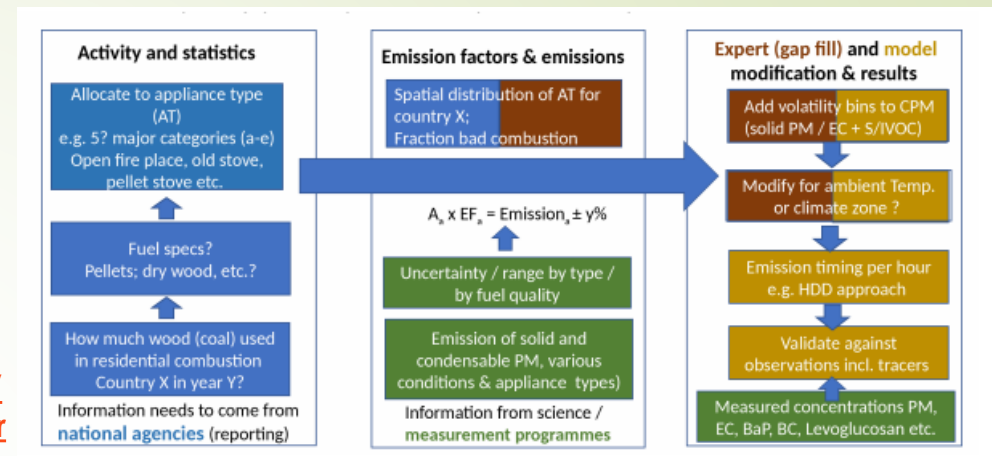


Ad hoc expert group on condensables

WGSR – April 2022

Implementation of the road-map on Condensables (Workshop 2020)

https://emep.int/publ/reports/2020/emep_mscw_technical_report_4_2020.pdf




Ad hoc group : T

- CLRTAP experts: TFEIP, CEIP, TFIAM, CIAM, TFMM, MSC-west, TFTEI co-chairs
- National experts: Canada, Czech Republic, European Commission, France, Germany, Netherlands, Poland, Norway, Sweden, UK, US



Progress of work

- ▶ 3 meetings so far (05/11/2021, 13/12/2021, 05/04/2022)
- ▶ Relevance of accounting for condensable has been acknowledged by both science and policy bodies but science and compliance issues should be decoupled
- ▶ With respect to an EB decision, EMEP centers were encouraged to carry out modelling work using up-dated emission estimates that account for the condensables in organic PM. The Ref2 inventory developed by TNO (NL) was a good candidate
- ▶ The Nordic Council of Ministers supported a project that aimed at revising historical PM_{2.5} emissions from residential wood combustion to consistently include condensable organics and assess the implications for the Gothenburg Protocol (June 2021-June 2022)



The road-
map : a
step-wise
approach
(as agreed
in 2021)

ST

Year 1: Running the EMEP model with a top-down science-based emission inventory : TNO/Ref2 is a good candidate to illustrate the impact of condensables on PM concentrations
-> **done (see EMEP/MSWEE status report 2021)**

MT

These top-down estimates **should be increasingly replaced by national estimates** when they are available and once procedures are more harmonized

Approach/updates should be tied to TFEIP **with successive improvement of the reporting and transparency** of the activity data and emission factors used
Strong involvement of national experts

LT

Long-term scientific work will continue: for instance with modellers (TFMM) who will have to account for the complex issues regarding volatility within the condensables and PM fractions

The Ref2 emission inventory

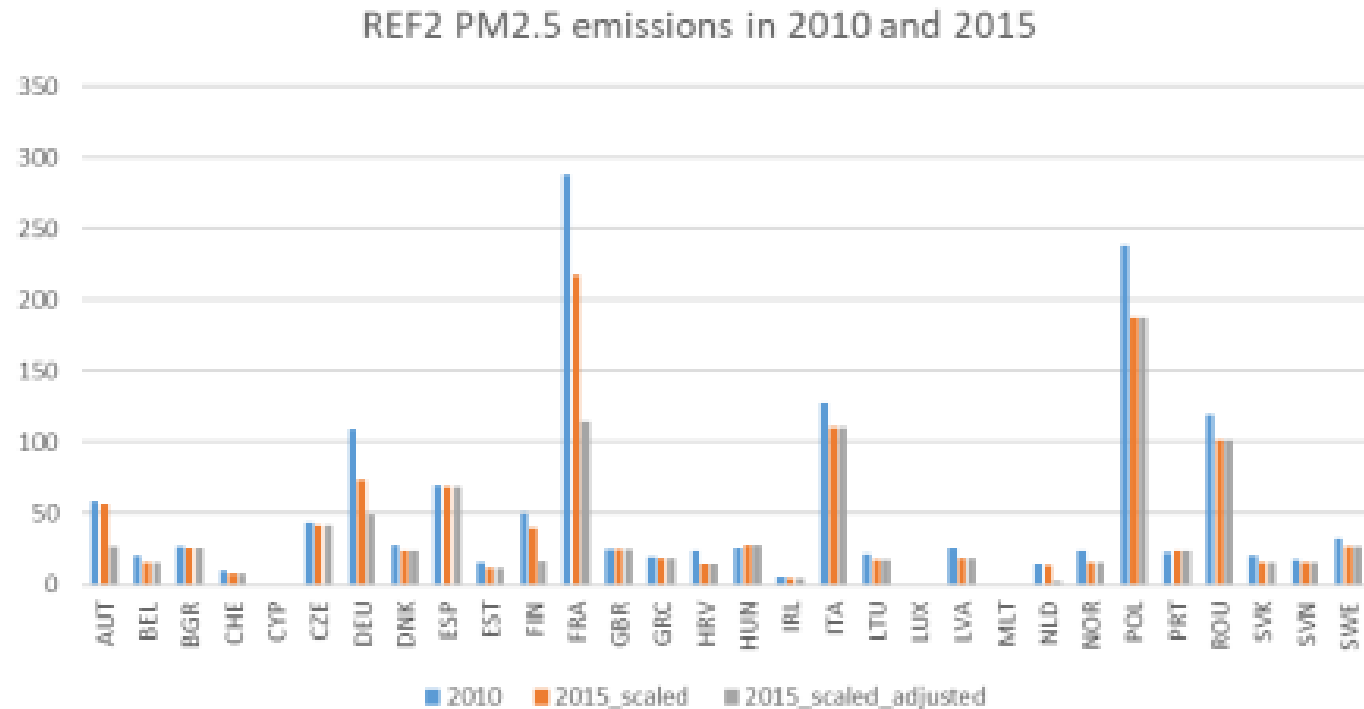
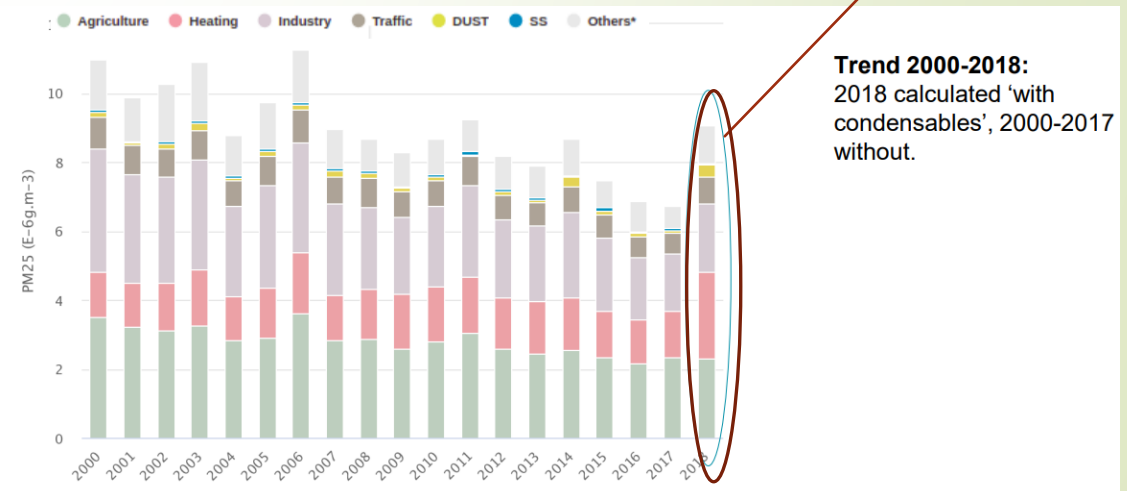
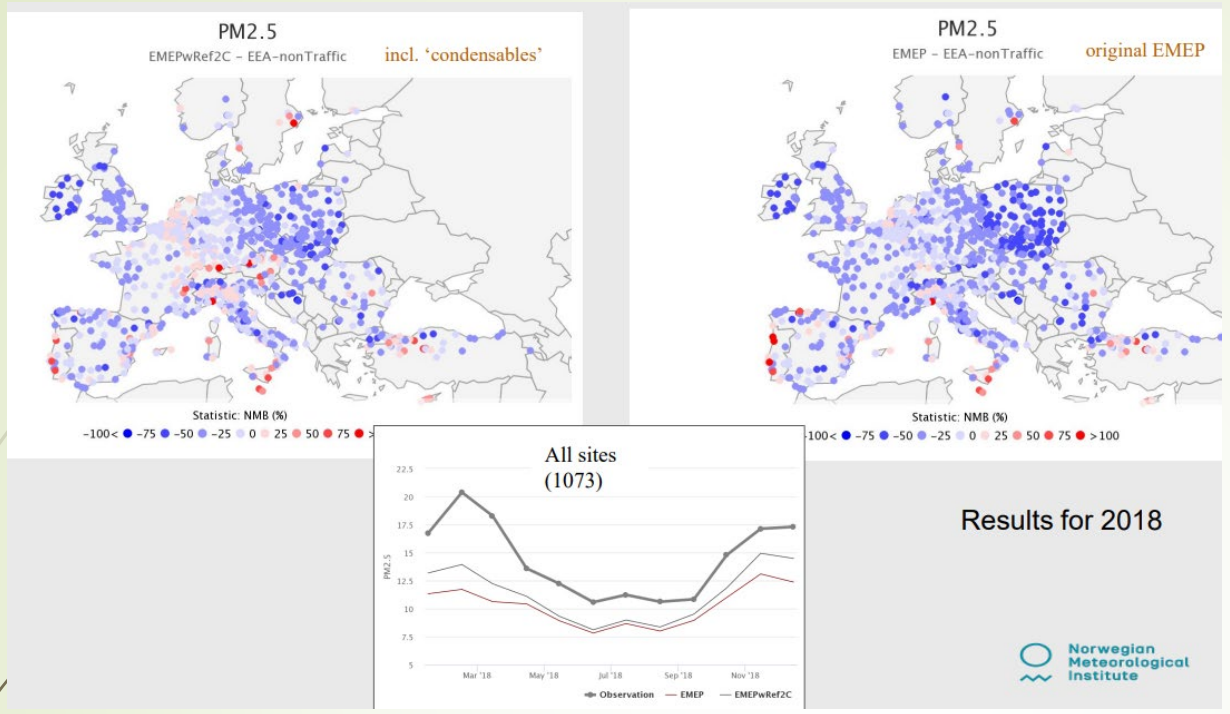


Figure 3.3: Results for REF2 for 2010 (original), 2015 (after scaling, used in EMEP 2020) and REF2.1 for 2015 (after scaling + adjustment for 5 countries, used in EMEP 2021). Unit: Gg.



Modelled contributions from different sectors to PM_{2.5}, Poland. Increased importance of residential heating when including condensable organics.

A first “composite” inventory (2021)

Reported: 26 Parties

Ref 2: 17 Parties

Gap-filled: 5 Parties

Party	Data source for PM emission in GNFR C	Party	Data source for PM emission in GNFR C	Party	Data source for PM emission in GNFR C	Party	Data source for PM emission in GNFR C
Albania	Ref2	Denmark	CEIP, reported	Italy	CEIP, reported	Netherlands	CEIP, reported
Armenia	CEIP, gap-filled	Estonia	Ref2	Kyrgyzstan	CEIP, gap-filled	Norway	CEIP, reported
Austria	Ref2	Spain	CEIP, reported	Kazakhstan	CEIP, gap-filled	Poland	Ref2
Azerbaijan	CEIP, gap-filled	Finland	CEIP, reported	Liechtenstein	CEIP, reported	Portugal	CEIP, reported
Belgium	CEIP, reported	France	Ref2	Lithuania	Ref2	Romania	CEIP, reported
Bosnia & Herzegovina	Ref2	United Kingdom	CEIP, reported	Luxembourg	CEIP, reported	Serbia	CEIP, reported
Bulgaria	CEIP, reported	Georgia	CEIP, gap-filled	Latvia	CEIP, reported	Russian Federation	Ref2 + CEIP (gap-filled)
Belarus	Ref2	Greece	CEIP, reported	Monaco	CEIP, reported	Sweden	CEIP, reported
Switzerland	Ref2	Croatia	CEIP, reported	Republic of Moldova	CEIP, reported	Slovenia	CEIP, reported
Cyprus	Ref2	Hungary	CEIP, reported	Montenegro	Ref2	Slovakia	Ref2
Czechia	CEIP, reported	Ireland	Ref2	North Macedonia	CEIP, reported	Turkey	Ref2
Germany	Ref2	Iceland	CEIP, reported	Malta	CEIP, reported	Ukraine	Ref2

2021

Current status

- Progress in the NMR modelling project and assessment of impacts in IAM tools (S/R relationships); full time series 2005-2020
- **Simulations run by MSC-West and IIASA to assess the impact of updated emission data on PM**
 - ❑ Extensive literature review to update emission factors
 - ❑ Crucial importance of activity data (types of appliances, type of fuel used, amount of fuel used)
 - ❑ Uncertainties in spatial distributions – urban/rural allocation
 - ❑ Higher uncertainties in West Balkans and EECCA countries
- **Several countries implemented field campaigns to better assess emission factors**
 - ❑ CZ, DE, FR, NO, PL ... + US experience
 - ❑ Collection of new data for both emission factors and activity data will help in improving reported emissions
- **Progressive replacement of some “Ref2” data by national official estimates**
 - ❑ What can we learn from the IIR?
 - ❑ Expected outcomes of the upcoming in-depth review carried out by CEIP in 2022?
 - ❑ Priorities for future update of the emission inventory guidebook (2023)



Next steps

- **IIR reported in 2022**
 - ❑ 39 Informative Inventory Reports have been submitted so far
 - ❑ 21 countries provided information about the inclusion of the condensable component within their PM emission estimates
- **In-depth 2022 review of the RWC sector and condensables carried out until June**
- **Interim extensive discussion during a dedicated workshop organised with the support of the European Commission on 26-27 April 2022 (Brussels)**
- **Update of the emission inventory guidebook in 2023**
- **Longer term science actions**
 - ❑ Characterisation of IVOC and SVOC?
 - ❑ Improving parametrizations of chemistry models
 - ❑ Updating emission factor database with national emissions measurement programs



Thank you for your attention !