TFIAM-CIAM

Progress in the implementation of the 2024–2025 workplan

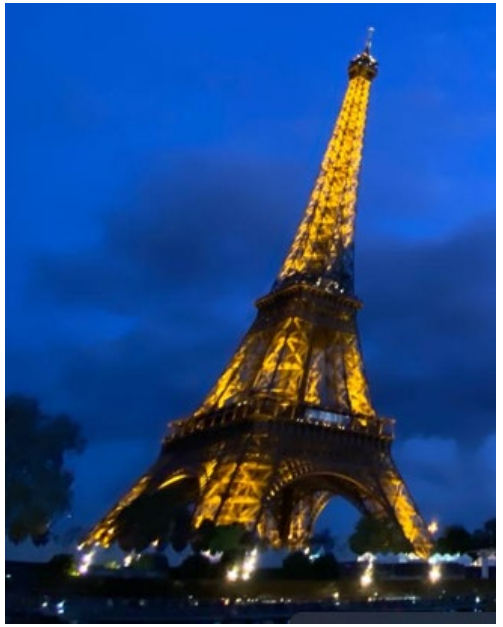
Stefan Åström, Zbigniew Klimont, Simone Schucht

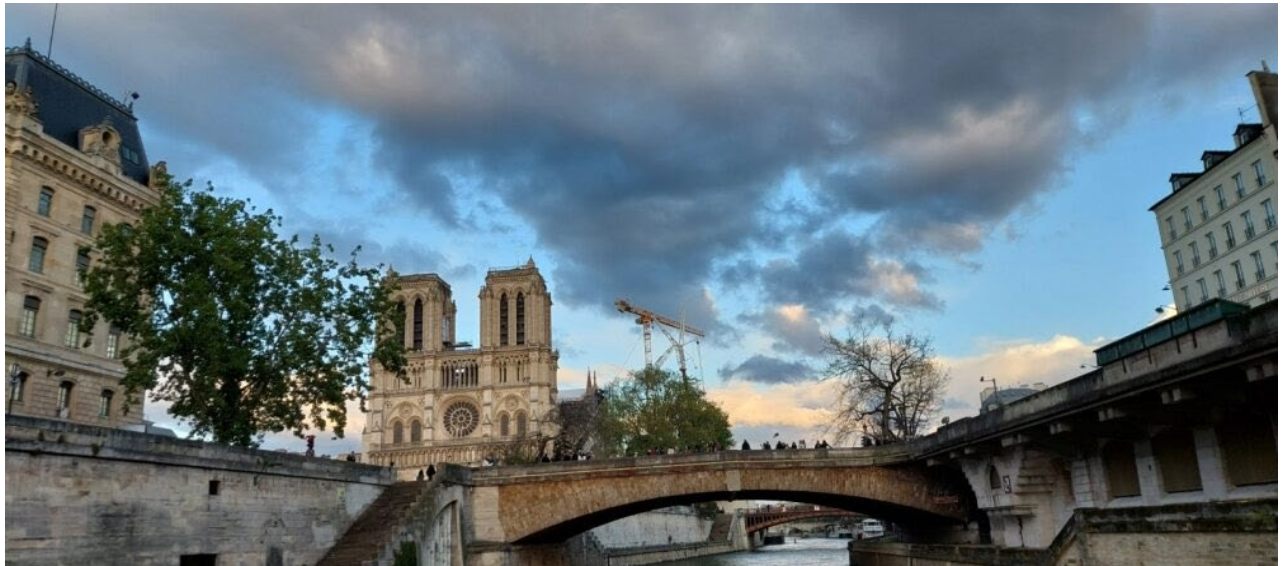
Outline

- Work plan item TFIAM 53
- Work plan item NTM
- Work plan item EPCAC
- Summary TFIAM
- Work plan item policy brief
  - Timeline
  - Overview of content
  - Presentation of our comments and our handling of comments
- TFIAM recommendations
  - Recommendations?
  - Remaining Questions / Requests for clarifications from WGSR

TFIAM-53 - objectives

- Meeting in Paris from 15 to 17 April 2024
- The meeting focused on
  - Priorities for the GP revision and other work programme items
  - Progress on three documents: EPCAC position paper, Guidance documents on NTMs, Policy brief on potential targets to reduce risks for health and ecosystems
  - Modelling work and results by other CLRTAP task forces and expert groups
  - Modelling work and results by parties and international institutions





TFIAM-53 – discussion items

- TFIAM/CIAM are well set up to support GP revision process with scenario analysis
  - Request for guidance from WGSR
- Modelling activities
  - UNECE-wide modelling supporting the GP revision (CIAM/EMEP)
  - National and European experiences
- Overarching risk-based approaches
  - Health risks ($PM_{2.5}$, O_3)
  - Ecosystems and biodiversity
  - Further sensitivity analyses – including staged/phased strategies
- Web-based assessment tools
  - FAIRMODE, VALESOR

Guidance document on non-technical and structural measures (WP item 2.2.3)

- Annotated outline submitted to WGSR-62 as informal document
- The document presents
  - The importance and advantages of so called ‘non-technical’ measures
  - The policy instruments that can be used to support the implementation of such measures
  - Inventories of effective measures for mobility, domestic heating and dietary change
  - Challenges and limitations of non-technical measures (political, motivational and scientific)
  - Their possible integration in GAINS scenarios
  - Lessons and conclusions
- Next steps
  - Incorporate comments on the outline into the document
  - Provide full draft for comments in December 2024
  - Final draft to WGSR in spring 2025
  - Submit the final version to EB-45 in 2025

Position paper on clean air in cities by EPCAC (WP item 2.1.4)

- Annotated outline submitted to WGSR-62 as informal document
- The document will present
  - The air quality problem in cities in the UNECE
  - The origin of pollution in cities: local, country, transboundary, and the respective sectoral sources
  - Measures that can be applied at different scales to reduce air pollution in cities
  - Conclusions, recommendations and further research needs
- Annexes discuss
  - Knowledge needs to develop local air quality plans
  - A look into the future (pollution sources, knowledge, measures …)
- Next steps
  - Incorporate comments on the outline
  - Provide full draft for comments in December 2024
  - Final draft to WGSR in spring 2025
  - Submit the final version to EB-45 in 2025

Policy brief on potential targets to reduce risks for health and ecosystems

- An informal document that will be updated throughout the GP revision process
- Timeline
  - Request by WGSR-61 following TFIAM-CIAM presentation
  - Included in adopted WP 2024-2025 (WP item 2.1.12)
  - First version presented to EB-43
  - First update submitted to WGSR-62 including replies to comments received from Parties

Background to the policy brief

- Saltsjöbaden VII
  - "Set a 50% reduction target for the air pollution related health risks"
- WGSR-61
  - Policy brief on "feasibility of an overarching risk-based goal for the Convention" covering all air pollutants
- EB43
  - "Covering also the risks of biodiversity loss"
  - "Further explore the potential of staged/phased strategies"

Contents of the policy brief

- Overview of policy scenarios
  - Baseline climate, energy, and air pollution scenario
  - Maximum Technically Feasible (MTFR) air pollution control scenario
  - Combined advanced climate/energy/dietary scenario + MTFR = LOW
- Impacts for health and ecosystems
- Options for policy targets
  - Health
  - Ozone
  - Reduction of biodiversity risks
  - Inclusion of sectoral and staged/phased approaches
- Conclusions

Comments on the policy brief

- Comments received on the policy brief following EB-43
  - Answers to most of them are included in the updated policy brief

Update of the Policy Brief (1)

Key comments addressed in the revised version, including

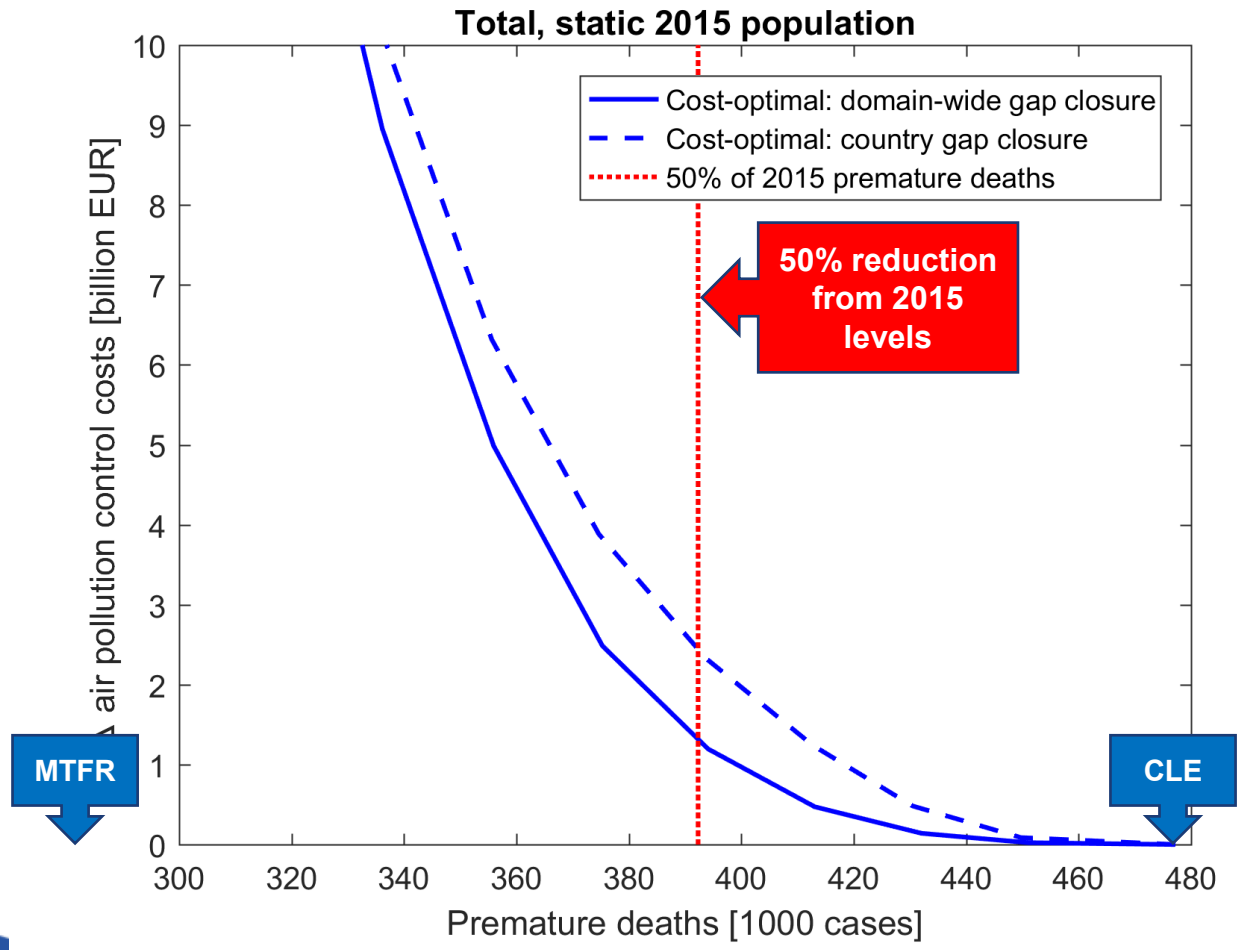
- Clarification and additional information about scenario definitions
- Analysis for alternative base and target years (2015, 2040)
- Initial analysis of staged approaches
- Initial assessment of feasibility of targets for biodiversity

Timeline defined to address further comments, including

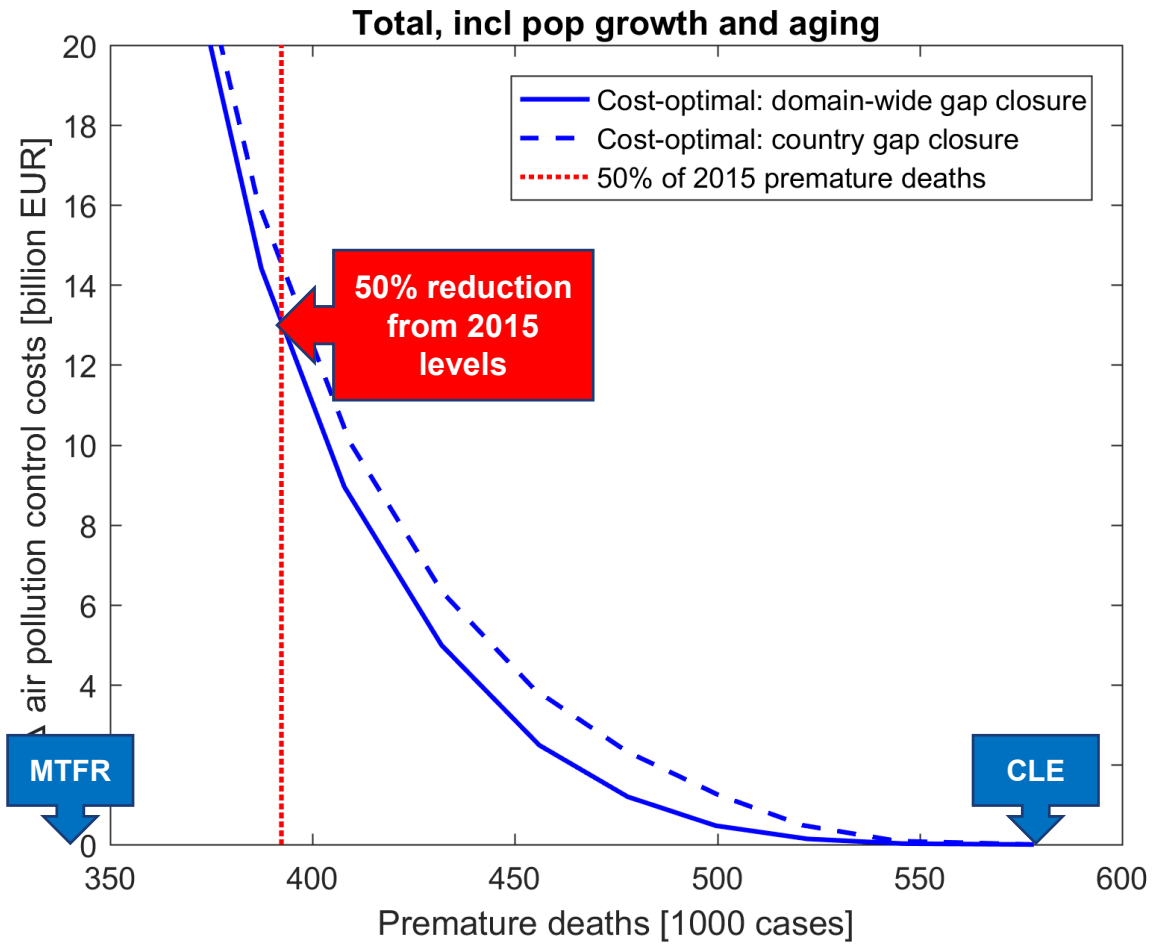
- Exploring other metrics for health
- Developing joint optimization for health impacts of PM and ozone, as well as biodiversity
- Further analysis of flexibilities (staged/phased approaches)
- Exploring further options to address equity
- Scenarios including condensable PM

Least-cost reduction of PM health impacts in UNECE (excl. North America) by 2040

40% gap closure to achieve 50% reduction in premature deaths



80% gap closure to achieve 50% reduction in premature deaths

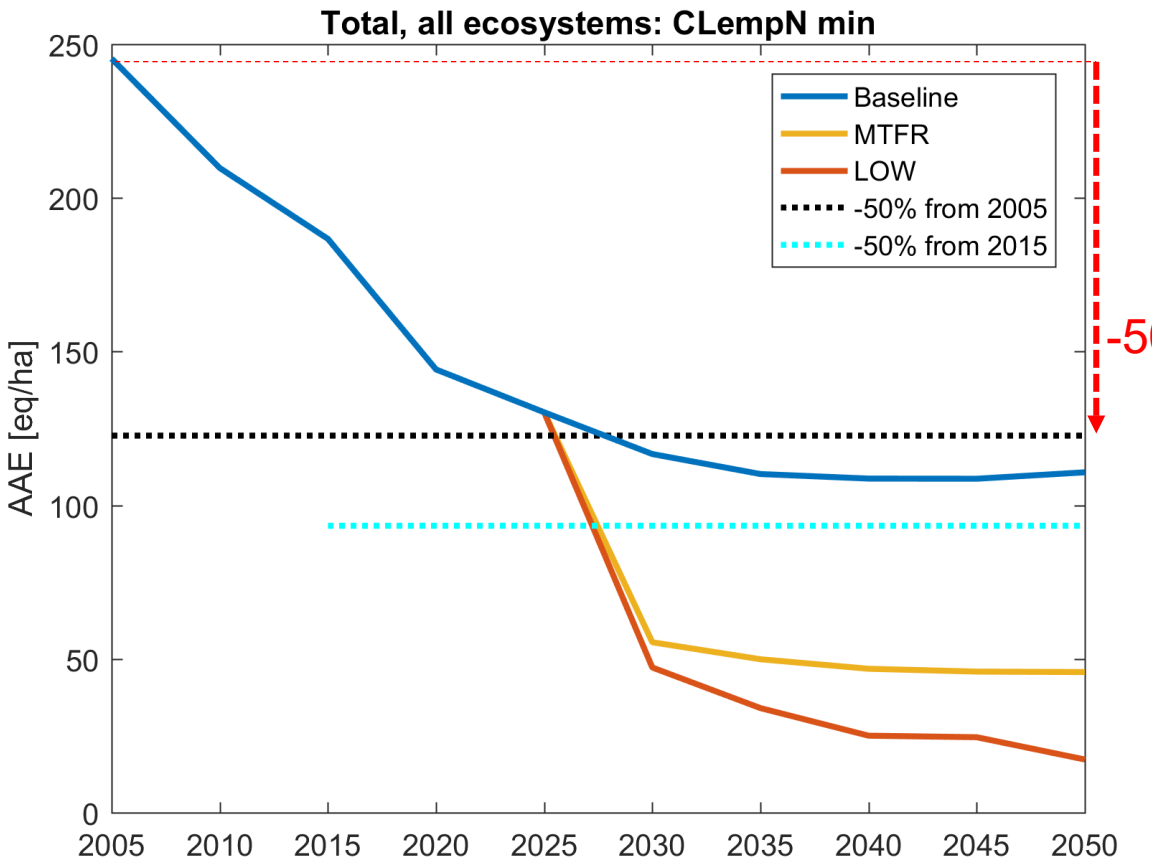


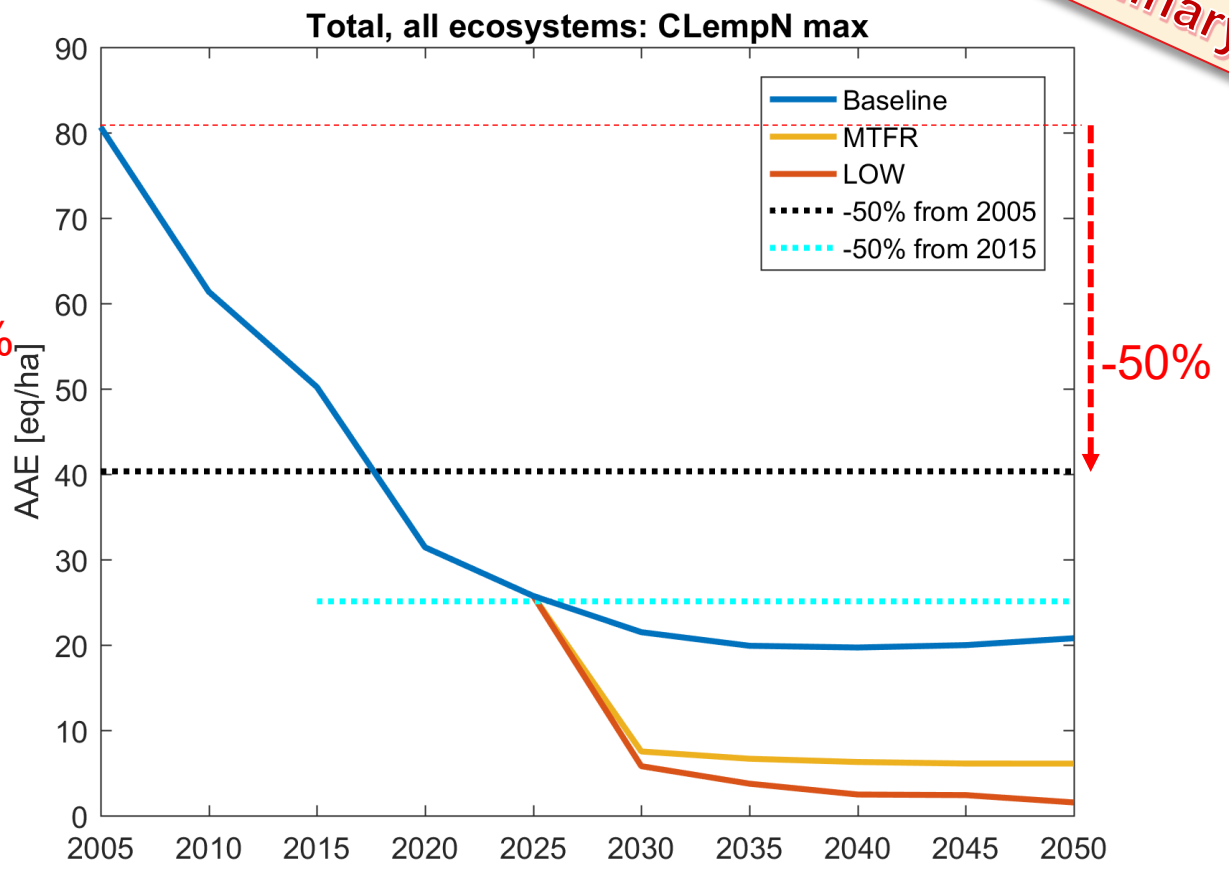
Source: GAINS model (CIAM/IIASA)

Scope for further mitigation in the UNECE region

Exploring attainability of ecosystem (biodiversity) protection 'goals': AAE for all ecosystems

Preliminary



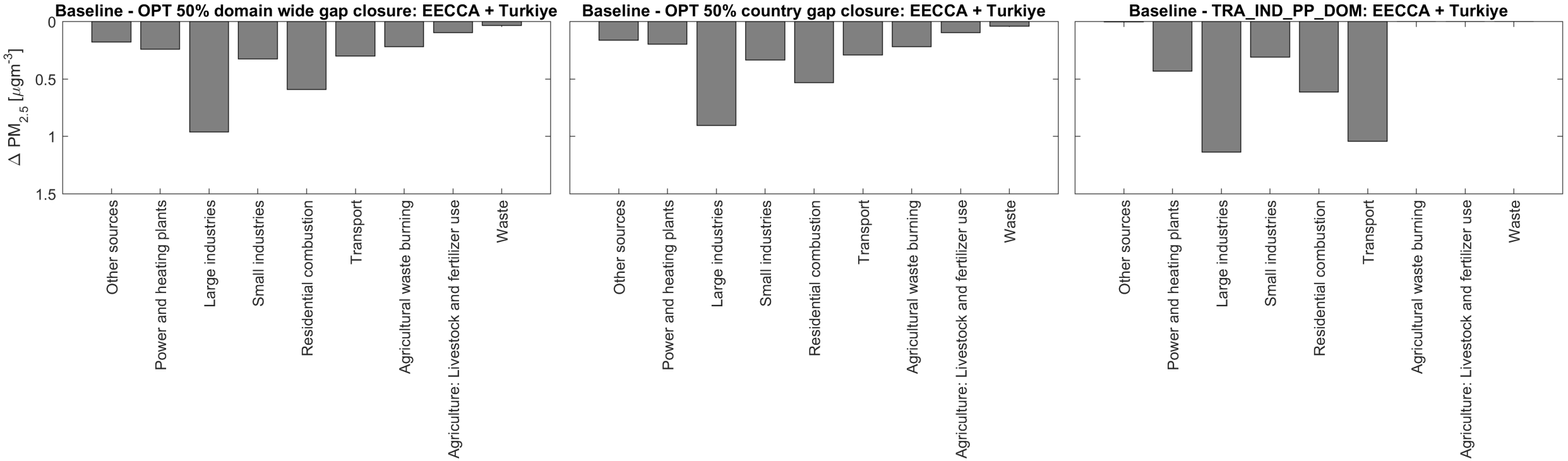


Source: GAINS model (CIAM/IIASA)

Domain wide optimization vs staged approach

EECCA + Türkiye

Draft *staged approach* case:
enforcing EU legislation for power, industry, residential combustion, and transport



- Domain-wide and country gap closure solutions look similar (unlike for West Balkan)
- Staged approach mobilizes additional mitigation potential for all addressed sectors, compared to the cost-effective solution

Update of the Policy Brief (2)

Additional requests during the review need further discussion and guidance, i.e.,

- Alternative sensitivity scenarios
  - Hydrogen economy and ammonia as a fuel
  - Failing to meet (delayed?) the objectives of the European Green Deal
  - Inclusion of marine ecosystem objectives
- Optimization prioritizing black carbon (BC) abatement
- Setting air quality targets vs health-based targets – *TFIAM/CIAM recommends ex-post assessment*
- Sensitivity to NMVOC speciation

Conclusions of the policy brief (April 2024 version)

- Health $PM_{2.5}$ targets
  - A 50% target appears feasible at the UNECE level, but cannot be achieved for each country
  - A 50% target for the whole region would be more cost-effective than country level targets (gap-closure)
- Pursuing climate and dietary change policies appears essential
  - Could get us ´half-way´ and reduce ten-fold the additional air pollution costs
- A 50% health target for O_3 is more challenging
  - Current air pollution policies are largely offset by the global increase in methane emissions
  - Feasibility of the target is more dependent on global cooperation to reduce ozone precursors, including methane
  - In the 2050 LOW scenario, reductions of NOx and NMVOC-emissions within the UNECE (excl. North America) would contribute 1/3 to the reduction of its ozone levels, while global methane reduction and global reduction of NOx and NMVOC would also contribute 1/3 respectively
- Biodiversity
  - Collaborative effort of the centres resulted in availability of needed data set for the whole UNECE region
  - Initial feasibility assessment done
- Further analyses
  - Staged/phased approaches – guidance needed from EECCA/WB/Türkiye
  - Ecosystems targets

Recommendations by TFIAM-53 on the policy brief

- Optimisation period: 2015-2040
- Optimisation targets
  - Cost-effective reduction of health and ecosystems risks/impacts by 50%
  - Assess both region wide and country-specific 50% reduction targets
  - Assess flexibility options for EECCA, WB, Türkiye
  - Complement by further egalitarian-based views (e.g. on costs per GDP)
  - Assess cost and benefits of various target levels and options for burden sharing
- Risk and impact indicators
  - Express health impacts as:
    - years of life lost
    - premature mortality
    - number of premature deaths per 100,000 inhabitants (= risk-based target)
  - For nature protection use Average Accumulated Exceedance, based on minimum or mean empirical critical loads

Thank you!

TFIAM co-chairs

Stefan Åström (Sweden) Stefan.Astrom@anthesisgroup.com

Simone Schucht (France) simone.schucht@ineris.fr

CIAM head & deputy head

Zbigniew Klimont klimont@iiasa.ac.at

Gregor Kiesewetter kiesewet@iiasa.ac.at

Special consultant

Rob Maas rob.maas@rivm.nl

Presentations and conclusions from all earlier TFIAM and EPCAC meetings found at:
https://iiasa.ac.at/TFIAM

ANNEX

Comments received on the policy brief and replies provided or planned

- Choice of & criteria for base and target years; modelling intermediate years
  - Optimization for 2040 relative to base year 2015 added to updated policy brief
- Clear definition and documentation of scenarios (BL, LOW, GP compliant…)
  - Information added to updated policy brief
- Optimization also for O3 health and combined PM2.5 O3 health, analyses for ecosystems/biodiversity
  - Planned for later (see presentation by CIAM)
- Explore staged/phased approaches
  - Indicative results added to updated policy brief; guidance needed to target further assessments
- Sensitivity scenarios (impact of targets for marine ecosystems, impact of N management policies, …)
  - Planned for later (see presentation by CIAM)
- Air quality targets/limit values vs health-based targets (emission ceilings)
  - Objective here health-based targets, assessment of meeting of air quality targets could be assessed ex post
- Natural vs anthropogenic PM
  - Modelling only looks at anthropogenic PM
  - Modelling uses long-term average meteorology, not extreme years
- Climate related targets for Black Carbon
- Sensitivity for speciation of NMVOC based on the ozone producing potential