative | see description and reasoning in |                 |            |           |
| NATIONAL TOTAL                                                                                                                                                       | 2.884,38 | 2.850,05 | -34,33  | -1,19%   | sub-category chapters            |                 |            |           |
| NFR 1 - Energy                                                                                                                                                       | 2.634,24 | 2.601,88 | -32,36  | -1,23%   | sub-category chapters            |                 |            |           |
| 1.A.2.g vii                                                                                                                                                          | 49,60    | 50,23    | 0,63    | 1,28%    | <a href="#">here</a>             |                 |            |           |
| 1.A.3.a i(i)                                                                                                                                                         | 3,88     | 3,94     | 0,06    | 1,54%    | <a href="#">here</a>             |                 |            |           |
| 1.A.3.a ii(i)                                                                                                                                                        | 2,85     | 2,80     | -0,05   | -1,90%   | <a href="#">here</a>             |                 |            |           |
| 1.A.3.b i                                                                                                                                                            | 808,22   | 765,68   | -42,54  | -5,26%   | <a href="#">here</a>             |                 |            |           |
| 1.A.3.b ii                                                                                                                                                           | 41,49    | 31,49    | -10,00  | -24,11%  | <a href="#">here</a>             |                 |            |           |
| 1.A.3.b iii                                                                                                                                                          | 485,89   | 506,00   | 20,11   | 4,14%    | <a href="#">here</a>             |                 |            |           |
| 1.A.3.b iv                                                                                                                                                           | 2,61     | 2,45     | -0,16   | -6,18%   | <a href="#">here</a>             |                 |            |           |
| 1.A.4.a ii                                                                                                                                                           | 11,52    | 11,60    | 0,08    | 0,67%    | <a href="#">here</a>             |                 |            |           |
| 1.A.4.b ii                                                                                                                                                           | 0,07     | 0,06     | -0,01   | -8,44%   | <a href="#">here</a>             |                 |            |           |
| 1.A.4.c ii                                                                                                                                                           | 49,78    | 49,31    | -0,475  | -0,95%   | <a href="#">here</a>             |                 |            |           |
| NFR 2 - IPPU                                                                                                                                                         | 106,06   | 106,37   | 0,31    | 0,29%    | sub-category chapters            |                 |            |           |
| 2.C.3                                                                                                                                                                | NA       | 0,74     | 0,74    |          | <a href="#">here</a>             |                 |            |           |
| 2.G                                                                                                                                                                  | 0,74     | 0,31     | -0,43   | -58,05%  | <a href="#">here</a>             |                 |            |           |
| NFR 3 - Agriculture                                                                                                                                                  | 143,55   | 141,27   | -2,28   | -1,59%   | sub-category chapters            |                 |            |           |
| 3.B.1.a                                                                                                                                                              | 0,72     | 0,67     | -0,05   | -7,07%   | <a href="#">here</a>             |                 |            |           |
| 3.B.1.b                                                                                                                                                              | 0,79     | 0,70     | -0,09   | -11,65%  | <a href="#">here</a>             |                 |            |           |
| 3.B.4.g iii                                                                                                                                                          | 0,00337  | 0,00339  | 0,00002 | 0,48%    | <a href="#">here</a>             |                 |            |           |
| 3.D.a.1                                                                                                                                                              | 85,31    | 86,57    | 1,256   | 1,47%    | <a href="#">here</a>             |                 |            |           |
| 3.D.a.2.a                                                                                                                                                            | 46,65    | 43,46    | -3,19   | -6,84%   | <a href="#">here</a>             |                 |            |           |
| 3.D.a.3                                                                                                                                                              | 8,65     | 8,44     | -0,21   | -2,42%   | <a href="#">here</a>             |                 |            |           |
| NFR 5 - Waste                                                                                                                                                        | 0,53     | 0,53     | 0,00    | 0,00%    |                                  |                 |            |           |
| NFR 6 - Other                                                                                                                                                        | NA       |          |         |          |                                  |                 |            |           |

The small changes within the **National Total reported for 2018 (+8.22 kt | +0.68 %)** are dominated by changes in **NFRs 1 and 3**. Here, the most significant relative change occurs for **NFR 2.G with minus 49 %**.

Table 2: Changes of emission estimates 2018

| <div>absolute changes in emissions reported for 2018</div> <table><thead><tr><th>Category</th><th>Value [kt]</th></tr></thead><tbody><tr><td>NATIONAL TOTAL</td><td>5,25</td></tr><tr><td>Energy</td><td>8,97</td></tr><tr><td>IPPU</td><td>0,54</td></tr><tr><td>Agriculture</td><td>-4,27</td></tr><tr><td>Waste</td><td>0</td></tr></tbody></table> |            |          |         |          |                                   | Category | Value [kt] | NATIONAL TOTAL | 5,25 | Energy | 8,97 | IPPU | 0,54 | Agriculture | -4,27 | Waste | 0 | Submission 2020 | Submission 2021 | Difference |  | Reasoning |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|---------|----------|-----------------------------------|----------|------------|----------------|------|--------|------|------|------|-------------|-------|-------|---|-----------------|-----------------|------------|--|-----------|
| Category                                                                                                                                                                                                                                                                                                                                               | Value [kt] |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NATIONAL TOTAL                                                                                                                                                                                                                                                                                                                                         | 5,25       |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| Energy                                                                                                                                                                                                                                                                                                                                                 | 8,97       |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| IPPU                                                                                                                                                                                                                                                                                                                                                   | 0,54       |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| Agriculture                                                                                                                                                                                                                                                                                                                                            | -4,27      |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| Waste                                                                                                                                                                                                                                                                                                                                                  | 0          |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
|                                                                                                                                                                                                                                                                                                                                                        |            |          |         |          |                                   |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NFR Code                                                                                                                                                                                                                                                                                                                                               | [kt]       |          |         | relative | see description and reasoning in: |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NATIONAL TOTAL                                                                                                                                                                                                                                                                                                                                         | 1.202,28   | 1.210,50 | 8,22    | 0,68%    | sub-category chapters             |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NFR 1 - Energy                                                                                                                                                                                                                                                                                                                                         | 996,11     | 1.007,16 | 11,05   | 1,11%    | sub-category chapters             |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.1.a                                                                                                                                                                                                                                                                                                                                                | 239,65     | 241,73   | 2,08    | 0,87%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.1.b                                                                                                                                                                                                                                                                                                                                                | 13,03      | 16,16    | 3,13    | 24,04%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.1.c                                                                                                                                                                                                                                                                                                                                                | 12,04      | 13,06    | 1,02    | 8,50%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.2.a                                                                                                                                                                                                                                                                                                                                                | 4,10       | 4,17     | 0,07    | 1,75%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.2.b                                                                                                                                                                                                                                                                                                                                                | 0,99       | 1,02     | 0,03    | 2,54%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.2.e                                                                                                                                                                                                                                                                                                                                                | 0,19       | 0,21     | 0,02    | 9,42%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.2.g vii                                                                                                                                                                                                                                                                                                                                            | 11,31      | 15,37    | 4,07    | 35,97%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.2.g viii                                                                                                                                                                                                                                                                                                                                           | 72,70      | 68,70    | -4,00   | -5,50%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.a i(i)                                                                                                                                                                                                                                                                                                                                           | 11,77      | 11,84    | 0,07    | 0,61%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.a ii(i)                                                                                                                                                                                                                                                                                                                                          | 2,31       | 2,67     | 0,35    | 15,27%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.b i                                                                                                                                                                                                                                                                                                                                              | 286,10     | 294,97   | 8,87    | 3,10%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.b ii                                                                                                                                                                                                                                                                                                                                             | 60,49      | 60,37    | -0,12   | -0,20%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.b iii                                                                                                                                                                                                                                                                                                                                            | 119,39     | 116,30   | -3,09   | -2,59%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.b iv                                                                                                                                                                                                                                                                                                                                             | 1,63       | 1,66     | 0,03    | 1,59%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.c                                                                                                                                                                                                                                                                                                                                                | 8,71       | 7,49     | -1,23   | -14,07%  | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.d ii                                                                                                                                                                                                                                                                                                                                             | 26,09      | 27,28    | 1,20    | 4,60%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.3.e i                                                                                                                                                                                                                                                                                                                                              | 1,50       | 1,50     | 0,01    | 0,45%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.a i                                                                                                                                                                                                                                                                                                                                              | 20,12      | 18,60    | -1,52   | -7,54%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.a ii                                                                                                                                                                                                                                                                                                                                             | 9,92       | 8,15     | -1,77   | -17,86%  | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.b i                                                                                                                                                                                                                                                                                                                                              | 52,65      | 54,48    | 1,83    | 3,49%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.b ii                                                                                                                                                                                                                                                                                                                                             | 0,499      | 0,501    | 0,002   | 0,32%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.c i                                                                                                                                                                                                                                                                                                                                              | 6,07       | 5,84     | -0,23   | -3,80%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.c ii                                                                                                                                                                                                                                                                                                                                             | 27,29      | 27,43    | 0,14    | 0,51%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.4.c iii                                                                                                                                                                                                                                                                                                                                            | 2,69       | 2,77     | 0,08    | 2,70%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.5.a                                                                                                                                                                                                                                                                                                                                                | 0,25       | 0,25     | 0,00    | 0,22%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.A.5.b                                                                                                                                                                                                                                                                                                                                                | 2,87       | 2,87     | 0,00    | 0,07%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 1.B.1.b                                                                                                                                                                                                                                                                                                                                                | 0,64       | 0,65     | 0,01    | 1,55%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NFR 2 - IPPU                                                                                                                                                                                                                                                                                                                                           | 86,70      | 86,82    | 0,12    | 0,14%    | sub-category chapters             |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 2.A.3                                                                                                                                                                                                                                                                                                                                                  | 11,71      | 11,51    | -0,20   | -1,67%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 2.C.3                                                                                                                                                                                                                                                                                                                                                  | NA         | 0,53     | 0,53    |          | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 2.G                                                                                                                                                                                                                                                                                                                                                    | 0,436      | 0,222    | -0,214  | -49,14%  | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| NFR 3 - Agriculture                                                                                                                                                                                                                                                                                                                                    | 118,64     | 115,69   | -2,95   | -2,49%   | sub-category chapters             |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.1.a                                                                                                                                                                                                                                                                                                                                                | 0,520      | 0,488    | -0,032  | -6,21%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.1.b                                                                                                                                                                                                                                                                                                                                                | 0,566      | 0,497    | -0,070  | -12,31%  | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.3                                                                                                                                                                                                                                                                                                                                                  | 0,3340     | 0,3352   | 0,0013  | 0,38%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.4.g i                                                                                                                                                                                                                                                                                                                                              | 0,0180     | 0,0178   | -0,0001 | -0,65%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.4.g ii                                                                                                                                                                                                                                                                                                                                             | 0,0180     | 0,0180   | 0,0000  | -0,20%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.4.g iii                                                                                                                                                                                                                                                                                                                                            | 0,0108     | 0,0108   | -0,0001 | -0,67%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.B.4.g iv                                                                                                                                                                                                                                                                                                                                             | 0,0020     | 0,0020   | 0,0000  | -0,72%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.D.a.1                                                                                                                                                                                                                                                                                                                                                | 59,01      | 59,11    | 0,10    | 0,17%    | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.D.a.2.a                                                                                                                                                                                                                                                                                                                                              | 39,94      | 37,80    | -2,14   | -5,35%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.D.a.2.b                                                                                                                                                                                                                                                                                                                                              | 0,56       | 0,51     | -0,05   | -8,55%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.D.a.2.c                                                                                                                                                                                                                                                                                                                                              | 11,77      | 11,55    | -0,22   | -1,91%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |
| 3.D.a.3                                                                                                                                                                                                                                                                                                                                                | 5,66       | 5,13     | -0,54   | -9,47%   | <a href="#">here</a>              |          |            |                |      |        |      |      |      |             |       |       |   |                 |                 |            |  |           |

|                                                                                                                                          |                    |                    |            |           |                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|------------|-----------|--------------------------------------------------------|
| <p>absolute changes in emissions reported for 2018</p>  | Submission<br>2020 | Submission<br>2021 | Difference | Reasoning |                                                        |
|                                                                                                                                          |                    |                    |            |           |                                                        |
| NFR Code                                                                                                                                 | [kt]               |                    |            | relative  | see description and reasoning in sub-category chapters |
| NATIONAL TOTAL                                                                                                                           | 1.202,28           | 1.210,50           | 8,22       | 0,68%     | sub-category chapters                                  |
| NFR 1 - Energy                                                                                                                           | 996,11             | 1.007,16           | 11,05      | 1,11%     | sub-category chapters                                  |
| 3.I                                                                                                                                      | 0,177              | 0,172              | -0,005     | -2,68%    | <a href="#">here</a>                                   |
| NFR 5 - Waste                                                                                                                            | 0,830              | 0,830              | 0,000      | 0,00%     |                                                        |
| NFR 6 - Other                                                                                                                            | NA                 |                    |            |           |                                                        |