

CEIP activities 2023- Plans for 2024

Present state of emission data, review process and
data for modelers

(ECE/EB.AIR/GE.1/2023/4
ECE/EB.AIR/WG.1/2023/4)

Ninth joint session of the EMEP Steering Body and the Working Group on Effects

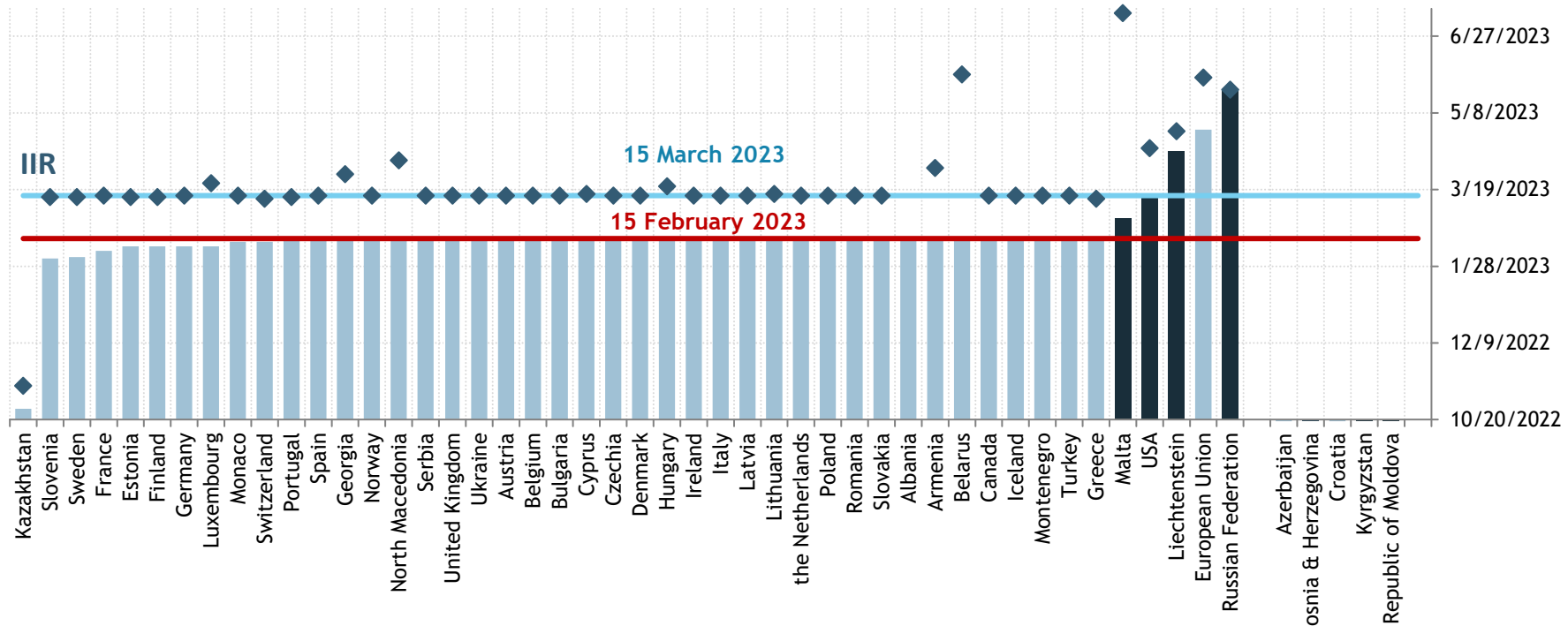
11-15 September
Geneva

Sabine Schindlbacher, Robert Wankmüller, Bernhard Ullrich, Bradley Matthews

Status of reporting

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As of 07.09.2023



CEIP umweltbundesamt[®]

➤ <https://www.ceip.at/status-of-reporting-and-review-results>

CEIP umweltbundesamt[®]

Status of reporting – a few numbers

- ➔ 46 inventory submissions (3 after the deadline)
- ➔ 45 Informative Inventory Reports (10 after the deadline)
- ➔ 42 full time series (1990/2000 to 2021)
- ➔ 40 Black Carbon Inventory Submissions
- ➔ 3 Gridded/LPS datasets
- ➔ 4 previously granted adjustment applications
- ➔ 22 Parties included quantitative information on uncertainty estimates for the main pollutants in their IIR

Last available submission (NFR tables)

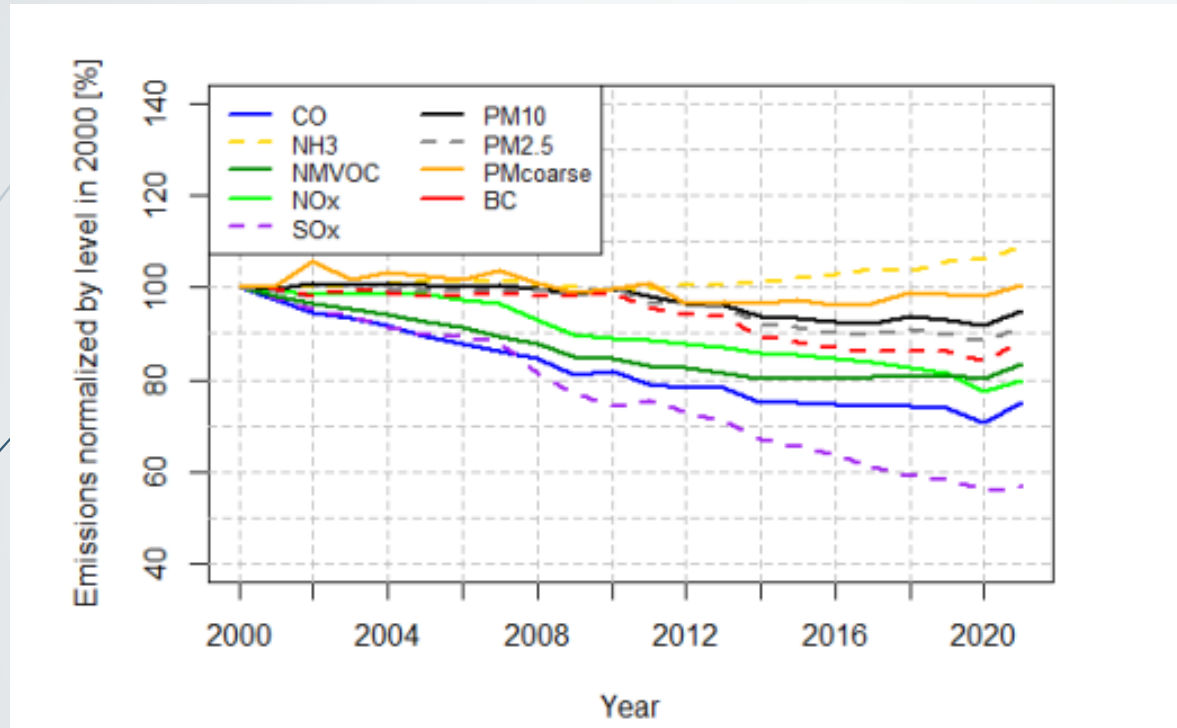
- ➔ Croatia: 2022
- ➔ Republic of Moldova: 2022
- ➔ Kyrgyzstan: 2020
- ➔ Azerbaijan: 2019
- ➔ Bosnia & Herzegovina: no submission so far

2023 – projections reporting year

- 33 Projection datasets
- Many countries submitted the projected data late
- **Several Countries did not report projected emission data in 2023**
 - Croatia
 - Albania
 - Armenia
 - Azerbaijan
 - Belarus
 - Bosnia & Herzegovina
 - Georgia
 - Kazakhstan
 - Kyrgyzstan
 - Liechtenstein
 - Montenegro
 - Republic of Moldova
 - North Macedonia
 - Russian Federation
 - Serbia
 - Turkey
 - Ukraine
 - USA

Emission Trends in EMEP-area

Main pollutants and PM - 2000 to 2021



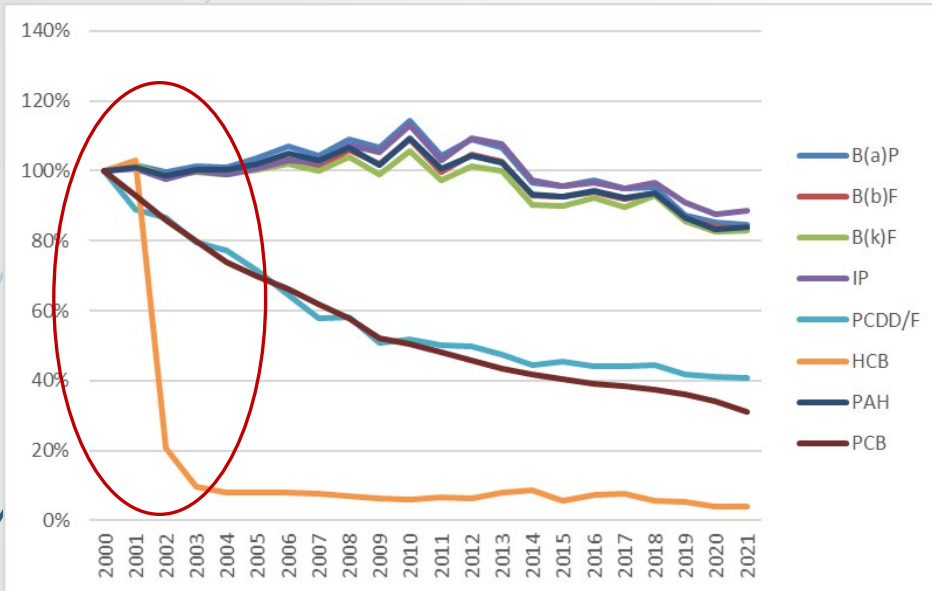
Source: Status Report 1/2023 Transboundary particulate matter, photo-oxidants, acidifying and eutrophying components (Emissions from international shipping in the sea regions are excluded).

- More in Status Report 1/2023 *"Transboundary particulate matter, photo-oxidants, acidifying and eutrophying components"* Joint MSC-W & CCC & CEIP & CIAM Report

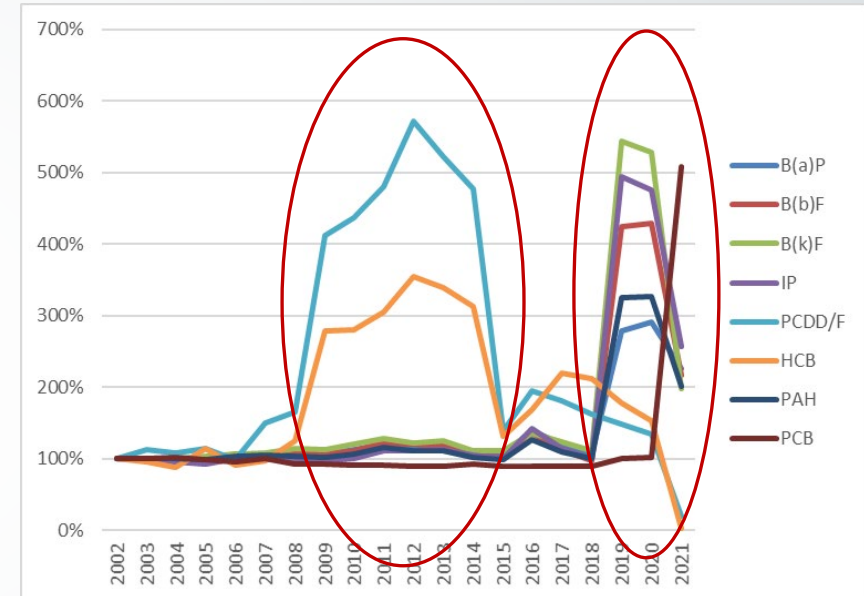
Emission Trends in EMEP-area – POPs

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Emission trends of POPs 2000-2021 in the **EMEP West area (reported data)**



Emission trends of POPs 2002-2021 in the EMEP **East area (reported data)** excluding the Russian Federation, Ukraine, HCB from Kazakhstan and Georgia and PCDD/F from Kazakhstan.



Source: Air emissions of heavy metals and POP in the EMEP region (Technical Report CEIP 6/2023) in preparation

mainly Germany for G-NFR
sector *B_Industry*

incomplete reporting and inconsistent time series

Emission Database

HOME | WebDab

The Emissions Database

WebDab is the emission database of EMEP (Co-operative programme for monitoring and evaluation of long range transmission of air pollutants in Europe) and open to the public for interactive use via the Internet. Emissions on **Main Pollutants, Heavy Metals, Persistent Organic Pollutants and Particulate Matter** are available as totals/sectors both for officially reported data and gap-filled emissions.

WebDab contains all emission data officially submitted to the Secretariat of the Convention on Long-range Trans-boundary Air Pollution (LRTAP Convention) by the Parties to the Convention.

Reported emission data

National totals and sector data as reported by the Parties [1980 to (N-2) year]

READ MORE

Emissions as used in EMEP models

National totals and sector data as used in EMEP models [1980, 1985, 1990 to (N-2) year]

READ MORE

Reported activity data

Activity data as reported by the Parties [1980, 1985, 1990 to (N-2) year]

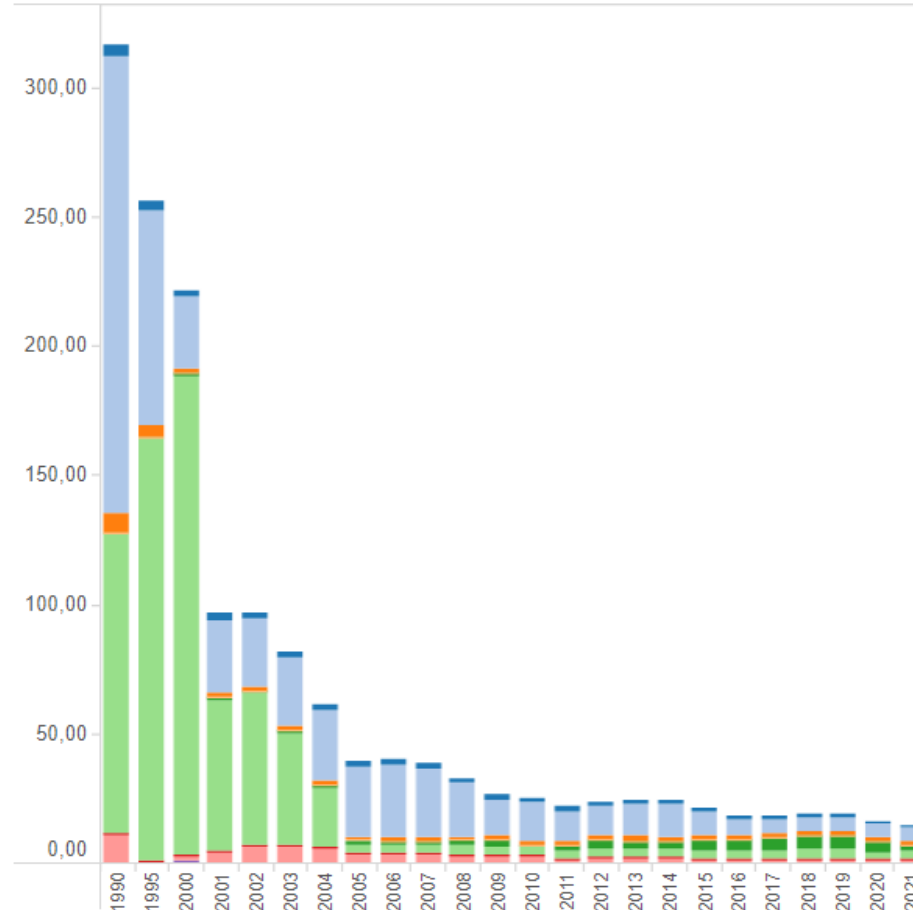
READ MORE

➤ <https://www.ceip.at/webdab-emission-database>

Dataviewer

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Emissions of Pb (tonnes), Czechia



Country

Czechia

Pollutant

Pb

Select level of detail

GNFR Sector

(Alle)

Level of detail

- A_PublicPower
- B_Industry
- C_OtherStationaryComb
- D_Fugitive
- E_Solvents
- F_RoadTransport
- G_Shipping
- H_Aviation
- I_Offroad
- J_Waste

The data presented in this data viewer uses the GNFR14 and NFR14 nomenclature and is the officially reported data submitted up to 01 June 2023.

Review Activities

- ▶ Stage 1 and 2 review: Technical review of all submitted inventories:
<https://www.ceip.at/status-of-reporting-and-review-results/2023-submission>
- ▶ “Inventory review 2023” (Technical report CEIP 4/2023) plus “Data-viewer” and “Methodology report” (Technical report CEIP 5/2022) (both in preparation)
<https://www.ceip.at/ceip-reports>
- ▶ Assessment of Inventory Reports – May, presented during TFEIP meeting
 - ▶ most comprehensive IIR - **Switzerland**
 - ▶ transparent and good looking IIR - **United Kingdom**
 - ▶ significant IIR improvements - **Kazakhstan & Italy**
 - ▶ most complete reporting and best small country in 2023 - **Slovakia.**
- ▶ Ad-hoc review of **41 countries** (May-July)

Stage 3 review 20232 – ad-hoc review

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- In 2023 the review focused on
 - emissions from **agriculture** with a special emphasis on NH₃, NMVOC and NO_x emissions including **gridded** data
 - review of **41 Parties** completed (all Parties that provided NFR tables before the start of the review)
 - all but 2 review reports have been sent for commenting to Parties

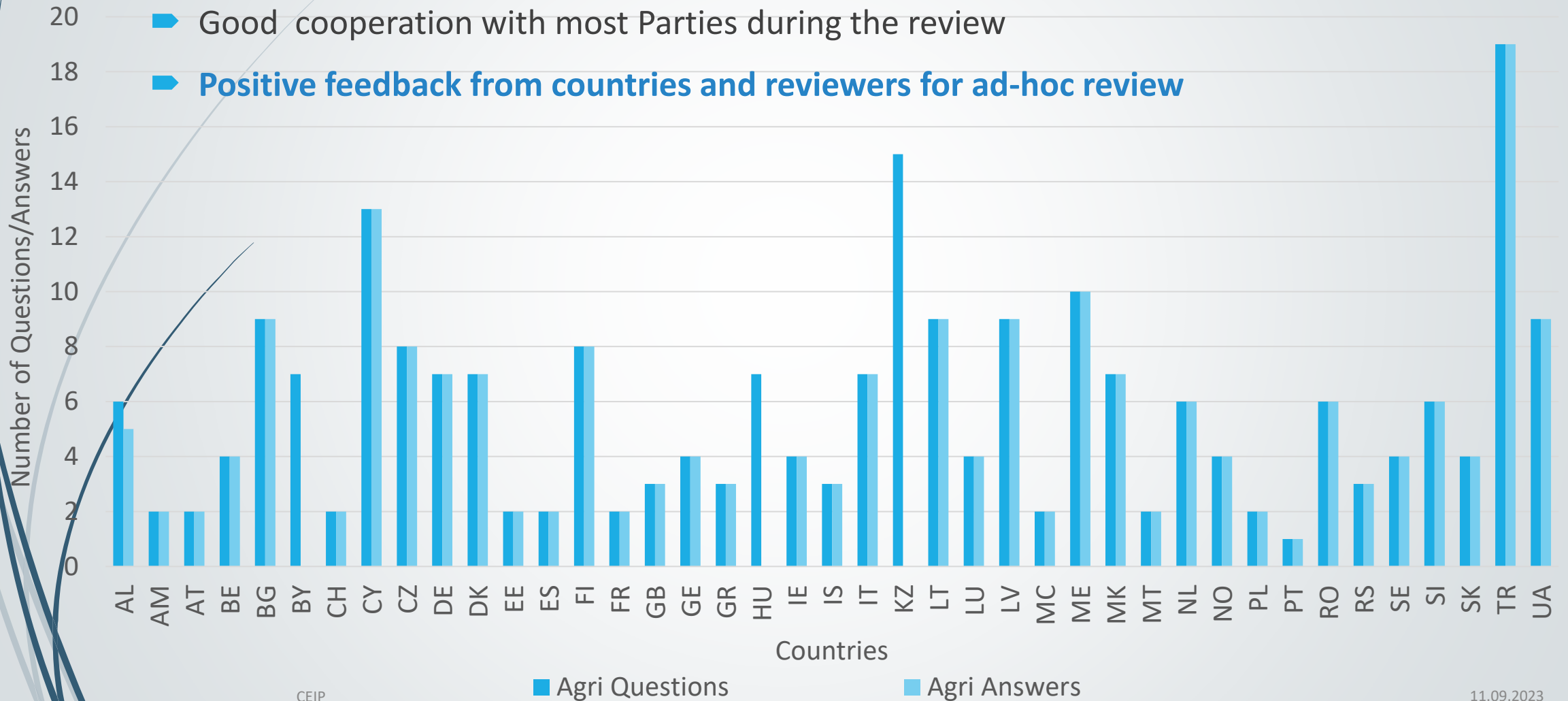
Stage 3 review 2023 – ad-hoc review

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▶ The ERT raised 260 question in total and received 229 answers

▶ Good cooperation with most Parties during the review

▶ Positive feedback from countries and reviewers for ad-hoc review



Stage 3 review 2023 – ad-hoc review

- In-depth review is an important tool for the
 - **improvement** of national emission inventories
 - **capacity building** of air emission inventory experts (reviewers)
- travel/accommodation for five experts from the Western Balkan and the EECCA region was financed via two EU funded projects
 - This resulted in a geographically more balanced Expert Review Team
- **17 reviewers** from 15 different Parties
- 126 reviewers from 30 Parties are listed on the CEIP roster of inventory review experts
- Centralized review meeting very important for **interaction and exchange of expertise** within the review team – good technical discussion, especially if the review focuses on a certain topic

Review of Gridded Data – Trial review

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- ➔ **first time** that **gridded data** was reviewed as part of the CLRTAP stage-3 review
- ➔ good quality of gridded data is extremely important as it is used as a **base for modelling**
- ➔ not only the emission estimates need to be good also the **spatial distribution** is important
- ➔ in many reports the methods are not described transparently
- ➔ gridded data experts were optimistic, that they can **continue** their work of reviewing gridded data in future reviews

Annual technical in-depth review of submitted inventories – 2024 to 2026

- **2024:** Review of the **sector IPPU – solvents** with a special emphasis on NMVOC emissions
- **2025:** Review of **projections**
 - Exact scope will be defined in 2024
- **2026:** Review of the **sector transport** with a special focus on NO_x, NMVOC, CO, PM, BC, Pb, Cd and DIOX emissions

Annual technical in-depth review of submitted inventories – after 2026

- ➔ 2027: Review of the **sector IPPU-non solvents**
- ➔ 2028: Review of the **sector Energy**
- ➔ 2029: Review of the **sector Waste**
 - ➔ For all reviews the scope will be defined before the start of the review, to ensure that the most relevant issues get the attention of the review team

Long term thoughts for the review

- Should the review focus on countries with inventories that need improvement the most
- more time to review inventories that need major improvements, so overall the quality of EMEP wide estimates would improve more, provided that the Parties implement the recommendations of the review team
- the review team would have more time to calculate technical corrections, which is a direct help for the national inventory compilers
- it would even be possible to organize in-country reviews
- **but**
- is it an equal treatment of countries?
- would countries that are not reviewed (frequently) still send reviewers?
- implications for compliance checking?

Country	Data source to be used for GNFR C	Country	Data source to be used for GNFR C
Albania	CEIP- gap-filled	Latvia	CEIP- reported by Party
Armenia	CEIP- gap-filled	Liechtenstein	CEIP- gap-filled
Austria	REF2	Lithuania	REF2
Azerbaijan	CEIP- gap-filled	Luxembourg	REF2
Belarus	REF2	Malta	CEIP- reported by Party
Belgium	CEIP- reported by Party	Monaco	CEIP- reported by Party
Bosnia & Herzegovina	REF2	Montenegro	REF2
Bulgaria	CEIP- reported by Party	Netherlands	CEIP- reported by Party
Croatia	CEIP- gap-filled	North Macedonia	CEIP- reported by Party
Cyprus	CEIP- reported by Party	Norway	CEIP- reported by Party
Czechia	CEIP- reported by Party	Poland	CEIP- reported by Party
Denmark	CEIP- reported by Party	Portugal	CEIP- reported by Party
Estonia	REF2	Republic of Moldova	REF2
Finland	CEIP- reported by Party	Romania	CEIP- reported by Party
France	CEIP- reported by Party	Russian Federation	REF2/CEIP
Georgia	REF2	Serbia	CEIP- reported by Party
Germany	REF2	Slovakia	CEIP- reported by Party
Greece	CEIP- reported by Party	Slovenia	CEIP- reported by Party
Hungary	CEIP- reported by Party	Spain	CEIP- reported by Party
Iceland	CEIP- reported by Party	Sweden	CEIP- reported by Party
Ireland	CEIP- reported by Party	Switzerland	REF2
Italy	CEIP- reported by Party	Türkiye	CEIP- gap-filled
Kazakhstan	REF2/CEIP	Ukraine	REF2
Kyrgyzstan	CEIP- gap-filled	United Kingdom	CEIP- reported by Party

Data source for PM emission in GNFR C used in EMEP models in 2023

11.09.2023

Gridded Emission Datasets – data for modelers

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- Gridded emission data for modellers in 0.1°x 0.1° long/lat distribution on GNFR sector level
- Main pollutants, CO, PMs, BC - **years 1990 to 2021**
- HMs and POPs - year 2021
- **Available for download as CSV und NetCDF** at <https://www.ceip.at/the-emep-grid/gridded-emissions>
- Gap-filling process and the use of reported data is documented in the Reports: “Methodologies applied to the CEIP GNFR gap-filling 2023”
<https://www.ceip.at/ceip-reports>
- 36 countries in total reported sectoral gridded emissions in 0.1°x 0.1° long-lat resolution until June 2023 (either in 2021 or 2022 or 2023)

CEIP

11.09.2023

Work Plan Item	Activity description	Resource requirements and/or funding source
1.1.1.4 and 1.1.2.3	Contribute to work on condensables	EMEP budget and additional resources required
1.1.2.1	Investigate practicalities and processes required for including CH4 in annual emissions inventory reporting	Additional resources required
1.1.2.4	Develop guidance on estimating and Party's reporting of emissions of BC	Additional resources required
1.1.2.5	Improve spatial distribution of emissions , assuring consistency across pollutants. Explore new data sources	Additional resources required
1.1.2.6	Improve data for modellers: comparison of EMEP gridded emissions with other sources (CAMS, GAINS, EDGAR, Fairmode)	EMEP budget
1.1.2.8	Refine gap-filling of reported shipping emissions	EMEP budget
1.1.2.9	Improve methods for gap-filling of HM and POPs data sets	EMEP budget
1.3.8	Cooperation with Arctic Council and AMAP	AMAP, Additional

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