International Institute for Applied Systems Analysis
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science for global insight

2nd Clean Air Outlook
&
past/ongoing Balkan and EECCA work

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Center for Integrated Assessment Modelling (CIAM)

Task Force on Emission Inventories and Projections (TFEIP), Projection Expert Panel, 6 May, 2021

Second Clean Air Outlook

- Assesses prospects for achieving the objectives of the NECD for 2030 and beyond.
- Update of the First Clean Air Outlook (CAO1) , including National Air Pollution Control Programmes (NAPCP) and an increased level of ambition for fighting climate change.

For reference: NECD negotiations and CAO1 baseline

- PRIMES 2016 Reference scenario (-30% GHGs in 2030)

CAO2 baseline:

- (PRIMES) Baseline of the Commission's June 2019 assessment of the draft NECPs (National Energy and Climate Plans) of the MS (-40% GHGs targets for 2030)

Additional climate policy variants:

- '1.5 TECH' and '1.5 LIFE' scenarios of the EU 2050 climate strategy vision: Net zero GHG emissions in 2050

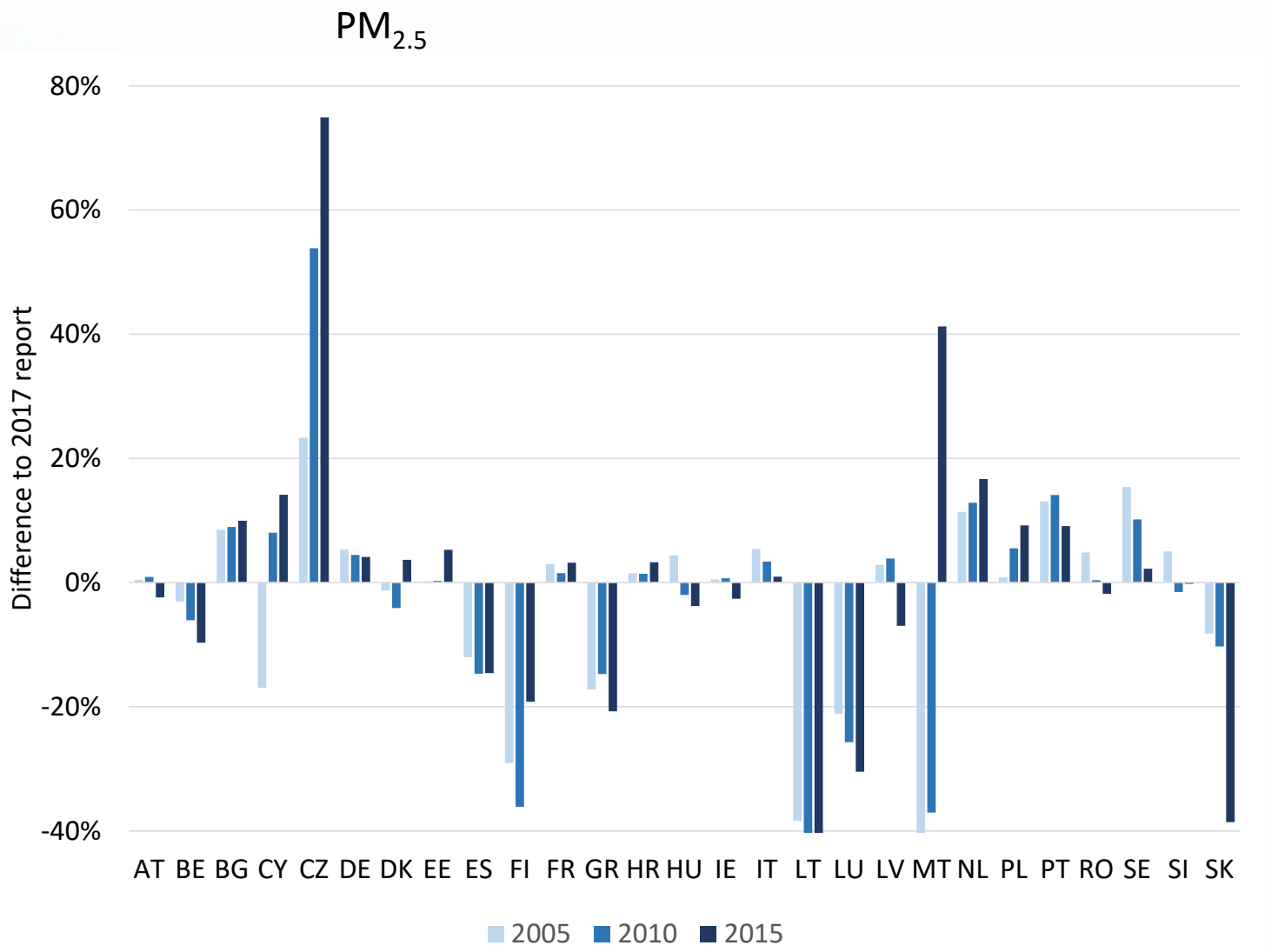
The 2030 Climate Ambition of the European Green Deal

- (-55% GHGs in 2030) – The Mix55 Scenario of the Commission's Impact Assessment

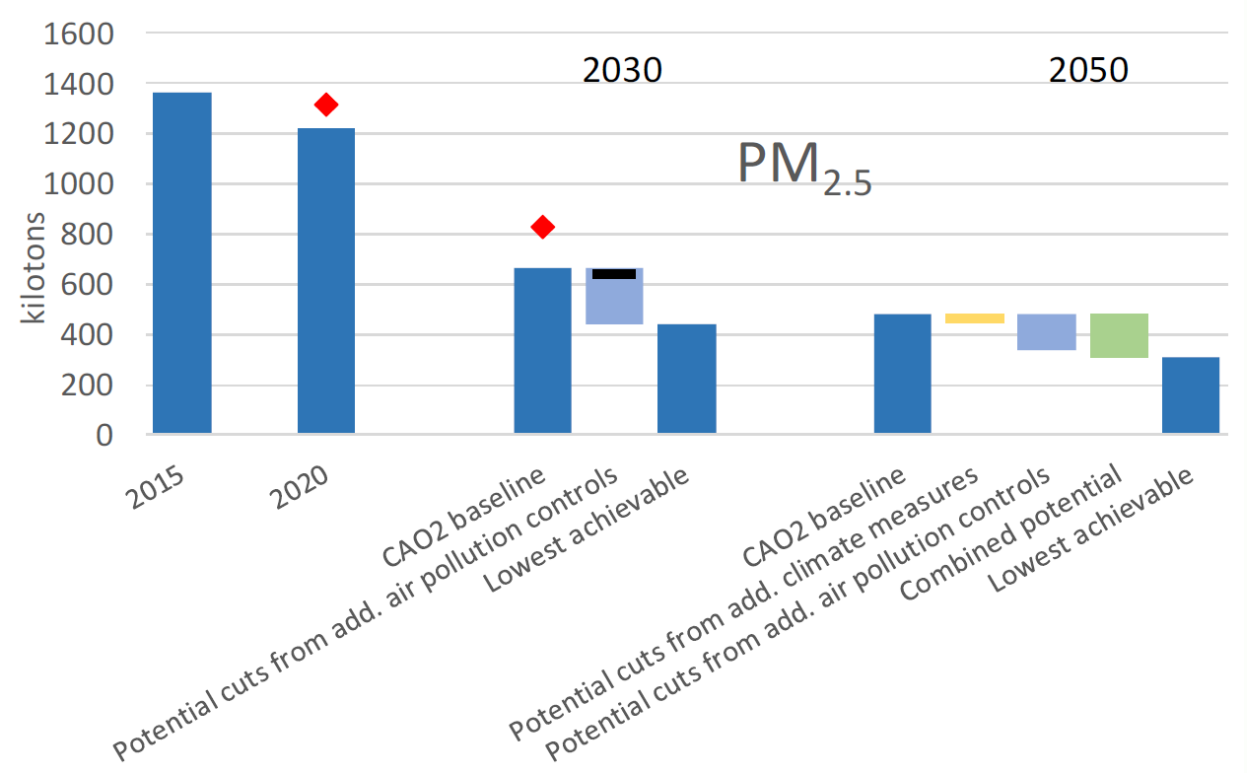
Published in January 2021: https://ec.europa.eu/environment/air/clean_air/outlook.htm

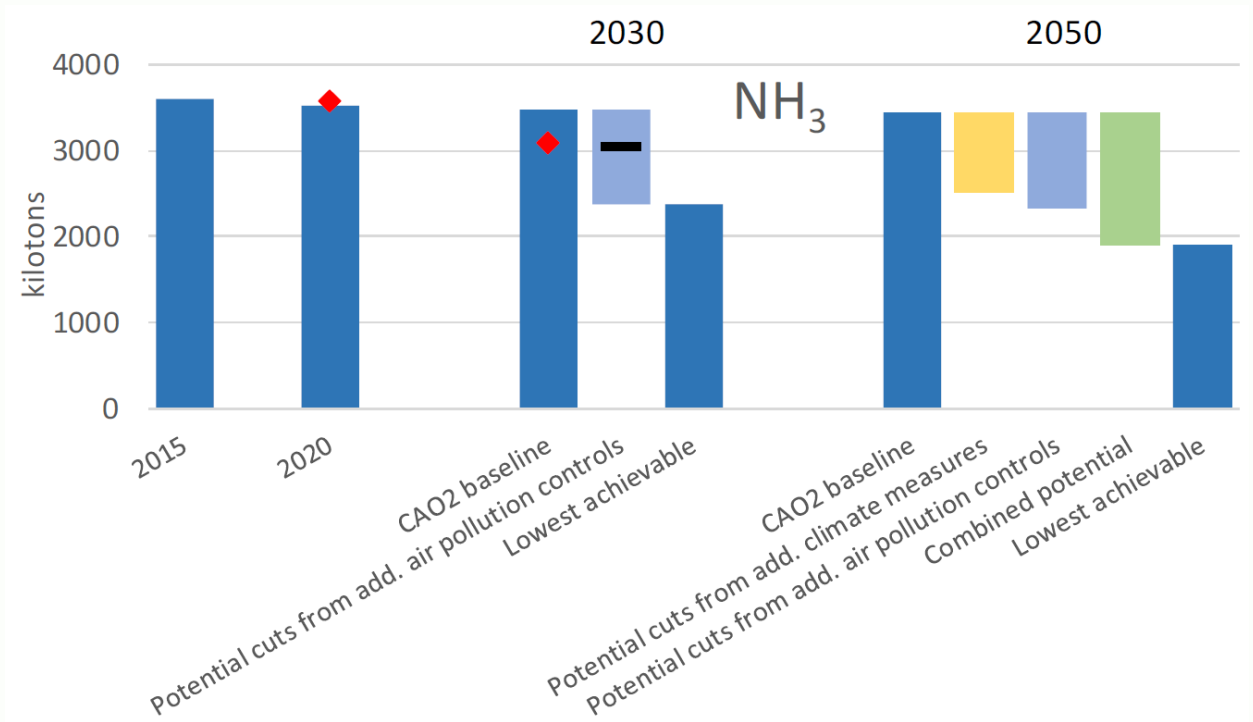
Updates of emission inventories for 2005/10/15: from 2017 to 2019

- After CAO1, many MS reported significant changes in historic inventories due to new inventory guidebook and improved statistics
- But only little change of total EU-27 emissions (~2-6%, depending on pollutant)
- Further changes to be expected from full implementation of new inventory reporting guidelines



Emission projections for selected air pollutants under various scenarios for EU-27





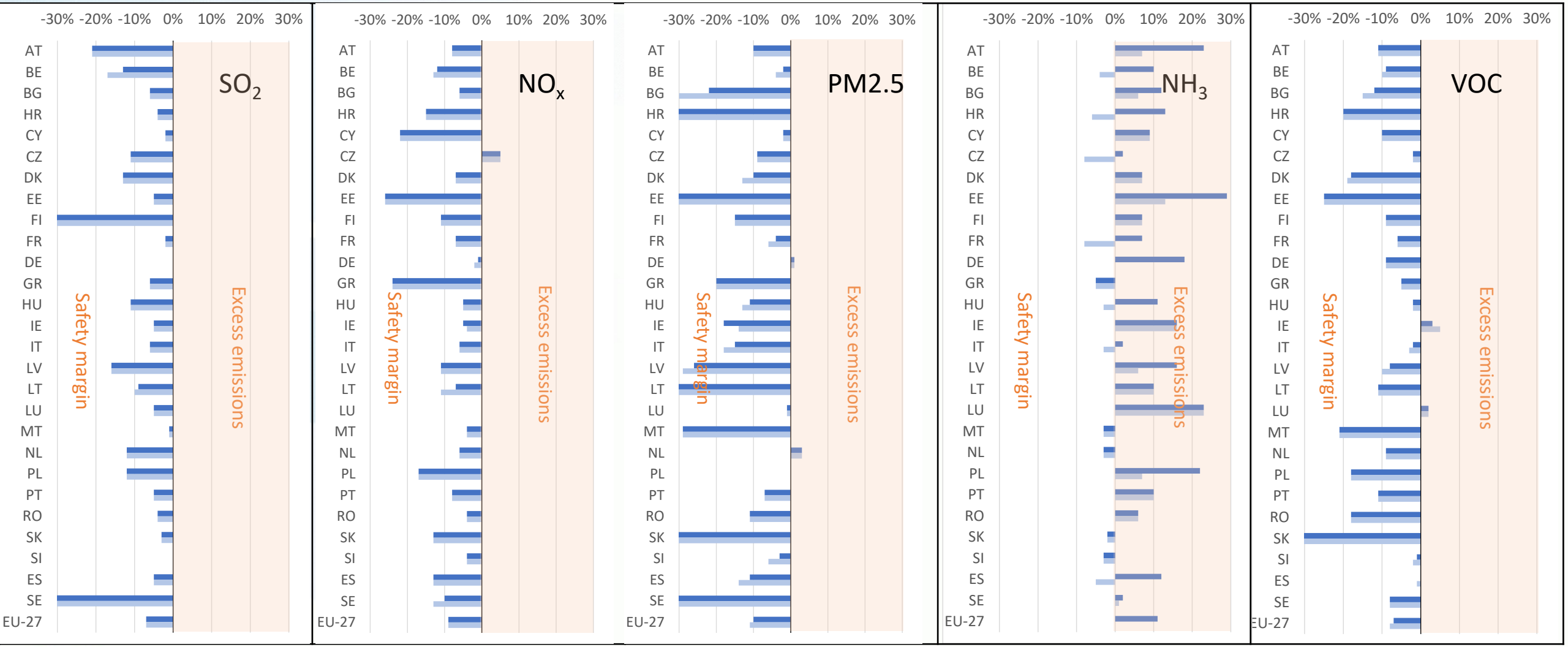
: maximum emissions allowed under the NEC Directive

: level of emission reduction achieved With the Additional Measures announced in the NAPCP

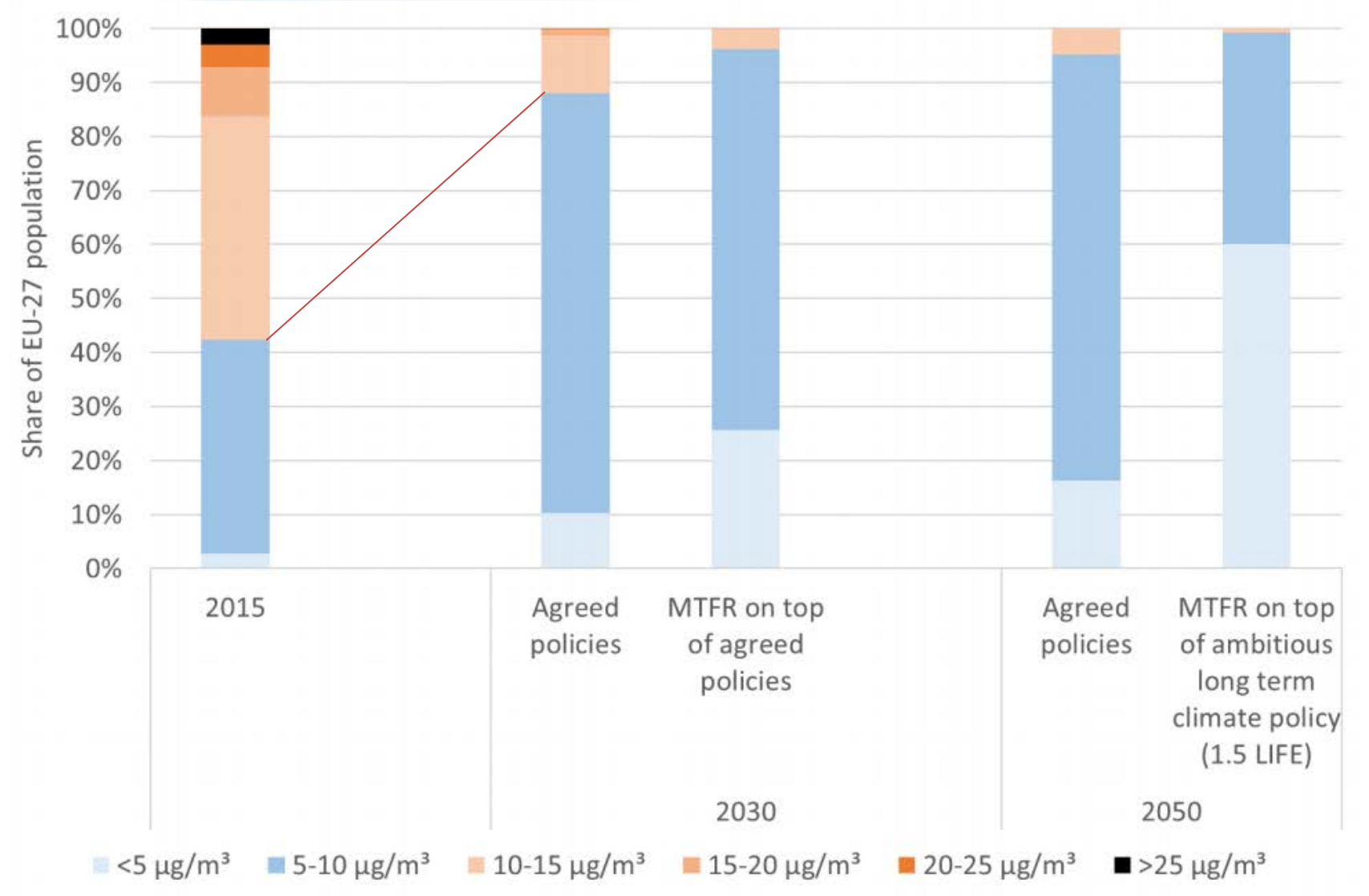
Source: GAINS model (IIASA)

Key results: Emissions - Differences between emission reduction commitments (ERCs) and emission projections for 2030

(% of 2005 emissions)

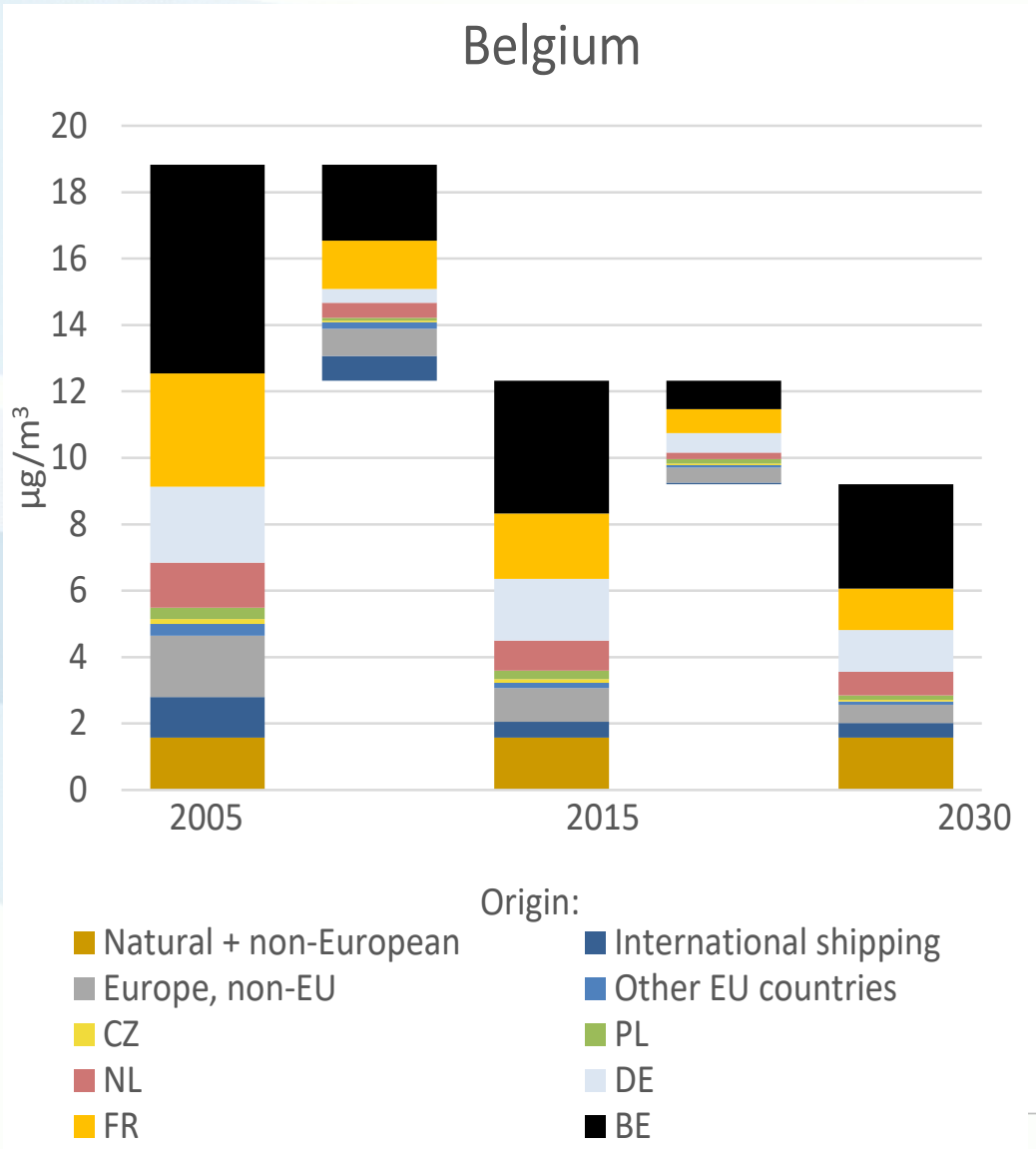


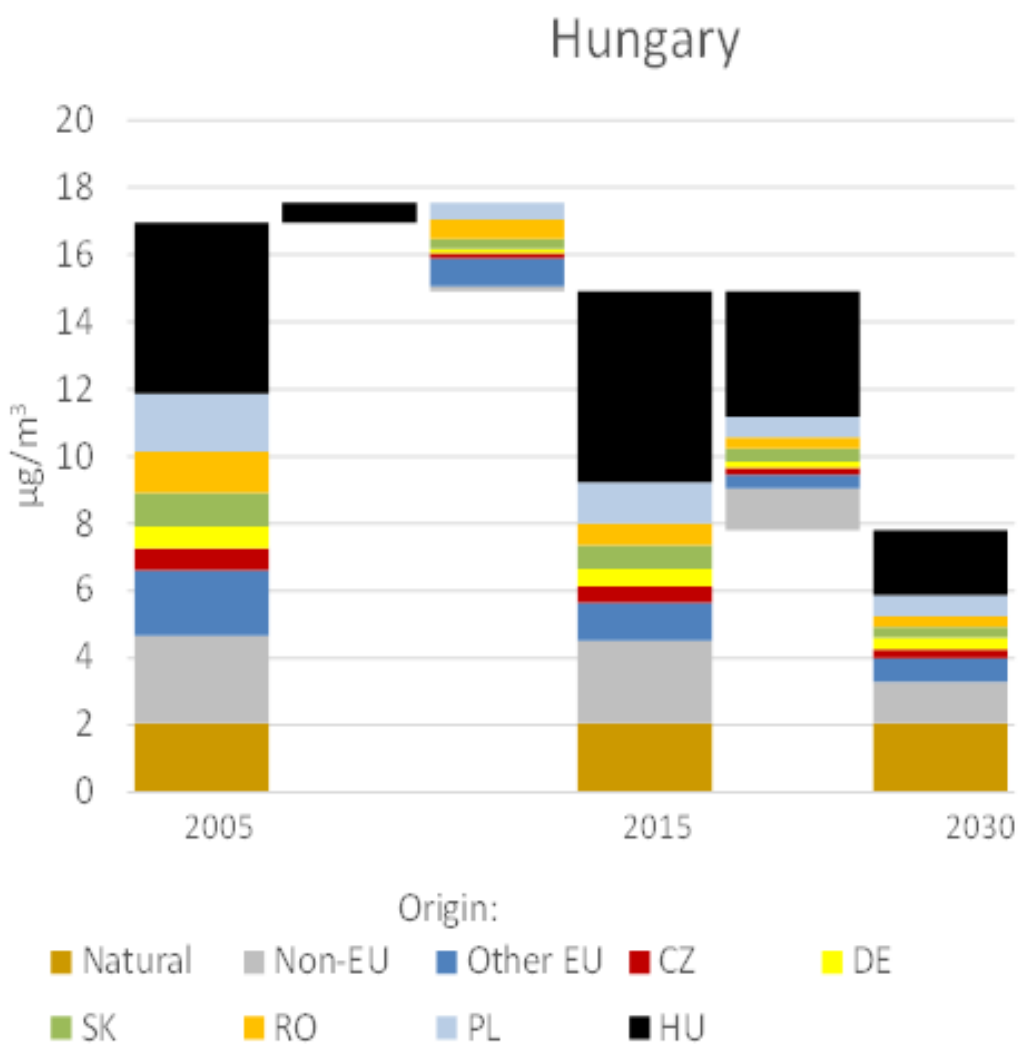
Distribution of population exposure to PM2.5 for key scenarios, EU-27



Source: Clean Air Outlook 2 (2020), GAINS model (IIASA)

Much of the AQ improvements in MSs emerge from EU coordinated policy





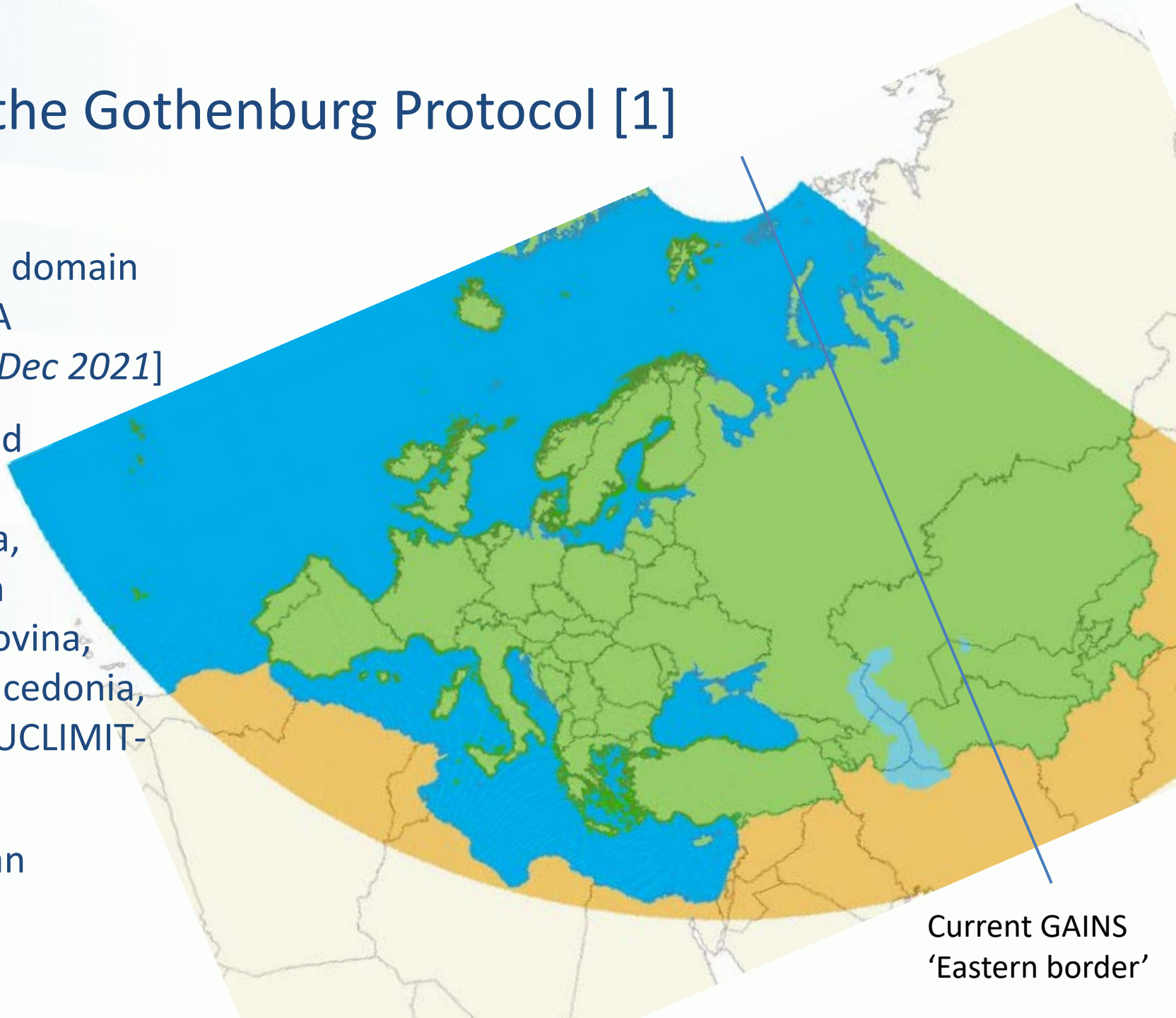
Source: GAINS model (IIASA)

Summary – Second Clean Air Outlook

- Emission inventories continue to be updated/improved, however, implications on modelling results for compliance are limited.
- NH_3 remains the most challenging pollutant for the achievement of the NEC reduction commitments. However, several MS have reported new measures in the NAPCPs that, if fully implemented, can contribute to reaching them.
- The analysis reconfirms the relevance of the international component of air pollution and reveals the importance of (past and future) EU-wide coordinated policies
- The increased ambition of European climate policies leads to important reductions of energy-related air pollutants and thereby reduces the pressure on other sectors for reaching compliance with the NECD reduction commitments – but not for NH_3.

Support to review of the Gothenburg Protocol [1]

- Extending GAINS-Europe model domain to include consistently all EECCA countries- jointly with MSC-W [*Dec 2021*]
- Review of data, assumptions and development of new scenarios for some of the EECCA (Georgia, Moldova, Ukraine) and Western Balkan (Albania, Bosnia-Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia) countries - EU funded EUCLIMIT-9EAST project [*Dec 2021*]
- Dedicated version for Kazakhstan operational



ANALYSIS OF KEY SOURCES OF PM EXPOSURE IN WESTERN BALKAN

[SELECTED RESULTS]

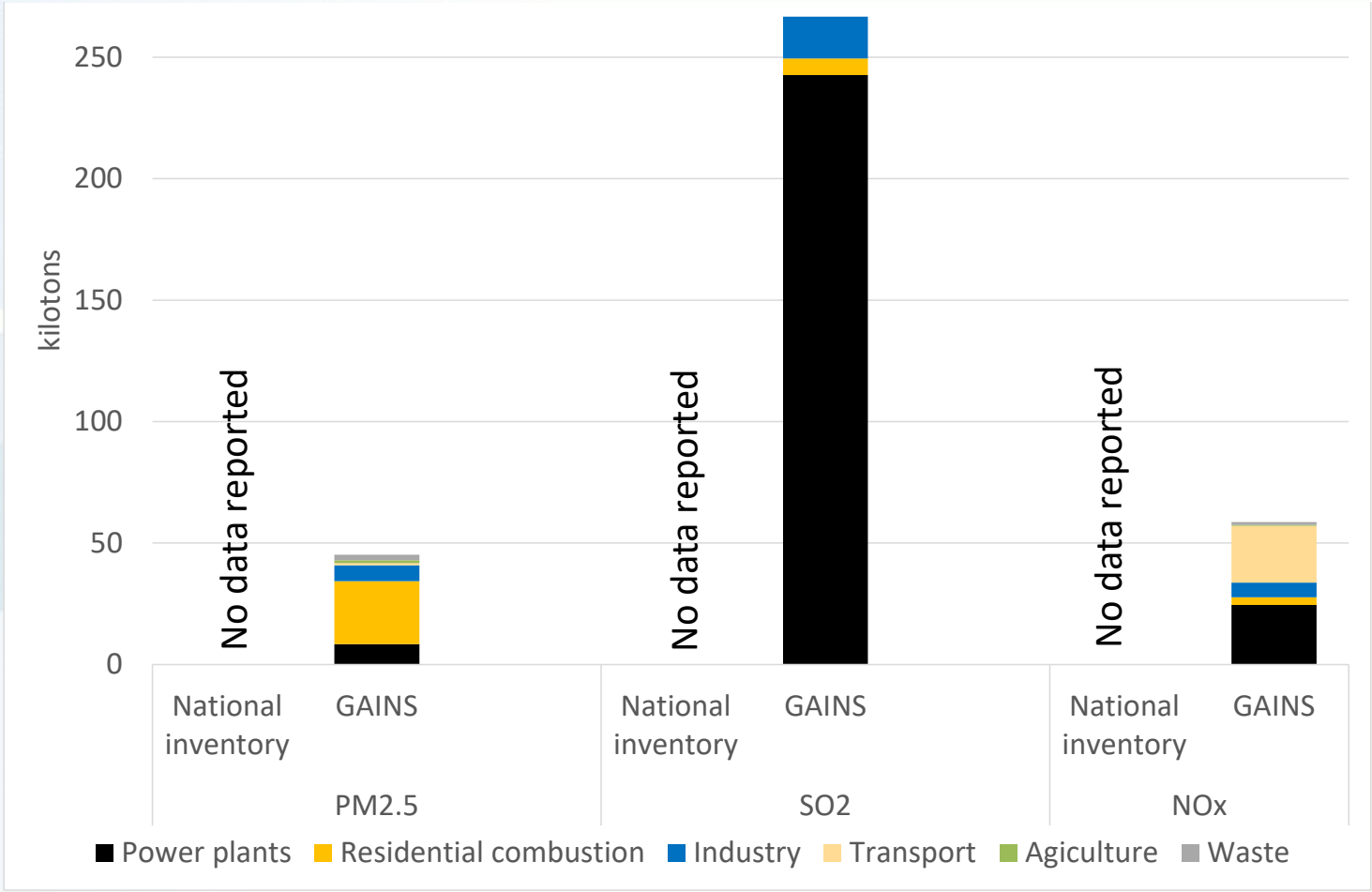
IIASA study for the World Bank (2018) [elements of this contribution included in WB reports]

- To improve the understanding of air current and future quality management challenges, policies and practices in the West Balkan region;
- To explore the roles of the various emission sources on ambient air quality, covering all anthropogenic sources of air pollution, with special emphasis on the use of solid fuel in the residential sector;
- To assess the likely impacts of economic trends and current emission control legislation on emissions, and on ambient concentrations of PM2.5 in 2030;
- To quantify the potential for further policies and measures in 2030;
- To elaborate draft recommendations for further development of emission inventories in the region.

Available emission inventories

Bosnia-Herzegovina

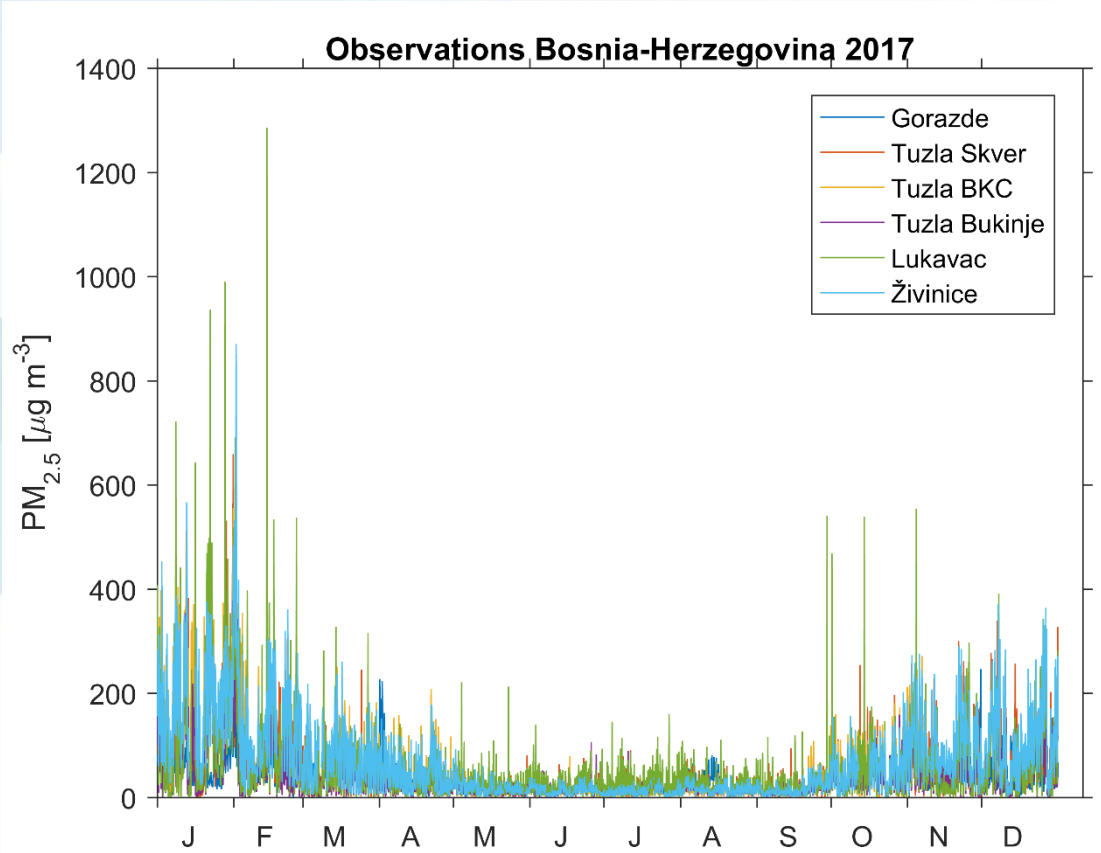
Comparison of the national inventory for 2015 with international GAINS estimates



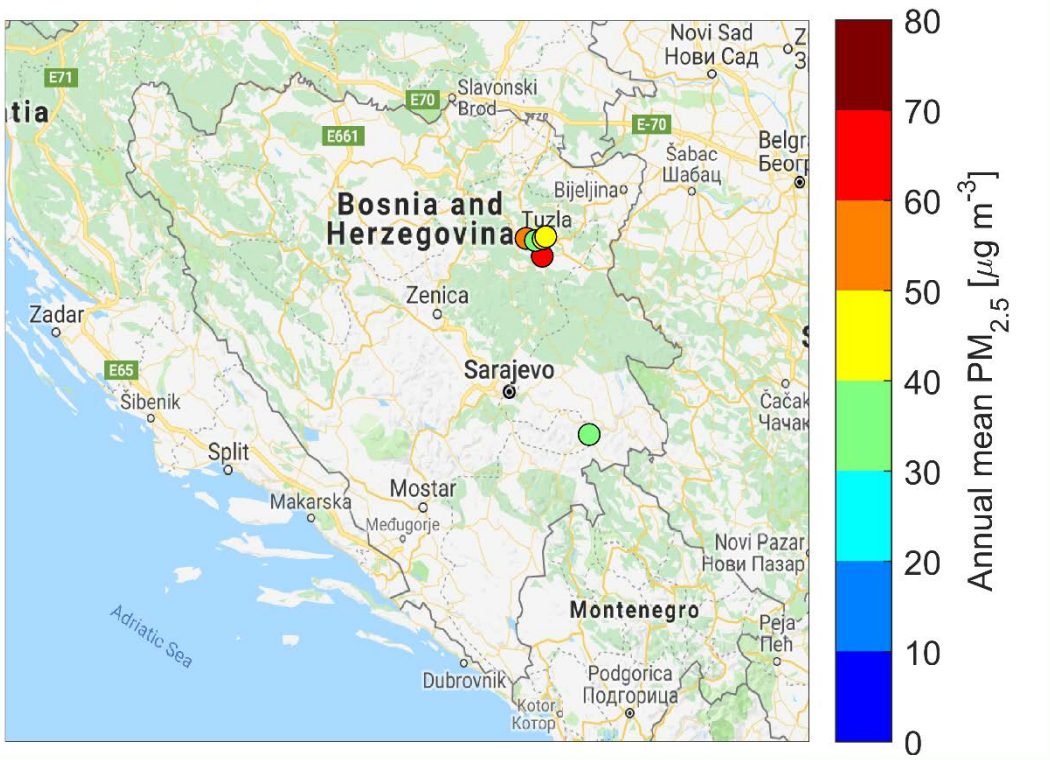
Source: GAINS model (IIASA, 2018) contribution to World Bank Report No: AUS0001227 (2019)

Ambient concentrations of PM2.5

Bosnia-Herzegovina



Monitored annual mean concentrations of PM2.5



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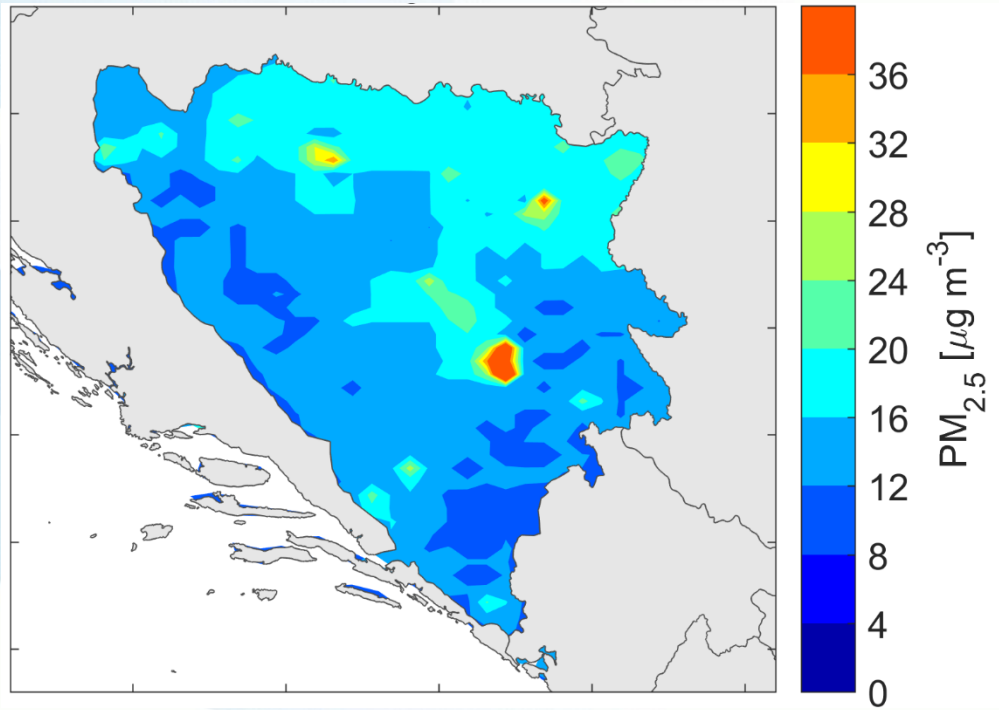
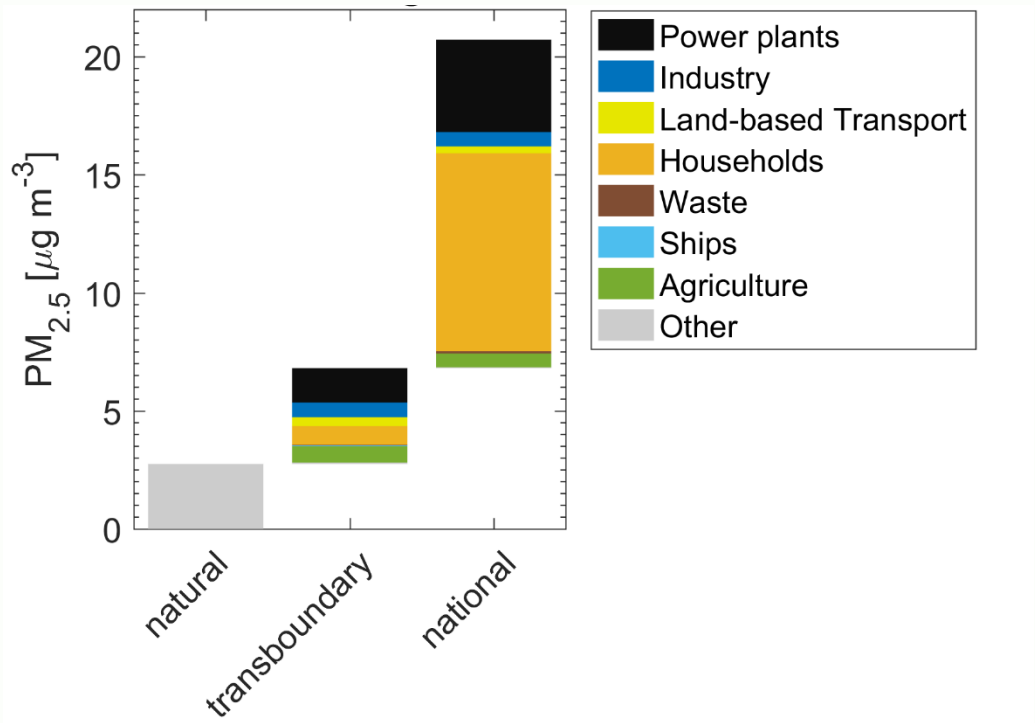
Ambient concentrations of PM2.5 - 2015

Bosnia-Herzegovina

Modelled annual mean concentrations of PM2.5



Source attribution for population exposure to PM2.5



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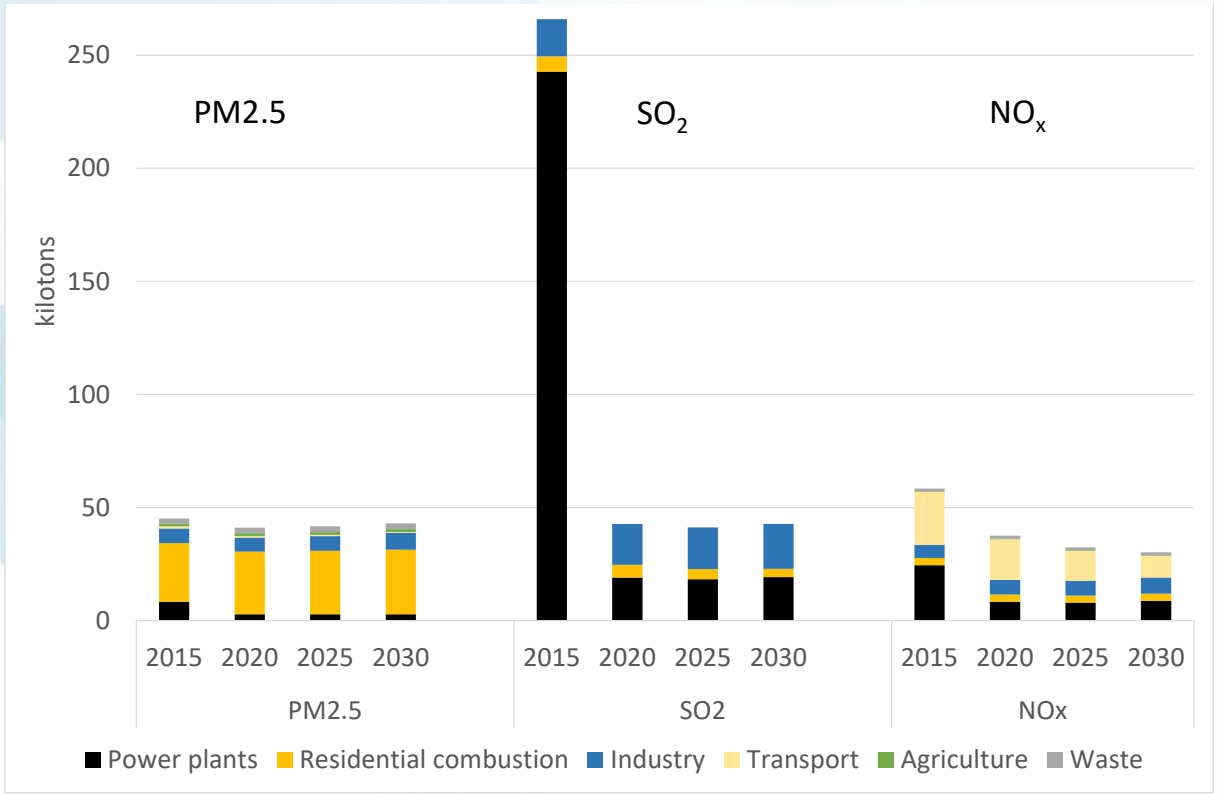
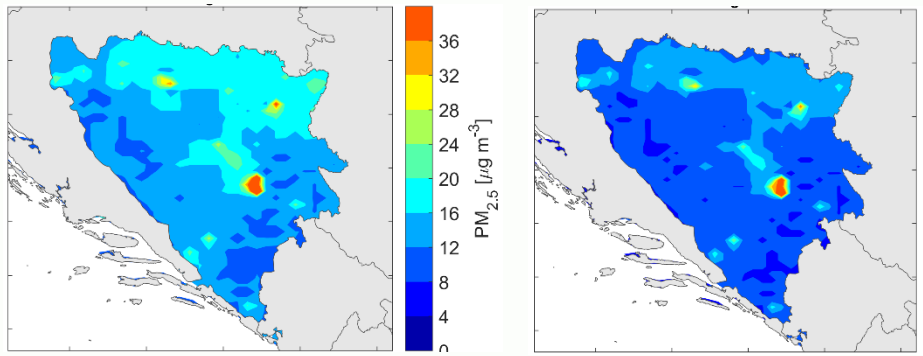
Baseline trends to 2030 - current legislation

Bosnia-Herzegovina

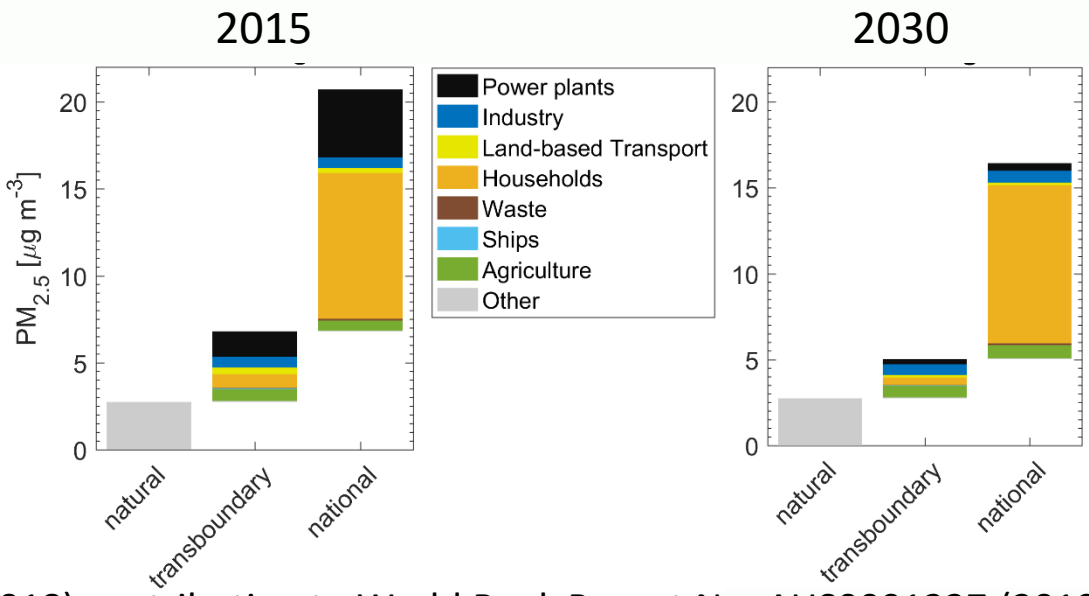
Baseline emissions under current legislation



Ambient PM2.5



Source apportionment for population exposure to PM2.5



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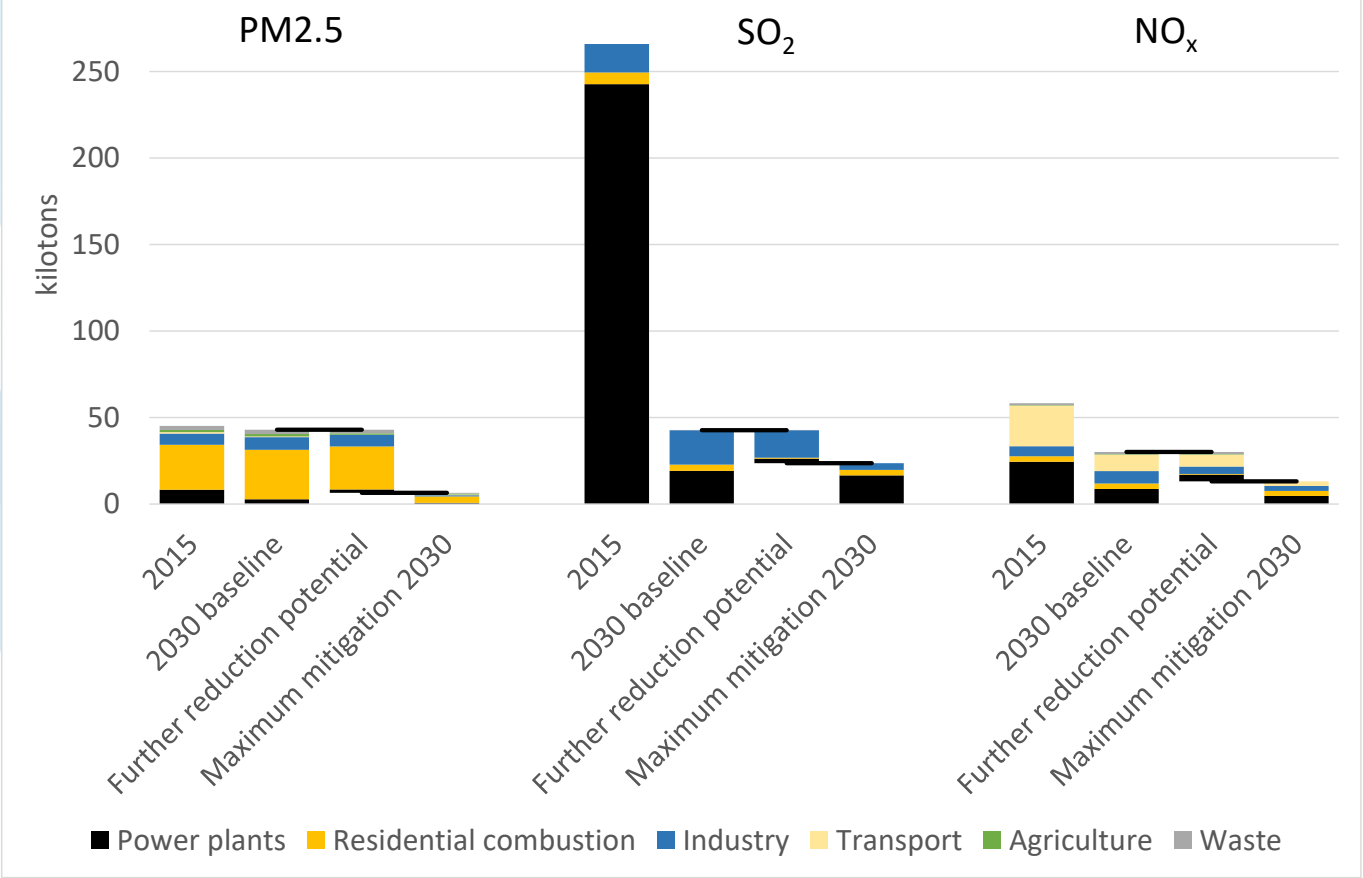
Scope for further policy interventions in 2030

Bosnia-Herzegovina

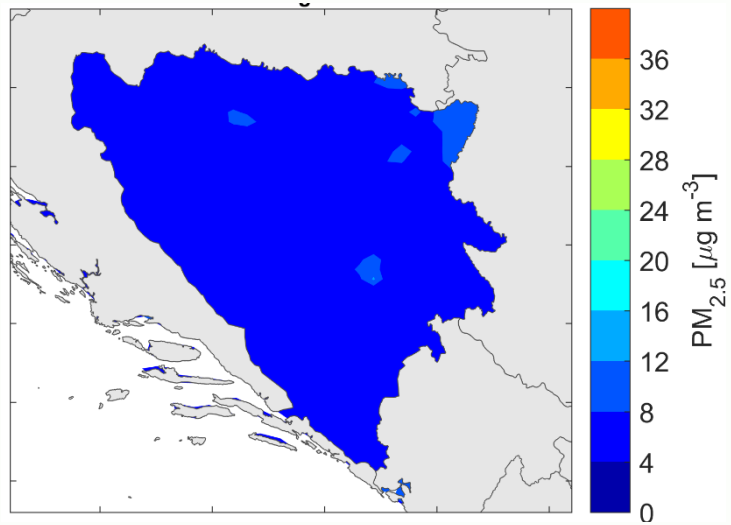
Emissions and control potentials



Key measures

- EU Eco-design standards for all new stoves and boilers burning fuel wood
- Accelerated replacement of the oldest installations
- Assurance of adequate quality of fuelwood
- EU Industrial Emissions Directive (IED) for all new industrial installations

Ambient PM2.5 achievable in 2030



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Available emission inventories

Republic of Northern Macedonia

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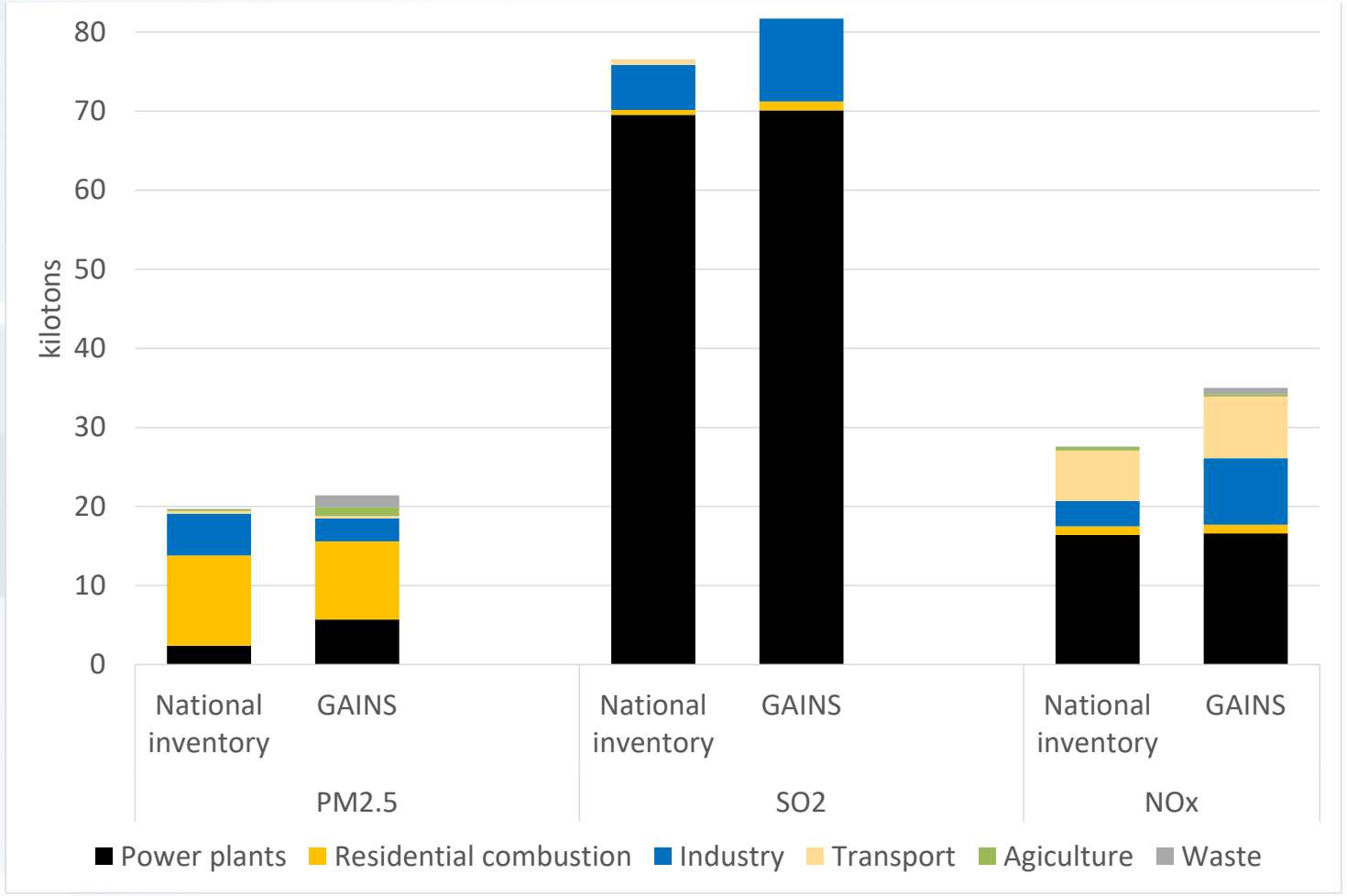

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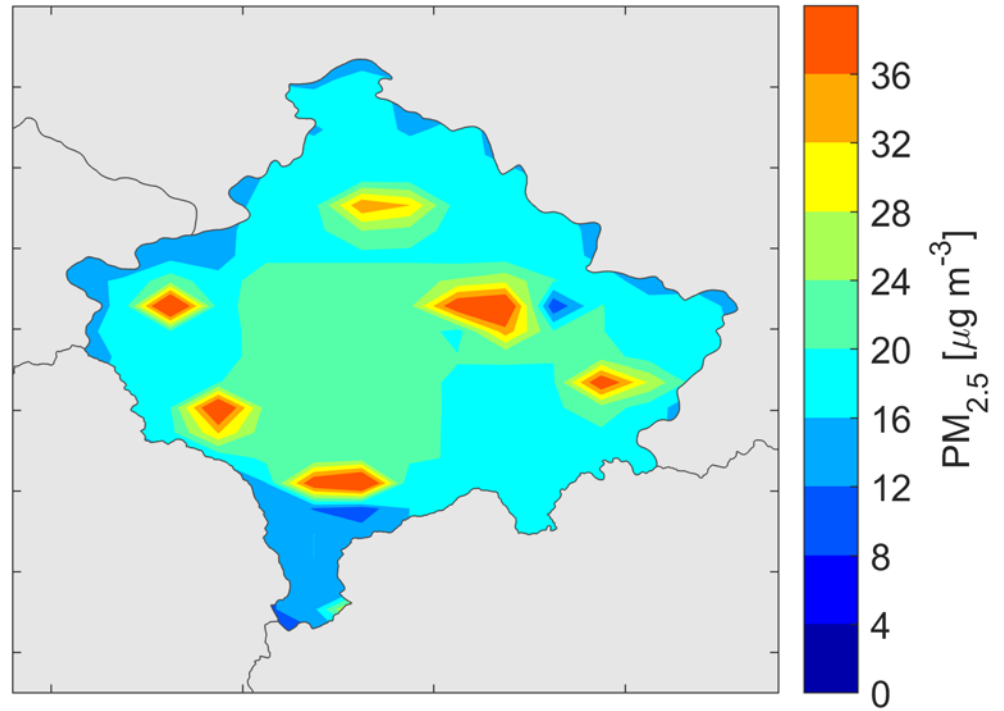
Ambient concentrations of PM2.5 - 2015

The Republic of Northern Macedonia

Modelled annual mean concentrations of PM2.5



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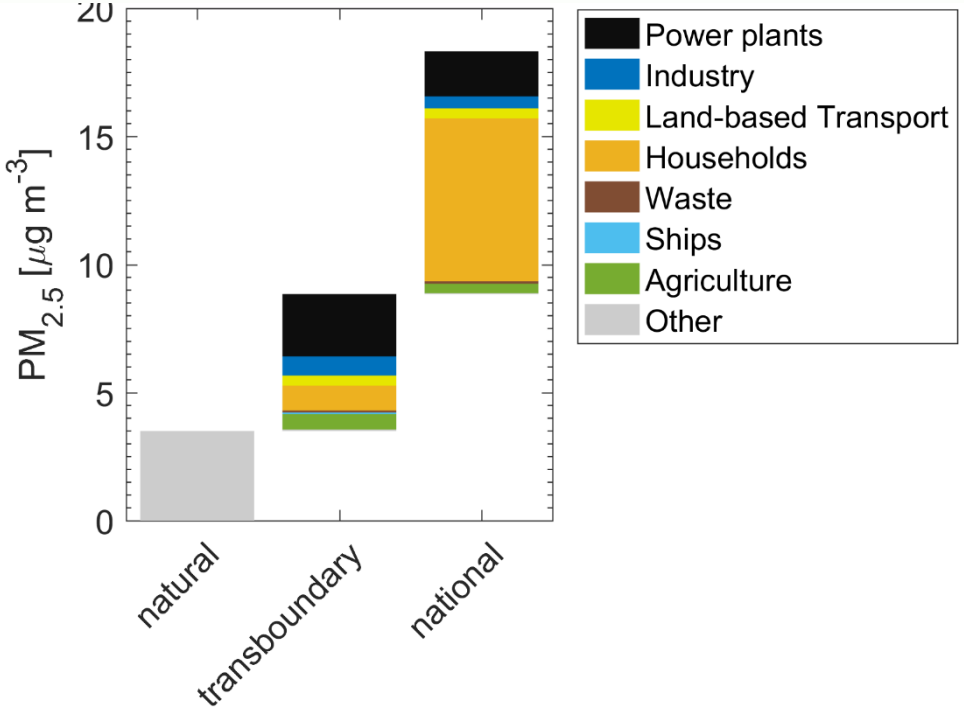

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Republic of Northern Macedonia

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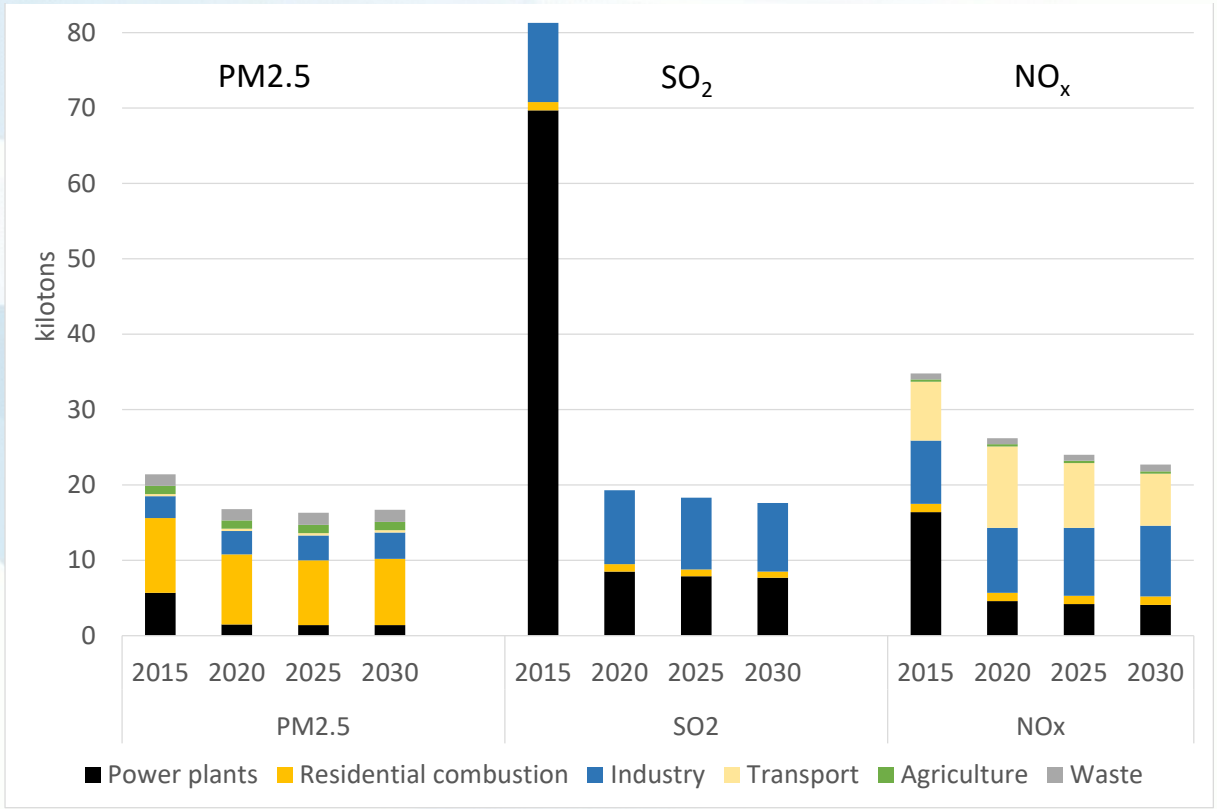

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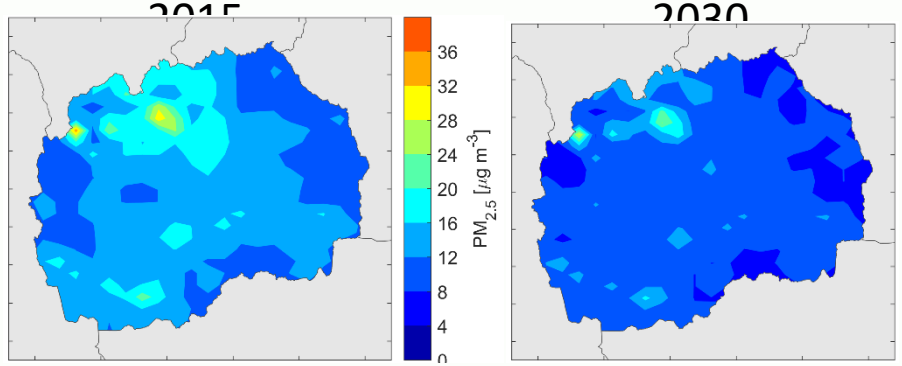

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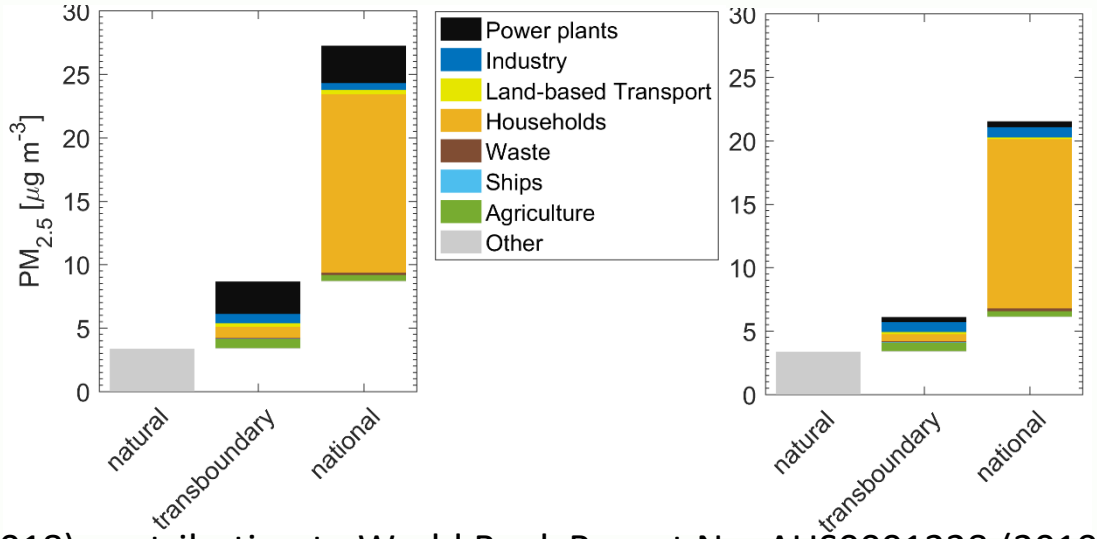

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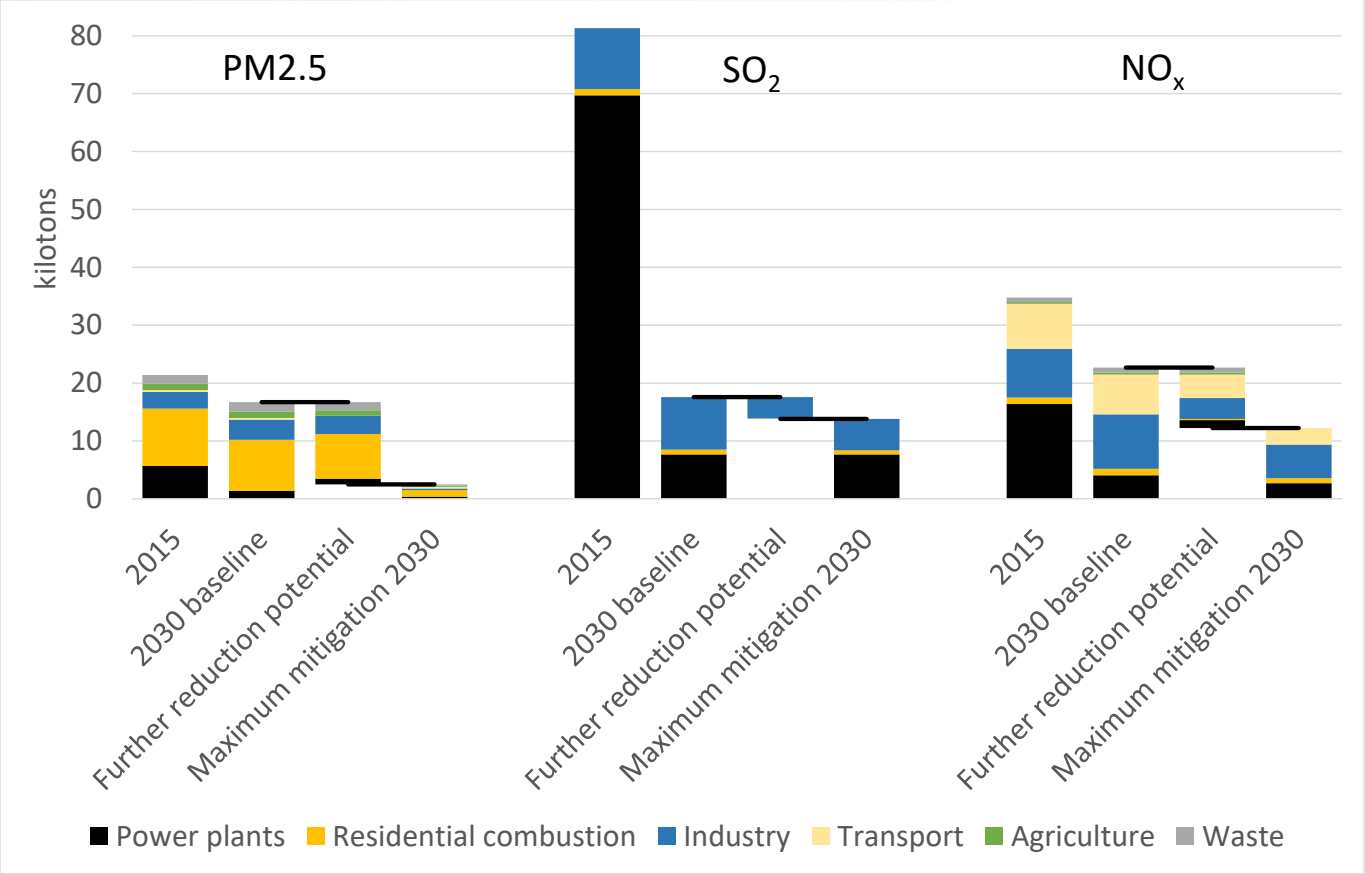
Scope for further policy interventions in 2030

Republic of Northern Macedonia

Emissions and control potentials



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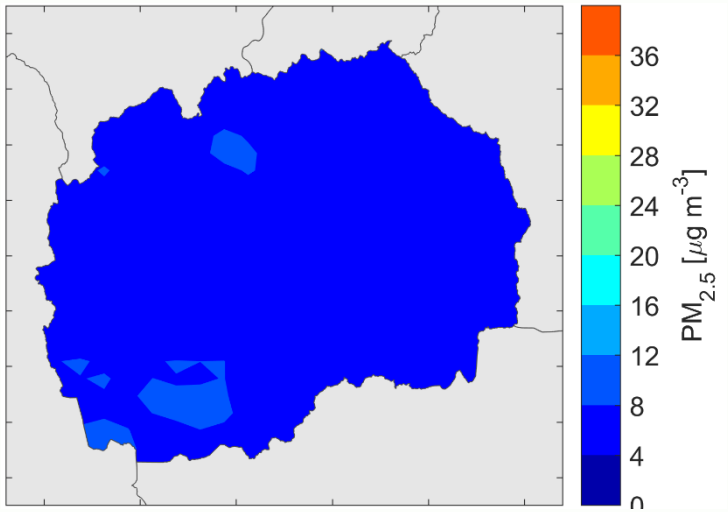

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