Final Review Report

2017 annual review of national greenhouse gas inventory data

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

Poland

30 June 2017

European Environment Agency

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Conclusions from the 2017 annual ESD review

This Final Review Report presents the findings from the 2017 annual review of the 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 greenhouse gas emission reduction or limitation target pursuant to Article 3 of Decision No 406/2009/EC (the 'Effort Sharing Decision', ESD) in 2015.

The reviewers carried out checks to verify the transparency, accuracy, consistency, comparability and completeness of the national greenhouse gas inventory for the year 2015 submitted in 2017 by Poland pursuant to Article 7(3) of Regulation (EU) No 525/2013.

The review consisted in two steps:

1. The EU inventory team (European Environment Agency (EEA), European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM), 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 2017 annual ESD review.

More information on the Effort Sharing Decision and the procedures for the 2017 annual ESD review is presented in the annexes to this review report.

Step 1 conclusions

The EU inventory team identified, through the checks performed in Step 1, five significant issues. Therefore Poland was subject to a second step of the 2017 annual ESD review. Only significant issues were subject to the second step review checks.

Step 2 conclusions

1. The reviewers raised 42 issues with Poland during the first and the second step of the review 2017 (see Table 1). The TERT provided recommendations for three of these issues. Other issues raised during the annual review were clarified and are considered resolved.
2. The TERT identified cases where inventory data were prepared in a manner which is inconsistent with UNFCCC guidance documentation or Union rules. In particular, the TERT identified a number of underestimates or overestimates exceeding the threshold of significance pursuant to Article 31 of Commission Implementing Regulation (EU) No 749/2014.
3. Poland provided three revised estimates. The TERT agreed to all of these revised estimates. Table 2 below summarises the revised estimates and further information is provided at the end of this report.
4. On that basis, the TERT did not deem necessary any technical corrections in the meaning of Article 19(3)(c) of Regulation (EU) No 525/2013 in consultation with Poland.
5. The TERT identified non-binding recommendations 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 annual review appropriately.

Table 1: Issues raised with Poland during the first and the second step

	Issues raised	Recommendations	Revised estimates [1]	Technical corrections [2]
Total	**42**	**3**	**3**	**-**
Energy	14	2	2	-
IPPU	11	-	-	-
Agriculture	9	-	-	-
Waste	7	1	1	-
Cross-cutting	1	-	-	-

[1] Revised estimates: changes in inventory estimates triggered by the review and provided by the Member State.
[2] Technical corrections: changes in inventory estimates triggered by the review and provided by the TERT.

National totals

Table 2: National totals

Data / Source category	Reference	Emission estimates (kt CO_2 equivalent)[1]
		2015
Total greenhouse gas emissions, including indirect CO_2, without land use, land-use change and forestry as reported by Poland pursuant to Article 7(3) of Regulation (EU) No 525/2013.	POL_2017_13012017	384 498.268
Difference between original estimates and revised estimates provided by Poland and accepted by the TERT[2]		
1.A.3.b Road transportation, CO_2, CH_4, N_2O	PL-1A3b-2017-0004	745.958
1.B.2.a Fugitive emissions from oil, CO_2, CH_4	PL-1B2a-2017-0001	- 231.208
5.D Wastewater treatment and discharge, CH_4	PL-5D-2017-0005	578.580
Total greenhouse gas emissions including any accepted revised estimates provided by Poland		385 591.598
CO_2 emissions from 1.A.3.a Domestic aviation	POL_2017_13012017	122.708
NF_3 emissions	POL_2017_13012017	-

[1] 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.

[2] A positive difference indicates an increase compared to reported emissions. A negative difference indicates a decrease compared to reported 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_2 equivalent)[1]
		2015
Total greenhouse gas emissions including accepted revised estimates provided by Poland	*See Table 2 above*	385 591.598
Total verified emissions from stationary installations under Directive 2003/87/EC	Extracted by the European Commission from EUTL on 8 March 2017 (as agreed at the Working Group I of the Climate Change Committee on 18 May 2015)[2]	198 696.466
CO_2 emissions from 1.A.3.a Domestic aviation	*See Table 2 above*	122.708
NF_3 emissions	*See Table 2 above*	-
Total ESD emissions		186 772.424

[1] 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.

[2] 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.

Statement from Poland on the conclusions presented by the TERT

Poland agrees with the aggregated GHG emission inventory estimates presented in Table 2.

Revised estimates provided the MS and accepted by TERT

ESD Review Tool ID:	**PL-1A3b-2017-0004 + PL-1A3b-2017-0001**
ESD Review Tool URL:	https://emrt.eea.europa.eu/2017/PL-1A3b-2017-0004#tab-qa
Member State:	Poland
Sector:	1.A.3.b Road transportation
Gases:	CO_2, CH_4, N_2O
Fuel	n/a
Completed by (SE):	Julien Vincent
Reviewed by (Counterpart):	Ralph Harthan
Reviewed by (LR):	Klaus Radunsky

1

The underlying problem:	PL-1A3b-2017-0001: CO_2 IEF for natural gas in road transport is very low (8.73 t/T). PL-1A3b-2017-0004: CO_2 IEF for road diesel (70.83 t/TJ in 2015) is outside the IPCC range (from 72.6 t/TJ to 74.8 t/TJ). Poland answered to both observations in the same one PL-1A3b-2017-0004 as it is the same sector. Observations only focused on CO_2 but the new methodology having an impact on AD, CH_4 and N_2O emissions are also impacted as presented below.
The rationale for the corrected estimate:	PL-1A3b-2017-0004: National Inventory team analysed possible reasons for lower IEF and in its opinion, it could be a result of rather overestimated activity data than underestimated CO_2 emission. PL-1A3b-2017-0001: the use of COPERT 4 for the first time is the explanation provided by Poland to explain the outlier
Summarise the methodology used:	Poland reran the COPERT model including the revised dataset based on final Eurostat database for energy data for 2015. AD has been revised for diesel consumption which also impact CH_4 and N_2O. CO_2 IEF have also been corrected for diesel and natural gas. New dataset is presented in the sheet "Calculations" and Original estimate is presented in the sheet "Table1.A(a)s3".
References to other workbooks:	Diesel and CNG - 1.A.3.b.xlsx — 19 KB

2

Details of the corrected estimate

		Original estimate (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1A3b-2017-0004 + PL-1A3b-2017-0001-OE	2015	28 900.537	21.231	295.128				

Was a Revised Estimate received from the MS?	**yes**

		Revised Estimate received from MS (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1A3b-2017-0004 + PL-1A3b-2017-0001-RE	2015	29 646.524	21.102	295.229				

Was the Revised Estimate accepted by the TERT?	**yes**

		Technical Correction calculated by TERT (Gg CO2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1A3b-2017-0004 + PL-1A3b-2017-0001-TC	2015							

Was the Technical Correction accepted by the MS?	**-**

ESD Review Tool ID:	**PL-1B2a-2017-0001**
ESD Review Tool URL:	https://emrt.eea.europa.eu/2017/PL-1B2a-2017-0001#tab-qa
Member State:	Poland
Sector:	1.B.2.a Fugitive emissions from oil
Gases:	CO_2, CH_4
Fuel	n/a

Completed by (SE):	Julien Vincent
Reviewed by (Counterpart):	Ralph Harthan
Reviewed by (LR):	Klaus Radunsky

1

The underlying problem:	The 2016 TERT noted that Poland is reporting high CO_2 emissions in category 1.B.2.a.2 (Oil Production) compared to other countries (PL-1B2a-2016-0001). The initial TERT question was only on CO_2 but the answer was extended to CH_4.
The rationale for the corrected estimate:	Poland explained that high emissions in category 1.B.2.a.2 (Oil Production) are due to the use of a high CO_2 country-specific emission factor coming from a national study [Żebrowski 1994]. Poland concluded that if no new studies are available, Poland will consider the use of the IPCC 2006 GLs methodology and parameters. (Observation Reference number PL-1B2a-2016-0001). In the March 2017 submission Poland was still using the high country-specific emission factor but wanted to modify the time-series for the May submission. Therefore Poland provided revised estimates.
Summarise the methodology used:	CO_2 and CH_4 emission factors used for estimation of new emissions from oil production are presented in the sheet "Calculations". In case of onshore EFs, Poland adopted the higher value in range (conservative approach). It was decided to apply default EF from 2006 IPCC Guidelines, table 4.2.4 as the national study from 1994 showed CH_4 EF consistent with the ones defined for developed countries in the IPCC Guidelines.
References to other workbooks:	PL-1B2a-2017-0001 Oil Production PL response 25.04.2017.docx

2

Details of the corrected estimate

		Original estimate (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1B2a-2017-0001 -OE	2015	249.872	61.133					

Was a Revised Estimate received from the MS?	**yes**

		Revised Estimate received from MS (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1B2a-2017-0001 -RE	2015	0.230	79.566					

Was the Revised Estimate accepted by the TERT?	**yes**

		Technical Correction calculated by TERT (Gg CO2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-1B2a-2017-0001 -TC	2015							

Was the Technical Correction accepted by the MS?	**-**

ESD Review Tool ID:	**PL-5D-2017-0005**
ESD Review Tool URL:	https://emrt.eea.europa.eu/2017/PL-5D-2017-0005
Member State:	Poland
Sector:	5.D
Gases:	CH_4
Fuel	

Completed by (SE):	Hans Oonk
Reviewed by (Counterpart):	Kaat Jespers
Reviewed by (LR):	Klaus Radunsky

1

The underlying problem:	For the sector 5.D and the gas CH_4, the TERT noticed that Poland calculates emissions from collected waste water treatment, assuming I=1. I is the correction factor for additional industrial BOD discharged into sewers, and the 2006 IPCC guidelines (Volume 5, chapter 6, page 6.14) give a default value of 1.25. The TERT recommends Poland to use the default value of I in the 2006 GL, which is 1.25.
The rationale for the corrected estimate:	This constitutes an underestimate of emissions.
Summarise the methodology used:	The corrected estimate was supplied by Poland, using their own calculation sheets to quantify methane emissions from 5.D.1. In the corrected estimate, emissions from collected waste water are calculated, assuming I=1.25
References to other workbooks:	

2

Details of the corrected estimate

		Original estimate (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-5D-2017-0005-OE	2015		1.982					

Was a Revised Estimate received from the MS?	**yes**

		Revised Estimate received from MS (Gg CO_2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-5D-2017-0005-RE	2015		580.562					

Was the Revised Estimate accepted by the TERT?	**yes**

		Technical Correction calculated by TERT (Gg CO2eq)						Notes
	Year	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	
PL-5D-2017-0005-TC	2015							

Was the Technical Correction accepted by the MS?	**-**

Recommendations from the TERT, considering revised estimates and technical corrections deemed necessary by the TERT

Table 4: Recommendations from the TERT

EMRT - ID	Key category	Category, gas, year	Conclusion step 2 note	Revised estimate	Technical correction
PL-1A3b-2017-0004	Yes	1.A.3.b Road transportation, CO_2, 2009-2015	For category 1.A.3.b Road transportation, the TERT noted that low CO_2 IEF from the use of diesel (70.83 t/TJ) (PL-1A3b-2017-0004) and natural gas (8.73 t/TJ) (PL-1A3b-2017-0001) are reported. Poland reran the COPERT model and proposed a revised estimate of emissions for diesel and natural gas CO_2 emissions. However, the AD for diesel was also updated so CH_4 and N_2O emissions were also revised. 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 in its next submission. The TERT also noted that Poland applies COPERT default CO_2 EF as they assume that input data to the model correspond to country specific information and there is no plan to determine additional CO_2 emission factors for road transport. The TERT recommends that Poland provide more background information about the applicability of COPERT default CO_2 EF to their national market.	Yes	No
PL-1B2a-2017-0001	No	1.B.2.a Fugitive emissions from oil, CO_2, 1990-2015	For category 1.B.2.a Fugitive emissions from oil, the TERT noted that high CO_2 emissions are reported in category 1.B.2.a.2 (Oil Production) due to the use of a high country-specific emission factor coming from a national study [Żebrowski 1994]. In response to a question raised during the review, Poland explained that if no new study is available, 2006 IPCC default emission factors will be applied. On a TERT recommendation, Poland provided two revised estimates during the review week with default EF from developed countries and default EF for developing countries. After an internal discussion, the TERT concluded, based on results from the 1994 study, that Polish national circumstances seem to be closer to developed countries conditions. Poland provided a revised estimate (based on table 4.2.4 from the IPCC Guidelines) for all years from 1988 to 2015 impacting CO_2 emissions but also CH_4 and stated that these will be included in the next submission. The TERT agreed with the revised estimate provided by Poland based on developed countries EF and attached to the annex of the review report. The TERT recommends that Poland include the revised estimate in its next submission. The TERT also recommends Poland to explore the types of systems applied in the oil and gas industry to justify more transparently in the NIR the choice of default IPCC EF based on developed country conditions.	Yes	No
PL-5D-2017-0005	Yes	5.D Wastewater treatment and discharge, CH_4, 2005-2015	For 5.D.1 and methane and the year 2015 the TERT noted that Poland calculated emissions from collected waste water without use of the correction factor I for additional industrial BOD discharged into sewers. In response to a question raised during the review, Poland provided a revised estimate for years 1990-2015 and stated that it will be included in 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 includes the revised estimate in its next submission.	Yes	No

Annex I: Legal background and procedures of the 2017 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 2017 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 2015 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 2017 annual ESD review of national greenhouse gas (GHG) inventory data was carried out for the compliance year 2015 pursuant to Article 19 of the MMR. The EEA review secretariat (consisting of Melanie Sporer, John van Aardenne and Emma Salisbury) coordinated the 2017 annual ESD review as foreseen in Article 28 of the Commission Implementing Regulation (EU) No 749/2014.

The scope of the 2017 annual ESD review is presented in Table A.1.1. The checks carried out during the 2017 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 (ETC/ACM, JRC, Eurostat). 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 2017 annual ESD review was performed by a Technical Expert Review Team (TERT) under service contract 34.0201/2016/743206/SER/CLIMA.C2 of the Directorate General for Climate Action of the European Commission. The TERT consisted of the following experts:

- Lead Reviewers: Anke Herold, Suvi Monni, Klaus Radunsky
- Energy: Julien Vincent, Ralph Harthan, Graham Anderson
- IPPU F-gases: Barbara Gschrey, Domenico Gaudioso
- IPPU excluding F-gases: Daniela Romano, Eva Krtkova
- Agriculture: Steen Gyldenkaerne, Rocio Condor, Chris Dore, Katalin Lovas
- Waste: Hans Oonk, Kaat Jespers, Juraj Farkas
- Quality controller: Justin Goodwin
- Co-ordinator: Bernd Gugele

The lead reviewers and sector review experts 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 2017 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 2015.

Table A.1.1: Scope of the 2017 annual ESD review

Element	Scope	Further information
Member States	EU geographical coverage of the Member States	
Years	2015	
Gases	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	NF_3 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_2 emissions	Included in national total	
Inventory Submission	Submissions received by 15 March, 2017	

Annex II: Checks carried out during the 2017 annual ESD review in line with Art.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, accuracy, 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.