

# Final Review Report

## 2021 annual review of national greenhouse gas inventory data

pursuant to Article 19(2) of Regulation (EU) No 525/2013

Poland  
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European Environment Agency



Reference: 340201/ 2020/838280/SER/CLIMA.C  
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## Conclusions from the 2021 annual ESD review

This Draft Review Report presents the findings from the 2021 annual review of the greenhouse gas (GHG) emission inventory of Poland, pursuant to Article 19(2) of Regulation (EU) No 525/2013, with a view to monitoring Poland's achievement of its GHG emission reduction or limitation target pursuant to Article 3 of Decision No 406/2009/EC (the 'Effort Sharing Decision', ESD) in 2019.

The reviewers carried out checks to verify the transparency, accuracy, consistency, comparability and completeness of the national GHG inventory for the year 2019 submitted in 2021 by Poland pursuant to Articles 7(1) and 7(3) of Regulation (EU) No 525/2013.

The review consisted of two steps:

1. The EU inventory team (European Environment Agency (EEA), European Topic Centre on Climate Change Mitigation and Energy (ETC/CME), Joint Research Centre (JRC) and Eurostat) performed the initial checks under Step 1.
2. A Technical Expert Review Team (TERT) performed Step 2 of the 2021 annual ESD review.

More information on the ESD legislation and the procedures for the 2021 annual ESD review is presented in the annexes to this review report.

### Step 1 conclusions

The EU inventory team identified 2 significant issues through the checks performed in Step 1. Therefore, Poland was subject to a second step of the 2021 annual ESD review. Only significant issues were subject to the second step review checks.

### Step 2 conclusions

1. The reviewers raised 21 issues with Poland during the first and the second step of the 2021 annual ESD review (see Table 1). The TERT provided a recommendation for 1 of these issues. Other issues raised during the annual review were clarified and are considered resolved.
2. The TERT identified a case where inventory data were prepared in a manner which is inconsistent with UNFCCC guidance documentation or Union rules. In particular, the TERT identified an underestimate or overestimate exceeding the threshold of significance pursuant to Article 31 of Commission Implementing Regulation (EU) No 749/2014.
3. Poland provided 1 revised estimate. The TERT agreed to the revised estimate. Table 2 below summarises the revised estimate and further information is provided at the end of this report.
4. On that basis, the TERT did not deem necessary any technical corrections within the meaning of Article 19(3)(c) of Regulation (EU) No 525/2013 in consultation with Poland.
5. The TERT identified a non-binding recommendation in order to improve the national inventory data of Poland (see Table 4).
6. The TERT considers that it received a response from Poland that was sufficient in order to undertake the review appropriately.

**Table 1: Overview of issues raised with Poland during the first and the second step**

	Issues raised <sup>1</sup>	Recommendations <sup>2</sup>	Revised estimates <sup>3</sup>	Technical corrections <sup>4</sup>
<b>Total</b>	<b>21</b>	<b>1</b>	<b>1</b>	<b>-</b>
Energy	11	-	-	-
IPPU	6	1	1	-
Agriculture	3	-	-	-
Waste	1	-	-	-
Cross-cutting	-	-	-	-

<sup>1</sup> Excluding findings related to Land use, land-use change and forestry (LULUCF) and Kyoto Protocol (KP) LULUCF.

<sup>2</sup> The total number of recommendations includes revised estimates and technical corrections.

<sup>3</sup> Revised estimates: changes in inventory estimates triggered by the review and provided by the Member State.

<sup>4</sup> Technical corrections: changes in inventory estimates triggered by the review and provided by the TERT.

## National totals for the purpose of Article 3 of Decision No 406/2009/EC (ESD)

**Table 2: National totals for the purpose of Article 3 of Decision No 406/2009/EC**

Data / Source category	Reference	Emission estimates (kt CO <sub>2</sub> equivalent) <sup>1</sup> 2019
Total greenhouse gas emissions, including indirect CO <sub>2</sub> , without land use, land-use change and forestry as reported by Poland pursuant to Article 7(4) of Regulation (EU) No 525/2013, taking into account any resubmission to the Commission	POL_2021_1_12032021	390 744.668
<b>Difference between original estimate and revised estimate provided by Poland and accepted by the TERT<sup>2</sup></b>		
2F1 Refrigeration and air conditioning, HFCs	PL-2F1-2021-0003	2 158.593
<b>Total greenhouse gas emissions including revised estimates</b>		<b>392 903.261</b>
CO <sub>2</sub> emissions from 1A3a Domestic aviation <sup>3</sup>	POL_2021_1_12032021	127.798
NF <sub>3</sub> emissions <sup>3</sup>	POL_2021_1_12032021	-

<sup>1</sup> The tables presented in this report show numbers rounded to three decimal places, although most numbers are available with greater precision. For all calculations (in particular of total GHG emissions and total ESD emissions), all available decimal places were used. Therefore, the totals shown may slightly differ from calculation results where only three decimals would be taken into account.

<sup>2</sup> A positive difference indicates an increase compared to reported emissions. A negative difference indicates a decrease compared to reported emissions.

<sup>3</sup> NF<sub>3</sub> emissions and emissions from 1A3a Domestic Aviation will be deducted from the national total as they are not included within the scope of total ESD emissions.

## Greenhouse gas emissions covered by Decision 406/2009/EC

**Table 3: Greenhouse gas emissions covered by Decision 406/2009/EC**

Data	Reference	Emissions (kt CO <sub>2</sub> equivalent) <sup>1</sup> 2019
Total greenhouse gas emissions including accepted revised estimate provided by Poland	<i>See Table 2 above</i>	392 903.261
Total verified emissions from stationary installations under Directive 2003/87/EC	Extracted by the European Commission from EUTL on 12 April 2021 <sup>2</sup>	183 690.533
CO <sub>2</sub> emissions from 1A3a Domestic aviation <sup>3</sup>	<i>See Table 2 above</i>	127.798
NF <sub>3</sub> emissions <sup>3</sup>	<i>See Table 2 above</i>	-
Total ESD emissions		209 084.930

<sup>1</sup> The tables presented in this report show numbers rounded to three decimal places, although most numbers are available with greater precision. For all calculations (in particular of total GHG emissions and total ESD emissions), all available decimal places were used. Therefore, the totals shown may slightly differ from calculation results where only three decimals would be taken into account.

<sup>2</sup> The emissions of ETS stationary installations were independently verified and recorded in the EU Transaction Log (EUTL). These emissions do not derive from the national greenhouse gas emission inventory data and therefore the TERT was not tasked to review them.

<sup>3</sup> NF<sub>3</sub> emissions and emissions from 1A3a Domestic Aviation will be deducted from the national total as they are not included within the scope of total ESD emissions.

## Statement from Poland on the conclusions presented by the TERT

Poland agrees with the aggregated GHG emission inventory estimates presented in Table 3.

## Recommendations from the TERT including revised estimates

**Table 4: Recommendations from the TERT (RE = Revised estimate<sup>1</sup>; TC = Technical correction<sup>2</sup>)**

EMRT - ID	Key category	Category, gas, year	Recommendation	RE or TC in 2021
PL-2F1-2021-0003	Yes	2F1 Refrigeration and air conditioning, 1995-2019, HFCs	For categories 2F1a Commercial Refrigeration and 2F1f Stationary Air-Conditioning, HFC emissions for 2019, the TERT noted that emissions of F-Gases in Poland have been decreasing constantly since 2015, to an extent that exceeds trends observed in other member states. Emissions of HFCs are comparatively low in 2019. A similar issue had been raised by the TERT in 2020 (PL-2F1-2020-0001) because the strong decrease already impacted 2018 and there was a lack of transparency in the 2020 NIR. The TERT noted that further transparency and reasoning behind the comparatively low product life factors (PLFs) was not provided in the 2021 NIR. In response to a question raised during the 2021 review, Poland explained that PLFs were based on information from a national registry, and on expert judgment, however, no calculation sheets were provided with additional information on how PLFs were calculated, and how the effects of the EU F-Gas Regulation 517/2014 (namely the foreseen HFC phasedown, technological advances and also illegal imports) were considered, and how this was applied to the banks of F-Gases. Poland provided a revised estimate for 2019 using EU PLFs and stated that it will re-evaluate PLFs for the next submission. The TERT agreed with the revised estimate provided by Poland and attached to the annex of the review report. The TERT recommends that Poland include the revised estimate or a new calculation in its next submission ensuring time series consistency and include transparent information on the background of PLFs in the NIR.	RE

<sup>1</sup> Revised estimates: changes in inventory estimates triggered by the review and provided by the Member State.

<sup>2</sup> Technical corrections: changes in inventory estimates triggered by the review and provided by the TERT.



## Revised estimate provided by Poland and accepted by the TERT

1

ESD Review Tool ID:	PL-2F1-2021-0003
ESD Review Tool URL:	https://emrt-esd.eionet.europa.eu/2021/PL-2F1-2021-0003
Country:	Poland
Sector:	2F1 Refrigeration and air conditioning
Gases:	HFCs
Fuel	N/A
Completed by Sector Expert:	Maria Purzner
Reviewed by Counterpart:	Emma Salisbury
Reviewed by Lead Reviewer:	Ralph Harthan
Reviewed by Quality Controller:	Justin Goodwin

The underlying problem:

The TERT noted that emissions of F-Gases in Poland have been decreasing constantly since 2015, to an extent that exceeds trends observed in other member states. Emissions of HFCs are comparatively low in 2019 for Commercial Refrigeration and Stationary Air-Conditioning. The TERT agrees with the assumption that more advanced units are introduced to the stock over time and that leakage prevention has improved over time and commends Poland for taking that into account. However, the impact of more technologically advanced equipment would become apparent through the new equipment and thus only through the newest addition to stocks, rather than through the entire stock. The TERT noted that the overall trend of banks should follow provisions of the EU F-Gas Regulation (EU Reg. 517/2014) and the intended phase down of HFCs, which should affect new equipment and leakage rates, but the decrease in the 2021 inventory was due to a decline in PLFs alone. It was not transparently explained how PLFs for banked HFCs in older equipment could decline as quickly as calculated and how illegal imports as well as technological advances were taken into account.

Summarise the methodology used:

Only PLFs are the subject of this revised estimate. EU PLFs have been applied for 2019 for stationary air conditioning and commercial refrigeration. For all HFCs apart from R32, PLFs were taken from the EU's 2019 CRF Table2(II)B-Hs2 and applied to activity data in Poland's 2019 CRF Table2(II)B-Hs2. For R32, the Polish PLF from 2016 was applied, which was the first time the use of R32 was reported. This is applicable because HFC-32 was placed on the market in 2016, which means that only modern equipment has been in use, which would justify a lower PLF. Illegal imports only started to influence the EU market from 2017 onwards, which means that PLFs in 2016 were not influenced by those activities.

2

	Original estimate (Gg CO <sub>2</sub> e)							Notes
Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Mixed GHG	
2019				3 418.101				

	Revised Estimate received from country (Gg CO <sub>2</sub> e)							Notes
Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Mixed GHG	
2019				5 576.695				

	Difference between RE and original estimate (Gg CO <sub>2</sub> e)						
Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Mixed GHG
2019				2 158.593			

## Annex I: Legal background and procedures of the 2021 annual ESD review

The Effort Sharing Decision No 406/2009/EC (ESD) sets national emission limits for greenhouse gas (GHG) emissions in the sectors outside the EU's Emission Trading System (ETS) for the period 2013-2020. The ESD and the Monitoring Mechanism Regulation (EU) 525/2013 (MMR) lay down annual reporting obligations, compliance checks and a Union review process to ensure that the compliance with annual GHG emission limits is assessed in a credible, consistent, transparent and timely manner. The requirements for the Union review of the national inventory data submitted by Member States are set out in Article 19 of the MMR.

The details concerning the review process, such as the timing and steps of conducting the annual and comprehensive reviews are set out in Chapter III and Annex XVI of the Commission Implementing regulations (EU) No 749/2014.

The objectives of the 2021 annual ESD review of Member States' GHG emission inventories are:

- a) to support the European Commission by ensuring it has accurate, reliable and verified information on annual GHG emissions for determining compliance with ESD targets for the year 2019 in a credible, consistent, transparent and timely manner, according to Article 19 (2) of the MMR;
- b) to assist Member States in improving the quality of their GHG inventories.

The 2021 annual ESD review of national GHG inventory data was carried out for the compliance year 2019 pursuant to Article 19 of the MMR. The EEA review secretariat (consisting of Melanie Sporer, Claire Qoul and Justine Raoult) coordinated the 2021 annual ESD review as foreseen in Article 28 of the Commission Implementing Regulation (EU) No 749/2014.

The scope of the 2021 annual ESD review is presented in Table A.1.1. The checks carried out during the 2021 annual ESD review are presented in Annex II.

The review consisted of 2 steps. Step 1 was combined with the 'EU QA/QC procedures' (i.e. initial checks) and was carried out by the EU inventory team (EEA, ETC/CME, JRC, Eurostat). The EU inventory team consisted of the following experts:

- ETC/CME task manager: Nicole Mandl, Marion Pinterits (ETC/CME)
- Energy: Julien Vincent, Coralie Jeannot, Eva Krtkova, Marion Pinterits, Matina Kastori, Bernd Gugele, Markéta Müllerová (ETC/CME), Michael Goll (Eurostat)
- IPPU: Barbara Gschrey, Kristina Kaar, Lorenz Moosmann, Lukas Emele, Julien Vincent, Coralie Jeannot (ETC/CME)
- Agriculture: Adrian Leip, Simona Bosco, Janka Szemesova, Efisio Solazzo (JRC)
- Waste: Céline Gueguen (ETC/CME)
- LULUCF: Raul Abdas-Vinas (JRC)
- Quality coordinators: Adrian Leip, Giacomo Grassi (JRC), Bernd Gugele, Nicole Mandl, Marion Pinterits, Eva Krtkova, Markéta Müllerová, Risto Saarikivi, Maria Purzner, Julien Vincent, Giorgos Mellios, Ils Moorkens, Kaat Jespers (ETC/CME)
- Cross-cutting: Nicole Mandl (ETC/CME)

All findings from the initial checks that were relevant for the ESD and that were not resolved within the initial check phase were followed up in the second step of the annual review.

Step 2 of the 2021 annual ESD review was performed by a Technical Expert Review Team (TERT) under service contract 340201/2020/838280/SER/CLIMA.C.2 of the Directorate General for Climate Action of the European Commission. The TERT consisted of the following experts:

- Lead Reviewers: Ioannis Sempas, Ralph Harthan
- Energy: Stephan Poupa, Julien Vincent

- IPPU: Emma Salisbury, Maria Purzner
- Agriculture: Chris Dore, Katalin Lovas
- Waste: Richard Claxton, Céline Gueguen
- Quality controller: Justin Goodwin
- Co-ordinator: Bernd Gugele

The TERT did not review emission inventories of Member States where these individuals have themselves contributed to the compilation of that inventory, or presently are or have been any part of the decision-making process related to the compilation of that inventory. Reviewers who are nationals of the Member State whose inventory is concerned, did not take part in the review of that inventory.

Step 2 of the review was performed on the basis of GHG emission data and the national inventory report (NIR) officially reported by Member States by 15 March 2021 under the MMR. Where relevant, the TERT calculated technical corrections for over- or underestimates identified in a mandatory category in the Member States' GHG inventories that exceed the threshold of significance. Technical corrections were calculated for the year 2019.

**Table A.1.1: Scope of the 2021 annual ESD review**

Element	Scope	Further information
Countries	EU geographical coverage of the 27 Member States and the United Kingdom	
Years	2019	
Gases	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, SF <sub>6</sub>	NF <sub>3</sub> is not covered by the ESD
Sectors	All emission source sectors excluding LULUCF	National totals exclude emissions from LULUCF and emissions reported under memo items
Indirect CO <sub>2</sub> emissions	Included in national total	
Inventory Submission	Submissions received by 15 March 2021	

## Annex II: Checks carried out during the 2021 annual ESD review in line with Article 29 and 32 of the Commission Implementing Regulation (EU) No 749/2014

**As part of the EU's effort to assist Member States in improving the quality of the GHG inventories, the checks to verify the transparency, consistency, comparability and completeness of the greenhouse gas inventory included:**

### **First step review checks:**

1. Assessment whether all emission source categories and gases required under Regulation (EU) No 525/2013 are reported;
2. Assessment whether emissions data time series are consistent;
3. Assessment whether implied emission factors across Member States are comparable taking the IPCC default emission factors for different national circumstances into account;
4. Assessment of the use of 'Not Estimated' notation keys where IPCC tier 1 methodologies exist and where the use of the notation key is not justified in accordance with paragraph 37 of the UNFCCC reporting guidelines on annual greenhouse gas inventories as included in Annex I to Decision 24/CP.19;
5. Analysis of recalculations performed for the inventory submission, in particular if the recalculations are based on methodological changes;
6. Comparison of the verified emissions reported under the Union's Emissions Trading System with the greenhouse gas emissions reported pursuant to Article 7 of Regulation (EU) No 525/2013 with a view of identifying areas where the emission data and trends as submitted by the Member State under review deviate considerably from those of other Member States;
7. Comparison of the results of Eurostat's reference approach with the Member States' reference approach;
8. Comparison of the results of Eurostat's sectoral approach with the Member States' sectoral approach;
9. Assessment whether recommendations from earlier Union or UNFCCC reviews, not implemented by the Member State could lead to a technical correction;
10. Assessment whether there are potential overestimations or underestimations relating to a key category in a Member State's inventory.

### **Second step review checks:**

1. Detailed examination of the inventory estimates including methodologies used by the Member State in the preparation of inventories;
2. Detailed analysis of the Member State's implementation of recommendations related to improving inventory estimates as listed in its most recent UNFCCC annual review report made available to that Member State before the submission under review or in the final review report pursuant to Article 35(2) of this Regulation; where recommendations have not been implemented a detailed analysis of the justification provided by the Member State for not implementing them;
3. Detailed assessment of the time series consistency of the greenhouse gas emissions estimates;
4. Detailed assessment whether the recalculations made by a Member State in the given inventory submission as compared to the previous one are transparently reported and made in accordance with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories;
5. Follow-up on the results of the checks referred to in Article 29 of the Commission Implementing Regulation (EU) No 749/2014 and on any additional information submitted by the Member State under review in response to questions from the technical experts review team and other relevant checks.