



FAIRMODE Emission Composite Mapping (ECM) and Metadata requests

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FAIRMODE Plenary Meeting
2nd March 2021

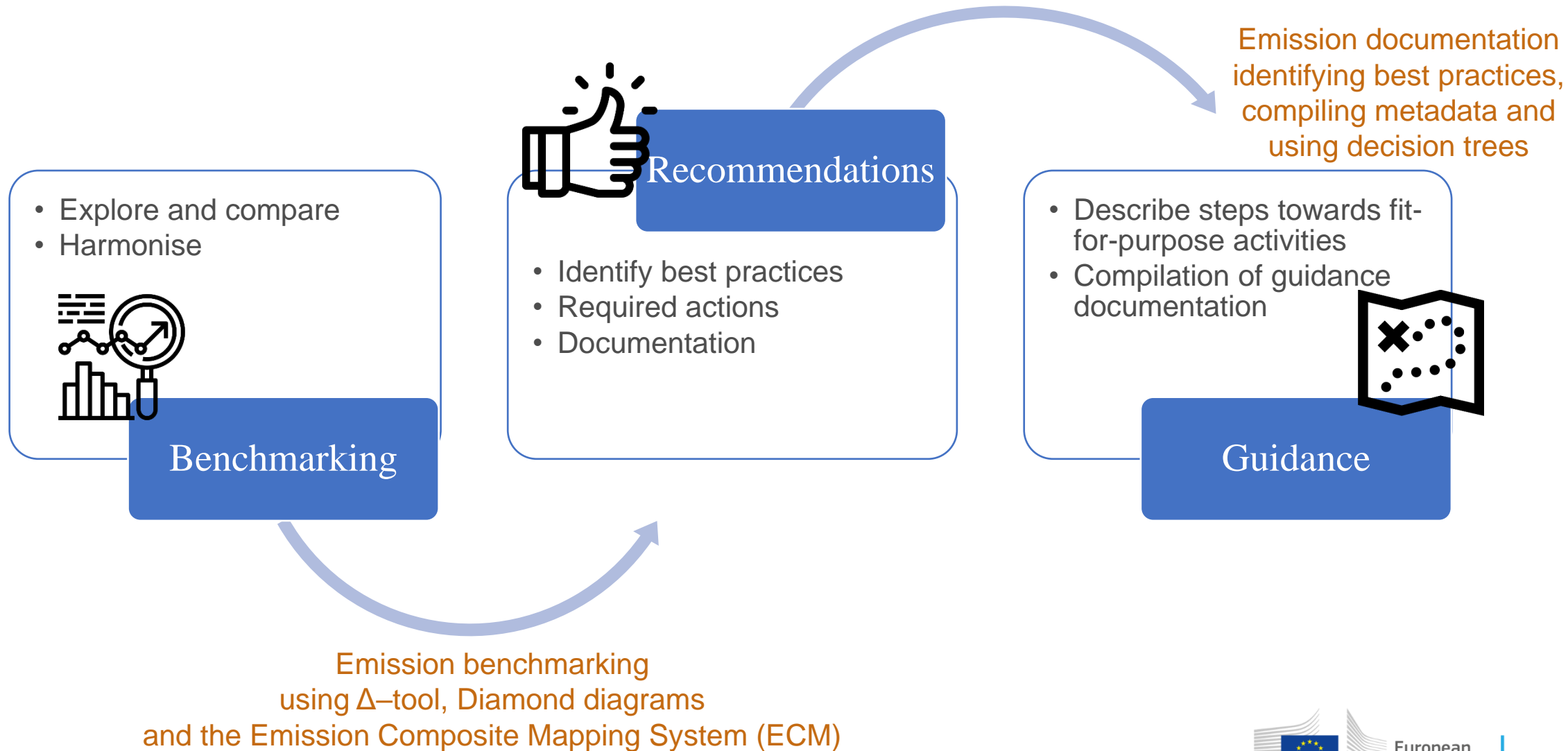


Documenting emissions - metadata

CT7- High resolution emissions

2nd March 2021

FAIRMODE approach - Implementation strategy



Search by name

Year

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Sector

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Filter selection to map boundaries

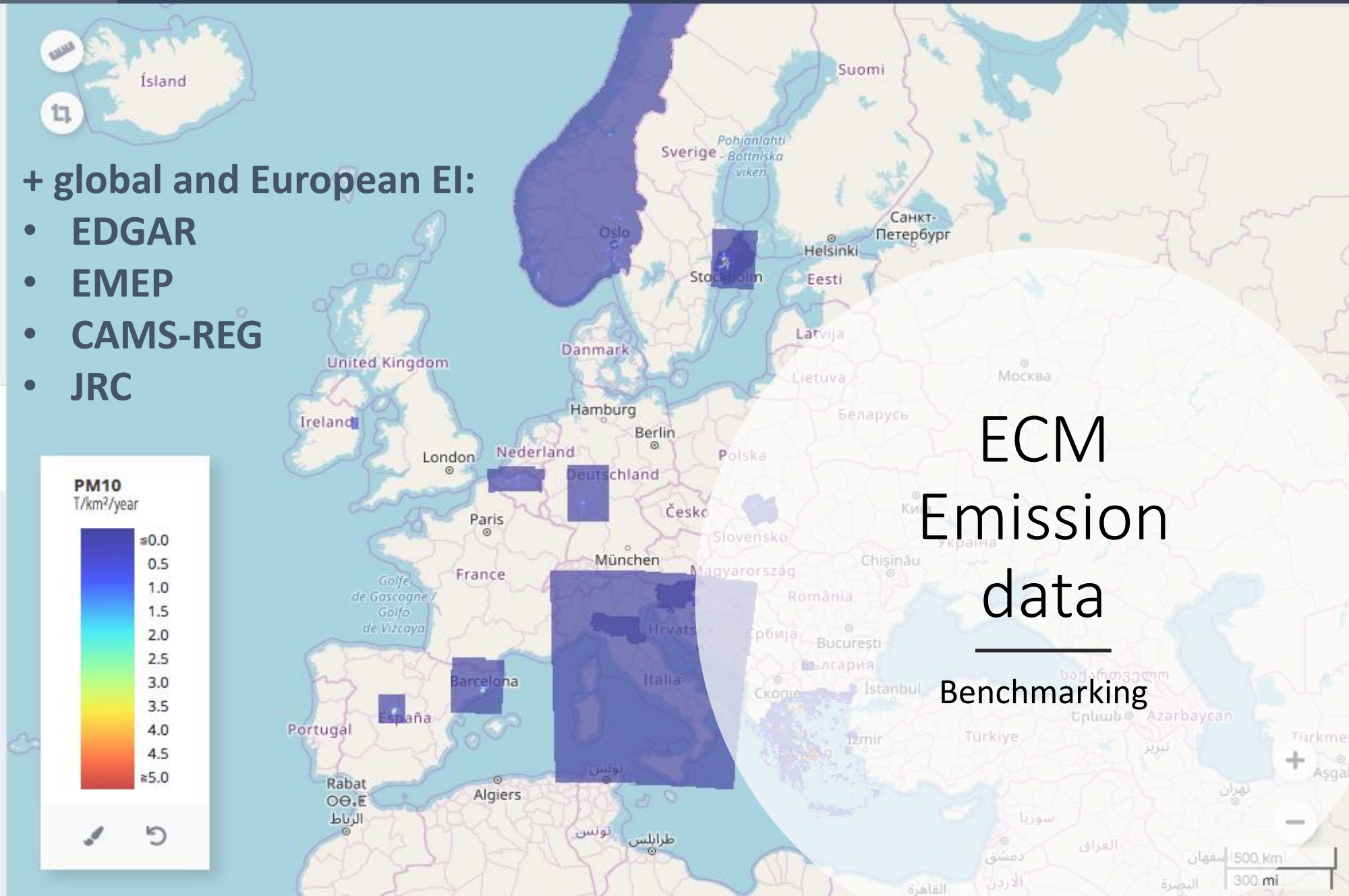
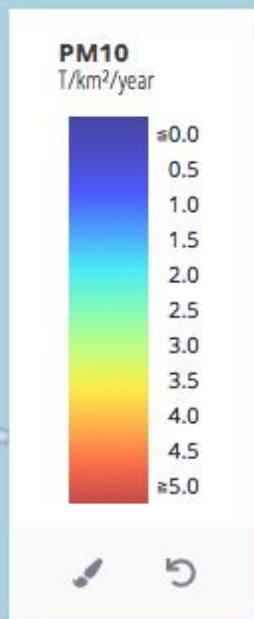
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ACTIVE LAYERS

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- SLB 2015 S7 SE
- VITO 2015 S7 BE
- SMHT 2015 S7 SE
- MET_NORWAY_2016_S7_NO

+ global and European EI:

- EDGAR
- EMEP
- CAMS-REG
- JRC



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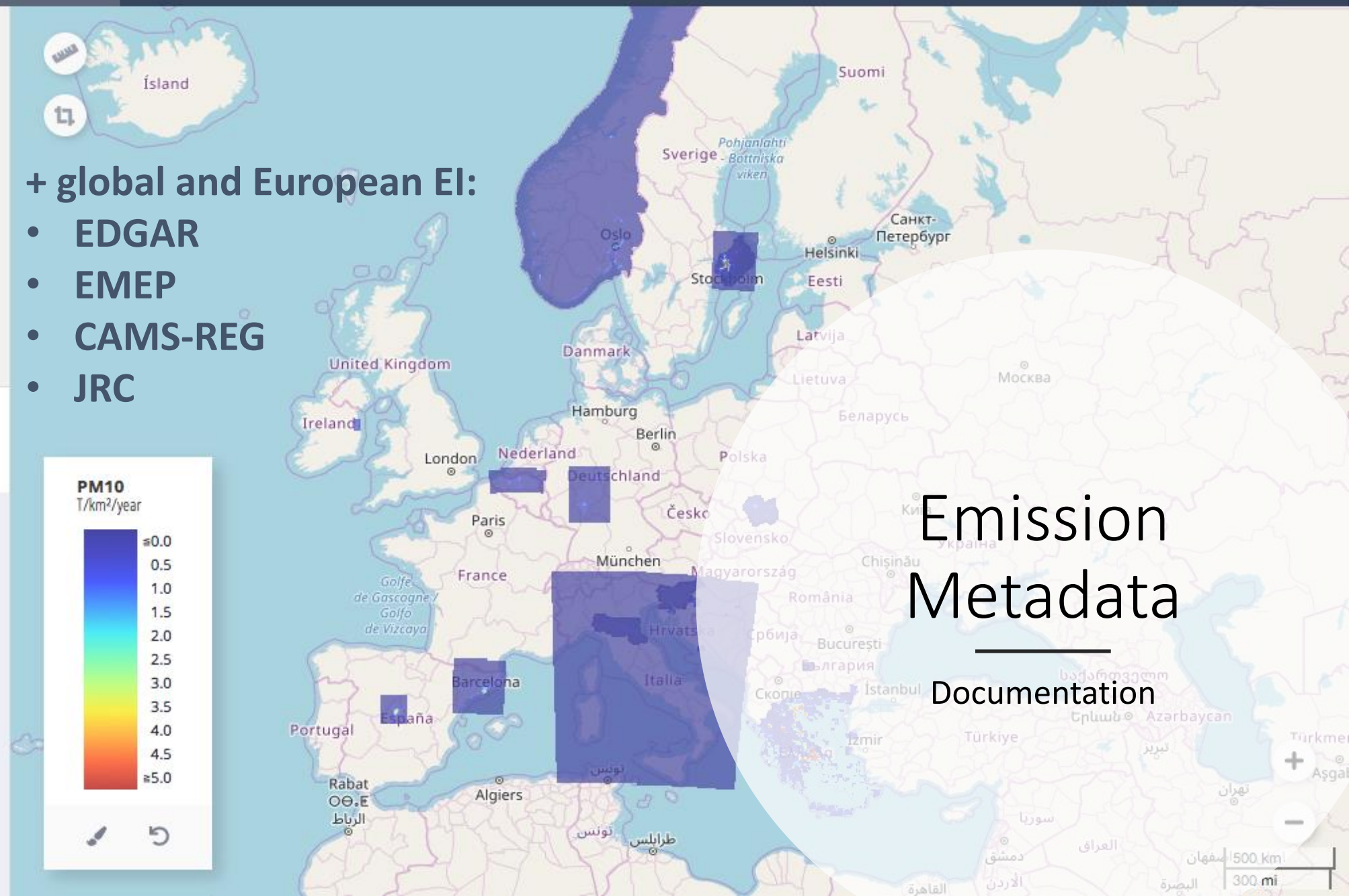
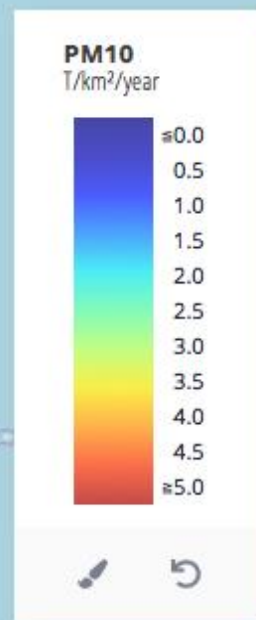
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Current metadata request in ECM

DATA BASE: META DATA

	CONCENTRATION	EMISSIONS	
COMMON ATTRIBUTES	Pollutant		
	Country /area (= region/city/...)		
	Model name		
	Year		
	Documentation		
	Version		
	Output frequency		
	Map projection system (EPSG code)		
	SPECIFIC	Model type (Eulerian, ...)	Emission sector (SNAP or GNFR)
		Data assimilation	Estimation approach (bottom up, ...)

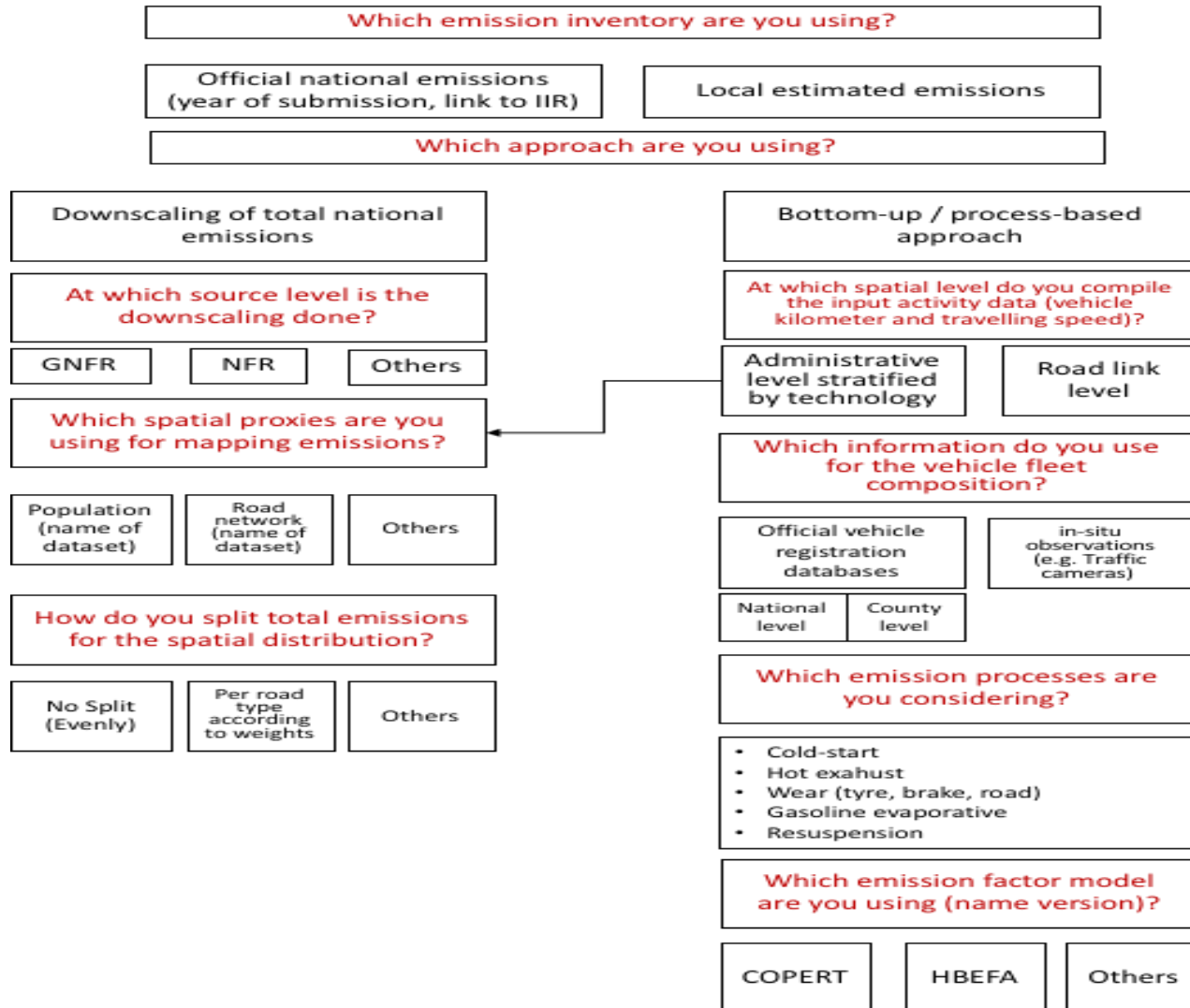
Proposal for revised metadata request in ECM

Field	Contents- Proposed revised metadata
Code	A descriptive label for the data chosen by the user
Participant	Account owner, user that is logged in to upload the maps
Affiliation	Details on the Account owner (e.g. Institute)
Emission Model Name	Name of the emission model - common to e-Reporting request
Emission Model Version	Version of the emission model - common to e-Reporting request
Year	Year of the emission data – common to e-Reporting request
Output frequency	Yearly, monthly, daily, hourly
Sector	Sector code based on the SNAP nomenclature (S1 – S10) or GNFR nomenclature (Gnfr_A – Gnfr_N)
Emission Estimation approach	Methodology used to estimate/model the emissions: “Bottom-Up”, “Top-Down”, Inverse Modelling
Spatial distribution approach	Methodology used to spatially distribute emissions: “Bottom-Up”, Downscaling
Documentation on-line	Multiple choice at CM decision tree
Documentation	Link to publications/references
Pollutant	CO, NH ₃ , NMVOC, NO _x , PM ₁₀ , PM _{2.5} , SO ₂
Country	Name of the country selected from a drop down list
Area	In case the map refers to a part of a country: city, region, ...
EPSG code	EPSG code for the map projection system

Road transport - On-line Decision Tree



Decision tree – Road transport



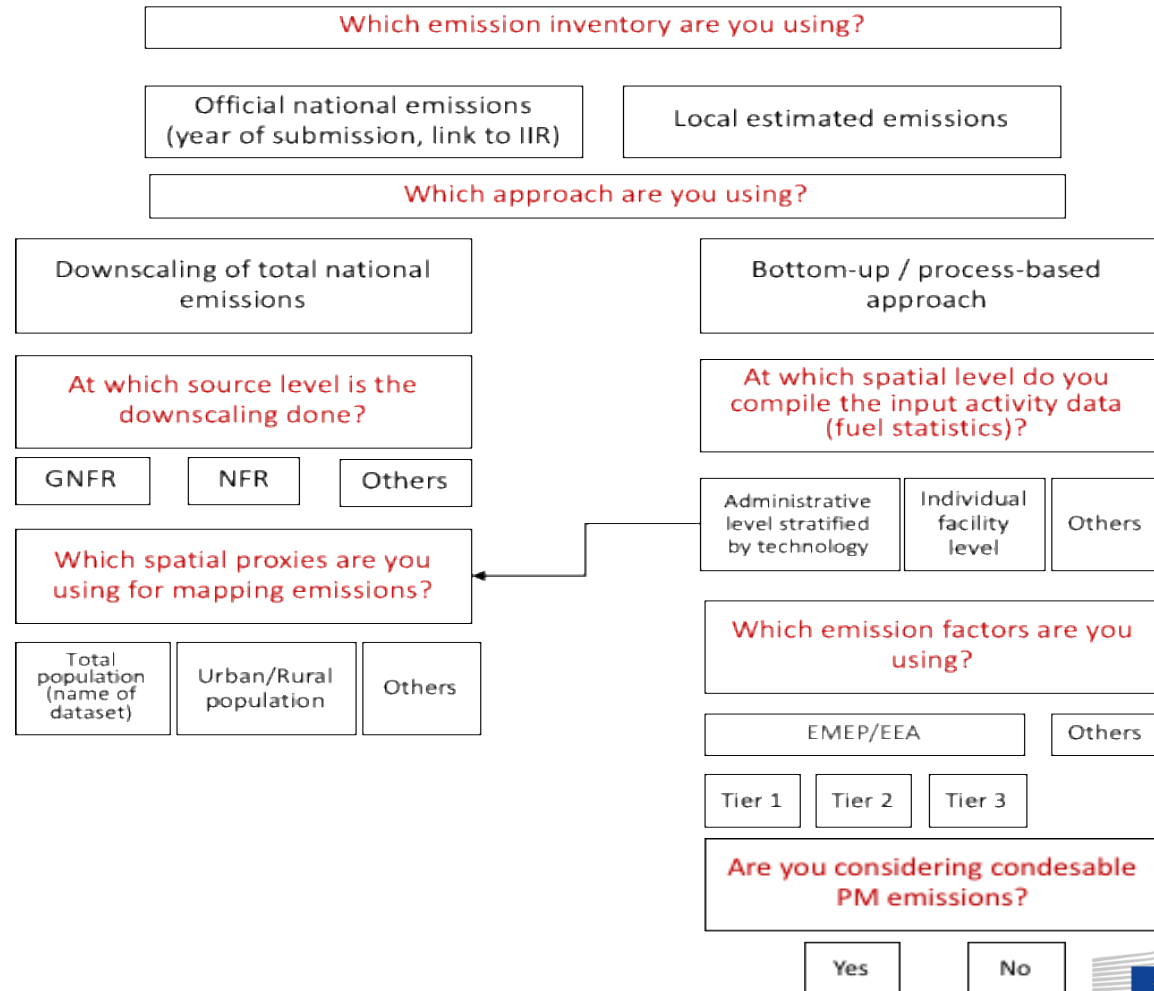
- ❑ Should balance complexity vs expert information
- ❑ Involves intrinsic guidance
- ❑ Provides information for expert review
- ❑ Demands actual knowledge of the emissions to upload them
- ❑ To be implemented as part of the ECM website

Residential Heating - On-line Decision Tree

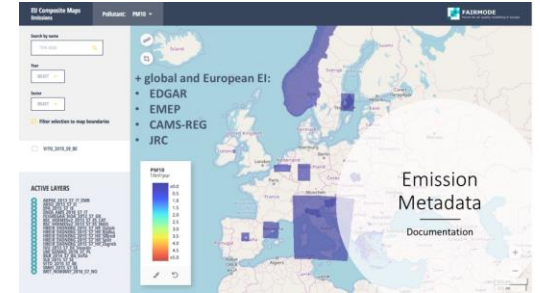


- ❑ Road traffic best practice document available
- ❑ Best practices document for residential heating beyond EMEP/CORINAIR not available
- ❑ Decision tree as implicit guidance

Decision tree – Residential/Commercial combustion



Next steps



- Revision of the metadata requirements in FAIRMODE ECM
- Testing submission of metadata for existing emission datasets
- Testing the value of the decision tree additional guidance the emission inventories at ECM

Summer 2021

- Discussion at technical meeting (**fall 2021**)
- Identify key messages for discussion with TFEIP experts (**end 2021**)



Suggestions to support the revision of EU rules and links to other CTs

CT7- High resolution emissions

2nd March 2021

Emissions at the core of EUs AQDS

❑ Local/urban emissions are not always adequately represented in national wide inventories

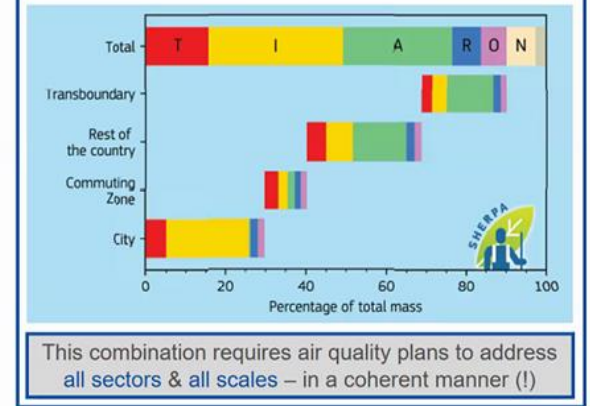
- ❖ Road traffic, Residential heating
- ❖ Construction machinery
- ❖ Navigation, Agriculture

Air quality governance shortcomings

To limit exceedances, competent authorities develop plans, but ...



Example: Air pollution (here: PM_{2.5}) in Frankfurt (DE) is a combination of emissions in the city, its surroundings, the rest of the country and from other parts of Europe:



This combination requires air quality plans to address all sectors & all scales – in a coherent manner (!)

Source(s): Urban PM_{2.5} Atlas: Air Quality in European Cities (JRC, 2017)

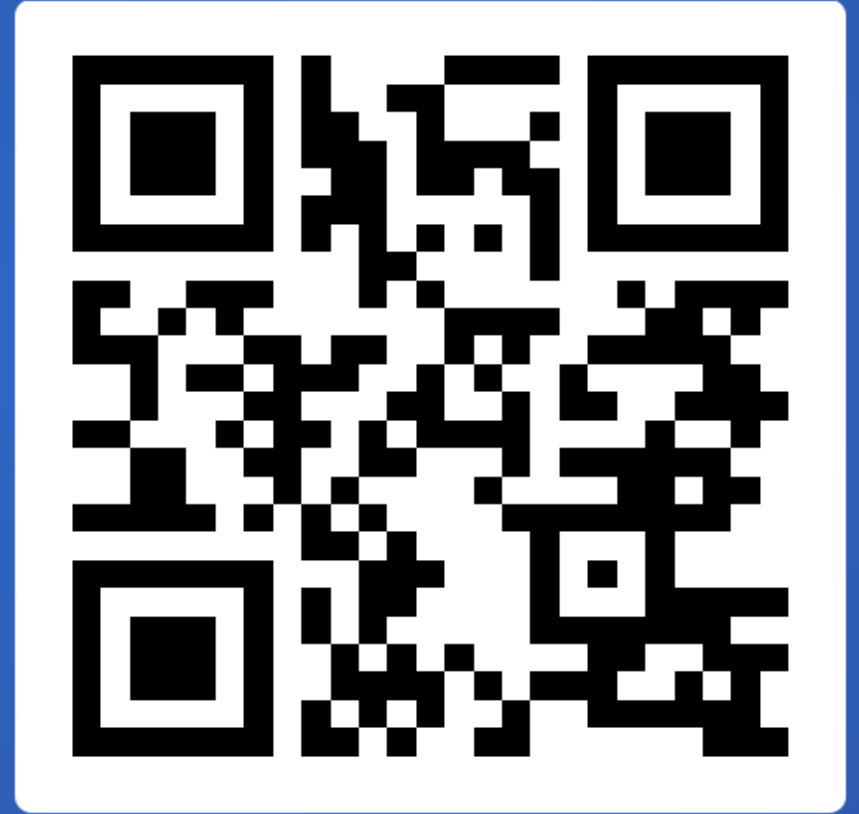
❖ Thomas Henrichs , 1. March 2021 FAIRMODE presentation

Links to other CTs

- ❑ Emission data and information essential for AQ assessments
 - ❖ **Links to CT2** – How should emission information be included in the QA/QC protocol?
- ❑ Emission data and information essential for AQ management
 - ❖ **Links to CT5** – How to best ensure that emission data is consistent at regional and at urban level?
- ❑ Emission data and information essential for AQ plans
 - ❖ **Links to CT9** – How to best estimate emissions projections from identified measures?

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Poll questions (1)

- How should emission information be included in the QA/QC protocol?
 - by providing results from the emission evaluation in the Δ -tool, and diamond diagrams
 - as links to the metadata documentation and decision trees
 - by developing new QA/QC indicators for emissions
 - other

Poll questions (2)

- ❑ How to best ensure that emission data is consistent at regional and at urban level?
 - by requiring local/urban emission data information compilation through legislation
 - by promoting dialogue between national and local inventory experts
 - by compiling evidence of gaps and inconsistencies
 - by extending guidance addressing and correcting gaps and inconsistencies
 - by all the above

Poll questions (3)

- ❑ How to best estimate emissions projections from identified measures?
 - by liaising more strongly with TFEIP experts and IAM modelers
 - by including emission projection models in the AQ management modeling chains
 - by providing extended guidance on how to calculate projections
 - by all the above