

Final Review Report

2019 annual review of national greenhouse gas inventory data

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

Bulgaria
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European Environment Agency



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Umweltbundesamt GmbH
Spittelauer Lände 5
1090 Vienna Austria

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Conclusions from the 2019 annual ESD review

This Final Review Report presents the findings from the 2019 annual review of the greenhouse gas (GHG) emission inventory of Bulgaria, pursuant to Article 19(2) of Regulation (EU) No 525/2013, with a view to monitoring Bulgaria'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 2017.

The reviewers carried out checks to verify the transparency, accuracy, consistency, comparability and completeness of the national GHG inventory for the year 2017 submitted in 2019 by Bulgaria 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 2019 annual ESD review.

More information on the ESD legislation and the procedures for the 2019 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, Bulgaria was subject to a second step of the 2019 annual ESD review. Only significant issues were subject to the second step review checks.

Step 2 conclusions

1. The reviewers raised 25 issues with Bulgaria during the first and the second step of the 2019 annual ESD review (see Table 1). The TERT provided recommendations for 2 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. However, the TERT did not identify any under- or over-estimates exceeding the threshold of significance pursuant to Article 31 of Commission Implementing Regulation (EU) No 749/2014.
3. 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 Bulgaria.
4. The TERT identified non-binding recommendations in order to improve the national inventory data of Bulgaria (see Table 4).
5. The TERT considers that it received a response from Bulgaria that was sufficient in order to undertake the annual review appropriately.

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

	Issues raised ¹	Recommendations	Revised estimates ²	Technical corrections ³
Total	25	2	-	-
Energy	12	1	-	-
IPPU	4	-	-	-
Agriculture	8	1	-	-
Waste	1	-	-	-
Cross-cutting	-	-	-	-

¹ Excluding findings related to Land use, land use change and forestry (LULUCF) and Kyoto Protocol (KP) LULUCF.

² Revised estimates: changes in inventory estimates triggered by the review and provided by the Member State.

³ 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 2017
Total greenhouse gas emissions, including indirect CO ₂ , without land use, land-use change and forestry as reported by Bulgaria pursuant to Article 7(4) of Regulation (EU) No 525/2013, taking into account any resubmission to the Commission	BGR_2018_4_04032019	61 496.729
Total greenhouse gas emissions		61 496.729
CO ₂ emissions from 1.A.3.a Domestic aviation	BGR_2018_4_04032019	61.841
NF ₃ emissions	BGR_2018_4_04032019	-

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.

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 2017
Total greenhouse gas emissions	<i>See Table 2 above</i>	61 496.729
Total verified emissions from stationary installations under Directive 2003/87/EC	Extracted by the European Commission from EUTL on 8 March 2019 (as agreed at the Working Group I of the Climate Change Committee on 18 May 2015) ²	34 908.095
CO ₂ emissions from 1.A.3.a Domestic aviation	<i>See Table 2 above</i>	61.841
NF ₃ emissions	<i>See Table 2 above</i>	-
Total ESD emissions		26 526.793

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 Bulgaria on the conclusions presented by the TERT

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

Recommendations from the TERT including revised estimates and technical corrections

Table 4: Recommendations from the TERT

EMRT - ID	Key category	Category, gas, year	Conclusion step 2 note	Revised estimate	Technical correction
BG-1AB-2019-0001	No	1.A.B Reference approach, 2017, CO ₂	The TERT noted that Bulgaria did not submit a complete reference approach. This did not allow the TERT to review the CO ₂ emissions against the sectoral approach. Bulgaria explained that the reference approach could not be submitted due to technical problems. The TERT recommends that Bulgaria deliver a complete reference approach in the next submission in a timely manner.	No	No
BG-3B-2019-0003	Yes	3.B Manure Management, 1990-2016, CH ₄ and N ₂ O	For category 3.B Manure management, both N ₂ O and CH ₄ , all years and especially for cattle the TERT noted that Bulgaria estimates that a significant share of manure is managed in "dry lot". However, the TERT noted that it is not a common practice in other European countries to report manure management in dry lot. In response to a question raised during the review on how this estimate was done, Bulgaria explained that the large share of dry lot in manure management is based on expert estimates and on the size of farms. The TERT noted that the default emission factors presented in the 2006 IPCC Guidelines for dry lot are the same as those for pasture for both CH ₄ and N ₂ O. The N ₂ O emission factors for dry lot are higher than those for solid storage (0.02 kg N ₂ O-N/kg N for dry lot and 0.005 kg N ₂ O-N/kg N for solid storage) while the CH ₄ emission factors are lower (about half or less). The TERT considers that the reporting of large amounts of manure under "dry lot" for cattle may not be sufficiently justified, but it is not possible to determine whether it would be more appropriate to report the amount of manure currently reported under "dry lot" in the category "pasture, range and paddock" or in the category "solid storage". Shifting "dry lot" towards "solid storage" would decrease N ₂ O emissions and increase CH ₄ emissions while shifting from "dry lot" to "pasture, range and paddock" would have no effect on emissions. Therefore, the TERT considers that this issue does not relate to a clear over- or under-estimate and recommends that Bulgaria further analyse the types of manure management systems that occur in the country and further justify in the NIR the reporting of dry lot use. Finally, the TERT recommends that Bulgaria revise its emission estimates, if appropriate.	No	No

Annex I: Legal background and procedures of the 2019 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 2019 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 2017 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 2019 annual ESD review of national GHG inventory data was carried out for the compliance year 2017 pursuant to Article 19 of the MMR. The EEA review secretariat (consisting of Melanie Sporer, Claire Qoul and Kirsten May) coordinated the 2019 annual ESD review as foreseen in Article 28 of the Commission Implementing Regulation (EU) No 749/2014.

The scope of the 2019 annual ESD review is presented in Table A.1.1. The checks carried out during the 2019 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, Beata Ondrusova, Eva Krtkova, Marion Pinterits, Matina Kastori (ETC/CME), Michael Goll (Eurostat)
- IPPU: Barbara Gschrey, Steffi Osterheld, Lorenz Moosmann, Graham Anderson (ETC/CME)
- Agriculture: Adrian Leip, Janka Szemesova, Gema Carmona (JRC)
- Waste: Celine Gueguen (ETC/CME)
- LULUCF: Raul Abdas-Vinas (JRC)
- Quality coordinators: Adrian Leip, Giacomo Grassi (JRC), Bernd Guegle, Nicole Mandl, 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 2019 annual ESD review was performed by a Technical Expert Review Team (TERT) under service contract 340201/2018/790329/SER/CLIMA.C of the Directorate General for Climate Action of the European Commission. The TERT consisted of the following experts:

- Lead Reviewers: Suvi Monni, Ralph Harthan
- Energy: Graham Anderson, Stephan Poupa, Eva Krtkova
- IPPU: Kristina Kaar, Jolanta Merkeliene
- Agriculture: Etienne Mathias, Steen Gyldenkaerne

- Waste: Hans Oonk, Juraj Farkas
- 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 2019 under the MMR. Where relevant, the TERT calculated technical corrections for over- or under-estimates identified in a mandatory category in the Member States' GHG inventories that exceed the threshold of significance. Technical corrections were calculated for the year 2017.

Table A.1.1: Scope of the 2019 annual ESD review

Element	Scope	Further information
Member States	EU geographical coverage of the Member States	
Years	2017	
Gases	CO ₂ , CH ₄ , N ₂ O, 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 2019	

Annex II: Checks carried out during the 2019 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, 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 over-estimations or under-estimations 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.