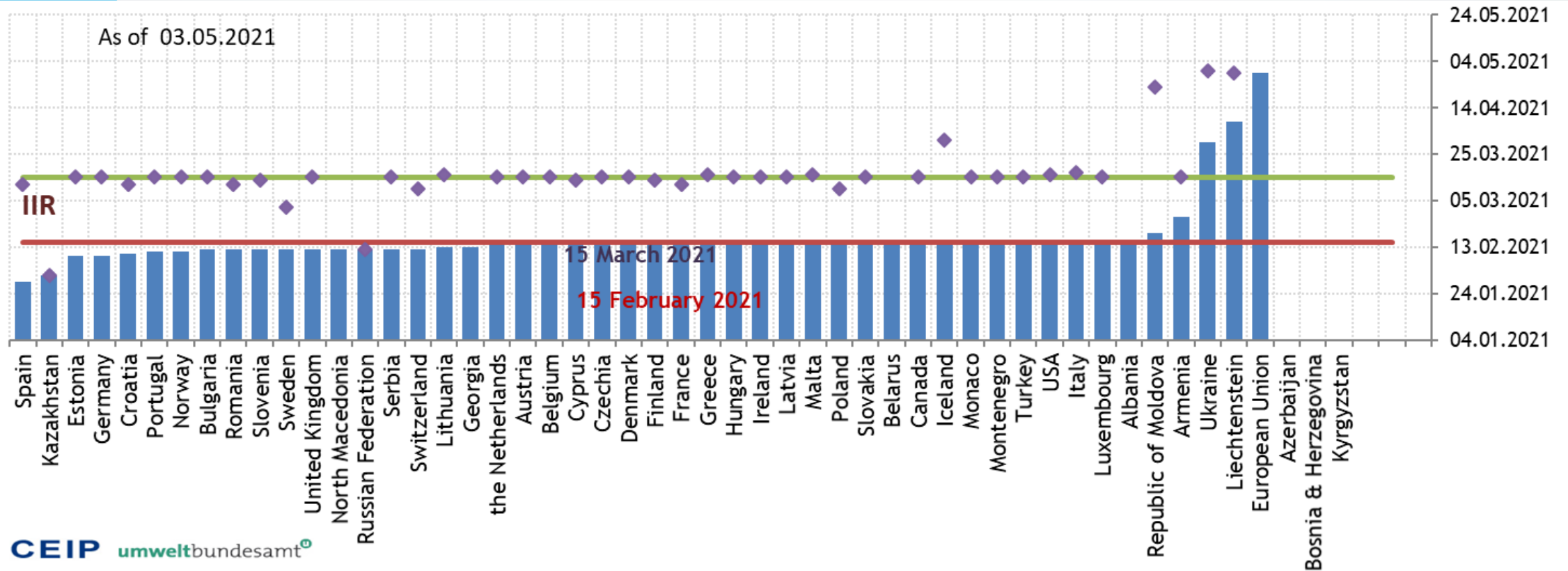


Reporting and review of emission inventories 2021

TFEIP meeting, May 2021, webconference

Sabine Schindlbacher, Katarina Mareckova, Robert Wankmüller, Marion
Pinterits, Bernhard Ullrich, Bradley Matthews

Status of reporting



- 48 inventories
- 45 full time series: 1990/2000-2019
- 43 IIRs
- 20 gridded data/ 21 LPS
- **40 Activity data**
- 48 PM / 41 BC
- 25 projections
- 10 Annex VII
- **2 new adjustment applications (CZ, FR)**

Gridded Data and LPS data

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➤ 2021 is a reporting year for gridded data and LPS data

- **Gridded emission** data sets are spatially distributed emission data sets
- Gridded emission data sets are an **input for models** used to assess atmospheric concentrations and deposition
- **Large Point Sources (LPS):** facilities whose combined emissions exceed emission thresholds given in reporting guidelines
- Examples are: industrial facilities, power plants, waste burning facilities, agriculture farms, airports...

➤ Reporting deadline was 1 May 2021

- **20** Parties have reported gridded data (up to 3 May 2021)
- **21** Parties have reported LPS data (up to 3 May 2021)

Gridded Data and LPS data

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- CEIP will compile emission data for modellers in 0.1°x0.1° long/lat distribution on GNFR sector level
 - 2000 to 2019 for Main pollutants, CO, PMs, BC
 - 2019 for HMs and POPs
- **Missing data will be gap-filled**
 - hopefully data that needs to be gap-filled decreases this year
 - optimally for the reporting years robust gridded emissions from all Parties would be available
- Development of semi automated gap filling system implemented in 2020 will be used
- Methodologies applied to the CEIP GNFR gap-filling 2020, *Technical Report CEIP 1/2020, Bradley Matthews, Robert Wankmueller*
 - *Report documents which data reported by Parties was replaced during the process of gap-filling in 2020*

The condensable component of PM emissions

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- 23 Parties reported information on the inclusion of the condensable component in PM emissions
- Often this information
 - is not entirely clear
 - or the Party indicated that the condensable component is partly included
 - or the Party indicated that the status of inclusion is unclear
- available information improves slowly over years
- especially since the update of the EEA Guidebook 2019, where now for many emission factors it is stated clearly if the condensable component is included in the PM emission factors

Handling the condensable component in the gridded data-set for residential heating

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- Workshop on condensable organics organised by MSC-W in March 2020
- Conclusions from the workshop handling the condensable component in emission datasets
 - https://emep.int/publ/reports/2020/emep_mscw_technical_report_4_2020.pdf
- In year 1 the TNO Ref2 data is used in an initial estimate for residential combustion emissions
- In subsequent years these top-down estimates should be **increasingly replaced by national estimates**
- Aim condensable PM included in models consistently and data reported by Parties is used

Handling the condensable component in the gridded data-set

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Steps planned for 2021

- TNO provides a list with Parties where the IEFs (implied emission factors, based on emissions and activity data reported by Parties) suggest that the condensable component is included in PM emissions to CEIP
- CEIP checks for those Parties in the IIRs if the Party confirms that the condensable component is included in the PM emissions
- If the Party does not provide information or the information is unclear CEIP will contact those Parties **beginning of May** to ask for confirmation that the condensable component is included in the dataset
- If the Party confirms that the condensable component is included in emission estimates for the residential combustion emissions the **data reported by Parties will be used, otherwise TNO Ref2 or Ref2-like emissions will be used** like last year
- Aim to use as much data reported by Parties as possible and at the same time ensure a consistent dataset for the EMEP models
- Focus of the stage 3 review in 2022 will be set **Residential Heating** (incl. condensables)
- More information on this topic: Combustion and Industry Expert Panel on Wednesday

Plan for revision of Annex II (IIR) to the reporting guidelines

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- **Annex II** to the reporting guidelines is the recommended structure for the **IIR**
- Suggested changes include:
 - Changes to the suggested information on the **inclusion of the condensables**
 - Clearer specification of the information that should be provided in the chapter on reporting of gridded data and LPS data
 - Revisions in the guidance provided in the sector „sections“
 - Suggestion to include information on verification activities
 - Suggestion to include a **table** with information on the **implementation of recommendations/findings** from reviews (CLRTAP stage 3 and where relevant NECD review)
 - If adopted by EMEP SB - Updated Annex II should be used 2022 onwards

Stage 3 review 2021 and plans for 2022

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➤ Guidance for the review of condensables needs to be developed

2020	2021	2022
EU	Bosnia and Herzegovina – review cancelled . No data	All Parties: Residential Heating (incl. condensables)
Iceland	Kazakhstan, weak IIR not in line with template, limited communication	All Parties: Transport (incl. condensables)
Kyrgyzstan	Liechtenstein	
North Macedonia	Monaco	Shipping?
Switzerland	Montenegro	
	Start assessment of the implementation of findings from the previous reviews (Parties reviewed 2019 and 2020) Shipping?	Continue assessment of the implementation of findings from the previous reviews (Parties reviewed 2021)

- **Centralized meeting** very important for interaction within the review team
- Need of **nomination from EECCA countries** and of resolving the issues of travel costs

<https://www.ceip.at/review-of-emission-inventories/in-depth-review-of-ae-inventories>

06.05.2021

Reporting and review of adjustments

- Approach and review harmonised with NECD review under EU
- Initial checks of submitted adjustment applications: assessment of formal criteria (CEIP in cooperation with UNECE secretariat)
- <https://www.ceip.at/gothenburg-protocol/review-of-adjustments>
 - Desk review: (April) May – beginning June , Coordinating meeting (s): online – add hoc as needed
 - Status report to EMEP SB: end June
 - Finalisation of country report: July – August
 - **Adoption of ERT recommendations: Sept (EMEP SB meeting)**

Adjustment review 2021

- ✓ 10 countries - approved Adjustments for approx. 38 sector/pollutant cases
- ✓ 2 NEW application: Czechia - NH₃ Agriculture 3B, 3D, France Agriculture , NO_x, NMVOC

Adjustment review 2022 onwards

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➤ EB Decision 2019

➤ https://unece.org/DAM/env/documents/2019/AIR/EB_Decisions/Decision_2019_2.pdf

➤ Noting further the need for clear priorities in the interest of the most efficient use of resources, Decides to:

➤ 1. Invite the Parties to the amended Gothenburg Protocol, from 2022, to **refrain from making use of the adjustment procedure** provided for in article 3, paragraph 11 quinquies of the amended Gothenburg Protocol, for the purposes of comparing national emission totals with the **2010 emission ceilings** set out in table 1 of annex II to that Protocol; 9/2

➤ Amend its decision 2012/25, by replacing paragraph 3 (b) of the annex with the following: “Consider any submission or referral made in accordance with paragraphs 4 and 5 below, with a view to securing a constructive solution, with the exception, from 2022 onwards, of ongoing or new submissions or referrals of possible non-compliance by a Party to the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended on 4 May 2012, with one of its 2010 emission ceilings set out in table 1 of annex II to that Protocol. **Such submissions or referrals will no longer be considered.**”

➤ Technical paper available under:

https://www.ceip.at/fileadmin/inhalte/ceip/00_pdf_other/2021/uncertainties_and_recalculations_of_emission_inventories_submitted_under_clrtap.pdf

➤ Main messages:

- less than half of the Parties to the Convention on Long Range Transboundary Air pollution reported uncertainty estimates in their inventory submission in 2020
- Wide range of uncertainty estimates reported by Parties: uncertainty estimates for NO_x ranged from 6.9% to 56% in the inventory submission 2020
- Comparing data reported by the Parties for the year 2005 and expert estimates from IIASA* showed that most IIASA expert estimates differed less than 25 % to the reported 2005 data.
- The match between the datasets varied widely between countries.
- With the information provided by Parties it is currently not possible to estimate the uncertainty of pollutant emissions in the whole EMEP area.
 - *GAINS model (Greenhouse Gas and Air Pollution Interactions and Synergies), Amann et al. 2011

Contact and Information

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Questions to CEIP for the Gothenburg Protocol Review 2/2

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N°	Question	Who	Timing
3	Review of adequacy of obligations in attaining the environmental and health objectives of the Protocol		
3.1	a. What are the latest emission projections by the Parties,	CIAM, TFIAM, TFTEI, TFRN, TFEIP	Fall 2021
4	Evaluation of mitigation measures for black carbon emissions		
4.1	What is the current coverage and quality of black carbon (elemental carbon and organic carbon) emission reporting?	CEIP, TFEIP	Spring 2021
4.4	What will be the impact of the inclusion of condensables in reporting of particulate matter emissions for residential heating on the national emission trends and on the importance of the residential heating sector? What will be the effect of the inclusion of particles from condensables on the effectivity of abatement measures? What particulate matter emission reductions will be achieved between 2005 and latest reported year based on the inclusion of condensables in reporting of particulate matter emissions compared to its non-inclusion? What is the difference between optimized emission reduction allocations with and without particles from condensables?	CEIP, CIAM, TFTEI	Spring 2022

Questions to CEIP for the Gothenburg Protocol Review 1/2

N°	Question	Who	Timing
15	Review of obligations in relation to emission reductions		
1.1	What is the status of meeting the 2020 emission reduction obligations by the Parties?	CEIP	Spring 2022
1.2	<p>a. What is the quality of reported emission data by parties in terms of comparability, completeness, consistency, accuracy and transparency?</p> <p>b. What are the uncertainties for key categories?</p> <p>c. What is the current coverage and quality of emission reporting for shipping?</p> <p>d. What are the key findings and recommendations of the stage 1, 2 and 3 reviews of the emission inventories reported by non-Parties to the Gothenburg Protocol?</p> <p>e. Is the EMEP/EEA air pollutant emission inventory guidebook sufficiently comprehensive and fit for purpose to support quality emission data? What are the main gaps and challenges? For which sectors and pollutants does the guidance need to be further improved? In what way?</p>	CEIP, TFEIP	Spring 2021
1.3	<p>How do updated and most recently reported emission estimates for the base year 2005 compare to the 2005 estimates listed in tables 2–6 of annex II to the amended Protocol?</p> <p>For which pollutants and categories have Parties submitted an adjustment application between 2014 and 2020? What are the relative differences between reported totals and adjusted totals for these pollutants and categories for the historic years between 2010 and now?</p>	CEIP, TFEIP	Spring 2022
1.4	a. What are the emission trends of the various pollutants from 2005–2018?...	TFEIP, TFIAM	Fall 2021 - Spring 2022

CEIP

06.05.2021

Source: ECE/EB.AIR/WG.5/2021/4: Draft annotated outline of the report on the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone