



# **EU Air Quality and the Review of the Thematic Strategy on Air Pollution**

*(State of Play and Outlook)*

*Scott BROCKETT*  
*Team Leader*  
*DG Environment, Unit ENV.C3, Air Quality, and Noise*

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# What We Have

## ***The International Air Quality Policy Framework***

- The UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP) and its Protocols (EMEP, Gothenburg, ...)
- The knowledge base (EMEP, WGE, ...)
- ...

## ***The EU Air Quality Policy Framework***

- The 2005 Thematic Strategy on Air Pollution
- The National Emission Ceilings Directive
- The Ambient Air Quality Directives
- The EU Air Pollution Source Abatement Policy Framework
- National and Local Air Pollution Abatement Measures
- ...

# What We Got

*Downward trends in (estimated) emissions not fully matched by (measured) air quality improvements: PM, NO<sub>2</sub>, O<sub>3</sub>*

*Significant compliance issues (AAQD, NECD, UN) despite additional time granted in 2008: PM, NO<sub>x</sub>, ...*

*Almost one third of Europe's city dwellers are exposed to excessive concentrations of airborne particulate matter.*

*Contribution of transport (road and off-road), small scale combustion installations (including domestic heating), and agriculture continue to be particularly significant (notably for urban air pollution).*

*As science evolves, we learn that several air pollutants also have short-lived climate impacts whilst existing health and environment standards have become obsolete.*

# Why We Got There

## ***Insufficient / ineffective national/local measures***

- *Too little too late (often until approaching TEN deadlines),*
- *Too much paper, not enough practice,*
- *Costs and other barriers (incl. background and competence issues)*
- *...*

## ***Insufficient / ineffective EU source legislation***

- *Road Transport (Real World Emissions,...)*
- *Non-Road Mobile Machinery (incl. rail and inland vessels)*
- *Small scale combustions (incl. domestic heating)*
- *Agriculture*
- *...*

## ***Insufficient / ineffective international action***

- *UNECE CLRTAP and Protocols (NEC, ELVs, ...)*
- *IMO Marpol Annex VI (maritime shipping)*
- *...*

# The review outlook

## ***Objectives for the review***

- *Resolve present compliance problems asap*
- *Adapt EU legislation to new UNECE Gothenburg Protocol*
- *Adapt medium strategic objectives and actions*

## ***Options***

- Public consultation open until 4 March
- [No Change / Relax conditions]
- [Non-regulatory options]
- [Reinforced EU source legislation]
- [Reinforced NEC and/or AAQD]
- ...

# *The review analysis*

## **Baseline (up to 2030 – 2050)**

- *Dec '12 – Draft Final*
- *Mar '13 –Final Drafts*

## **Scope for additional reduction (up to 2030)**

- *Maximum Technically Feasible Reduction Scenario*
- *Sectoral analysis (Road, Agri, SCI, Shipping, NRMM, ...)*
- *(2<sup>nd</sup>) online-public consultation*
- *Dec '12 - Draft Final*
- *Mar '13 – Final Draft*

## **Other**

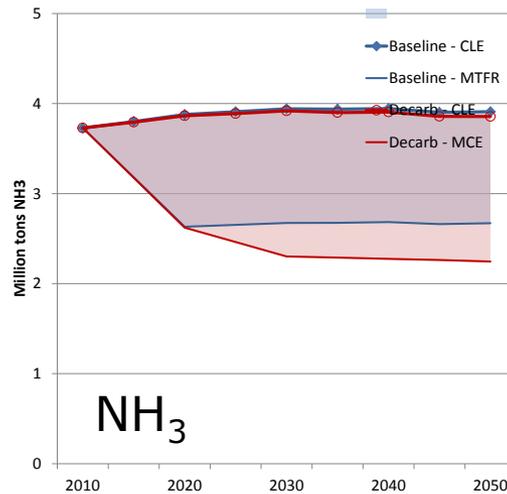
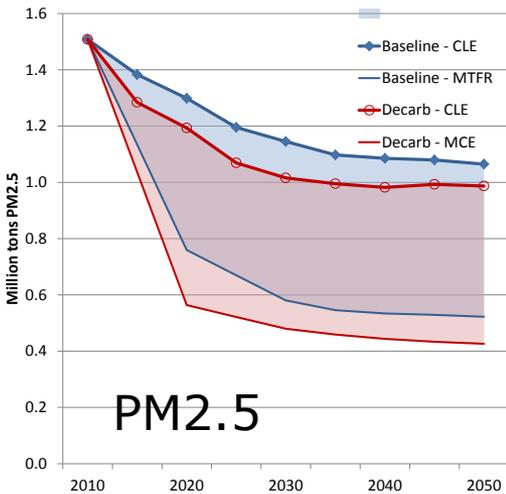
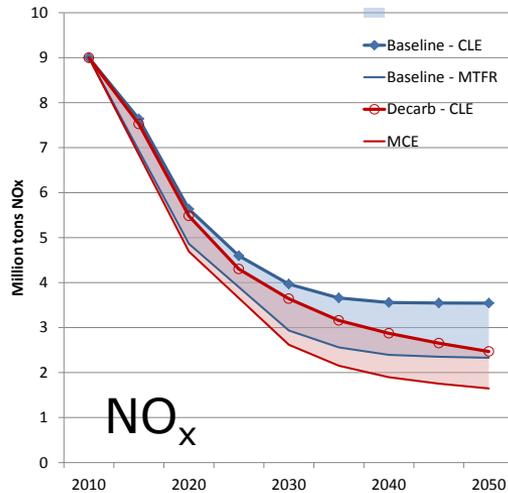
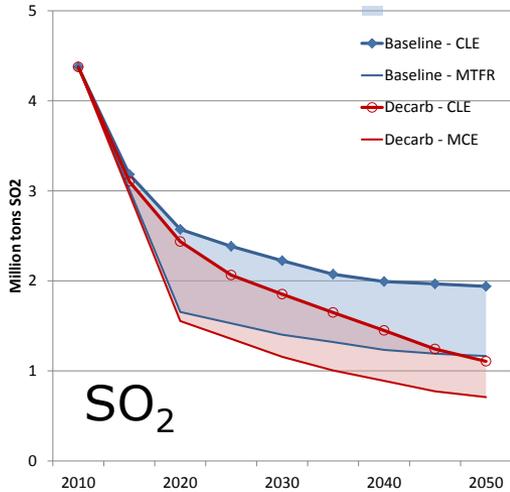
- *Technical and Scientific Review (Aquila, Fairmode, WHO, ...)*
- *Synergies (climate, competitiveness, innovation, ...)*
- *Downscaling for better compliance checking*
- *Governance issues (local/national/EU/international/...)*
- *...*

# *The review analysis*

## **Key messages of analysis to date**

- **Emission projections**
- **Impact projections**
- **AQ Compliance projections**
- **Draft intermediate ambition scenarios**
- **Draft cost-benefit calculations**
- **Next steps (TSAP 2013)**

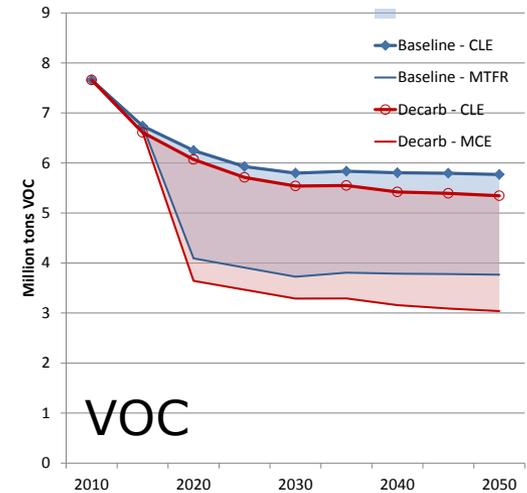
# Emission projections, TSAP 2012



## PRIMES 2010 and Low-carb Roadmap

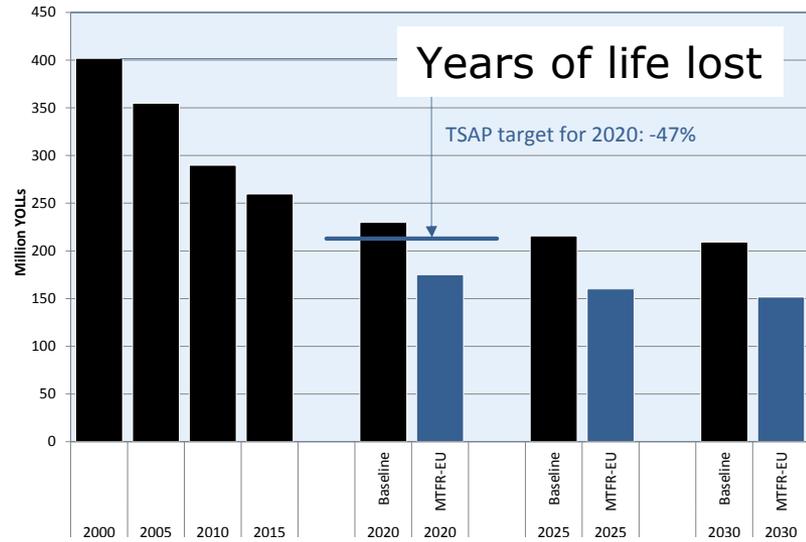
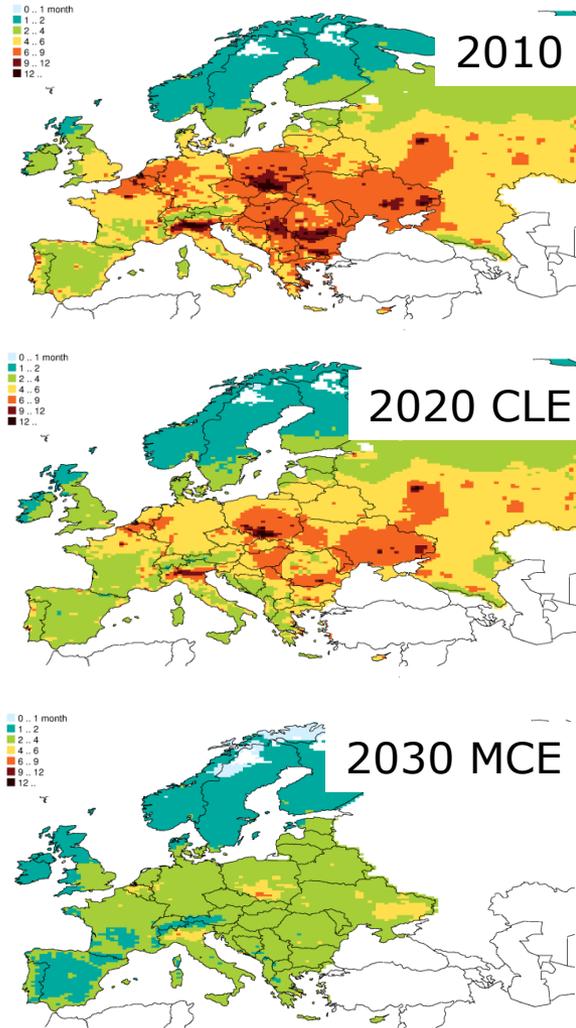
**Blue ranges:**  
TSAP-2012 CLE-MTRF

**Red ranges:**  
Decarb CLE-MCE



# Impact projections, TSAP 2012

Loss in statistical life expectancy (months)



**Baseline implies ~5 months shortening of statistical life expectancy after 2020**

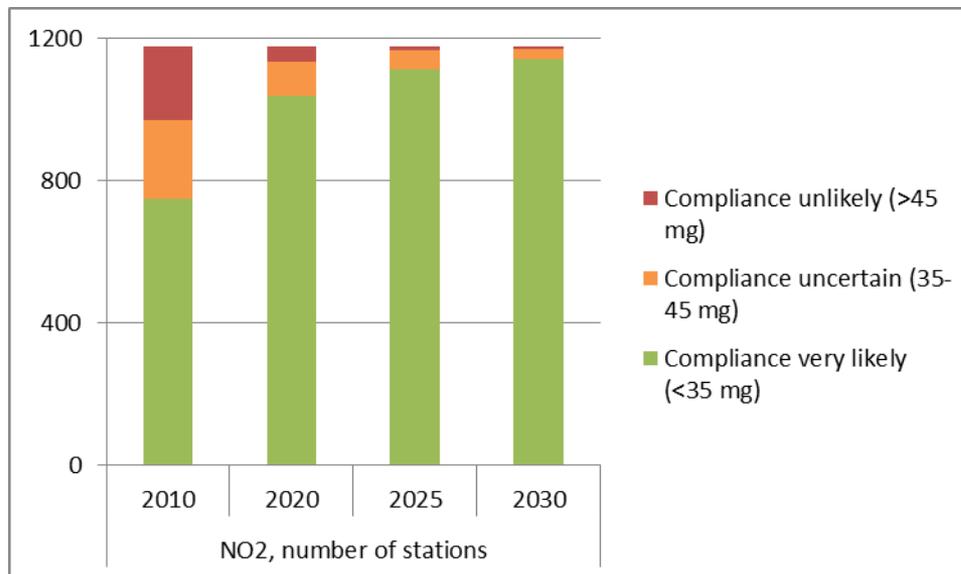
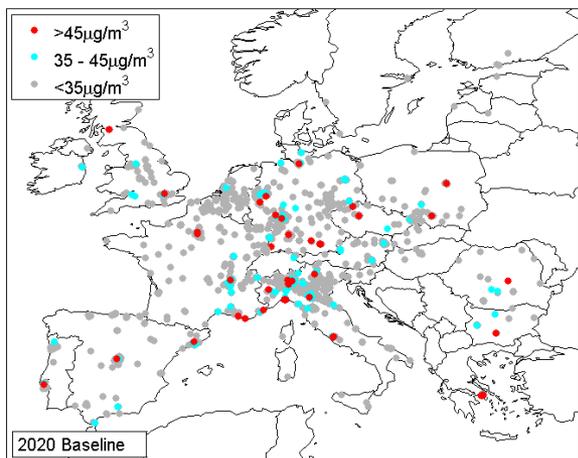
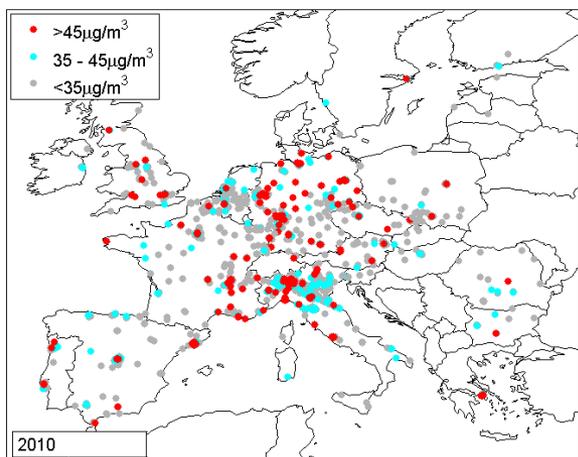
**Additional MTRF measures could save ~55 million years of life of European population**

# Impact projections, TSAP 2012

**Substantial margin for additional progress in the wedge between BL and MTR:**

- **55 million fewer years of life lost from PM**
- **3000 fewer premature deaths from ozone**
- **200 000 km<sup>2</sup> additional ecosystem area protected from eutrophication (around half the scope for improvement is in Natura 2000 sites)**
- **acidification problem on the way to be solved**

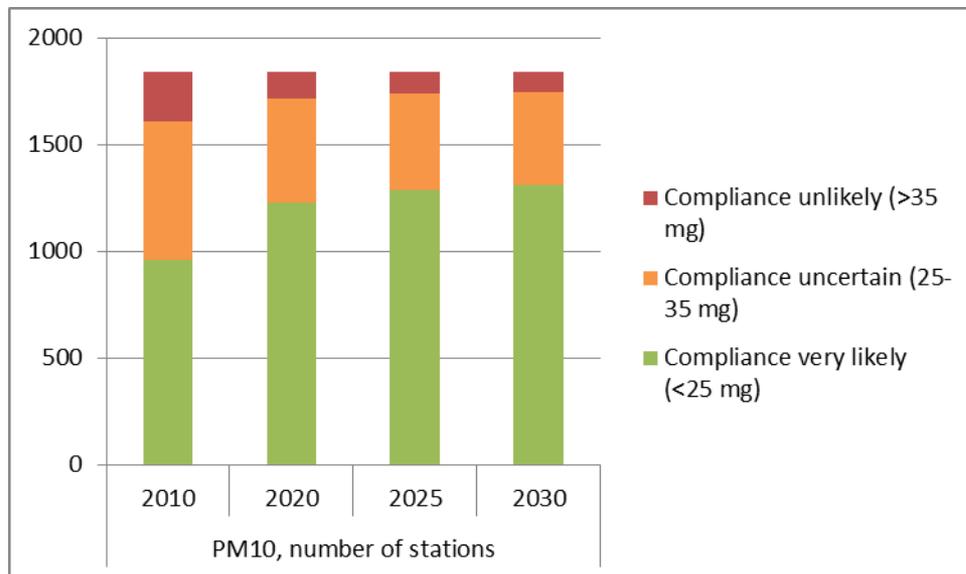
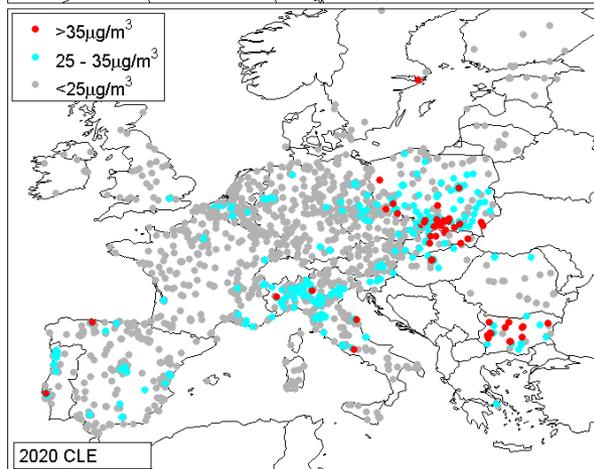
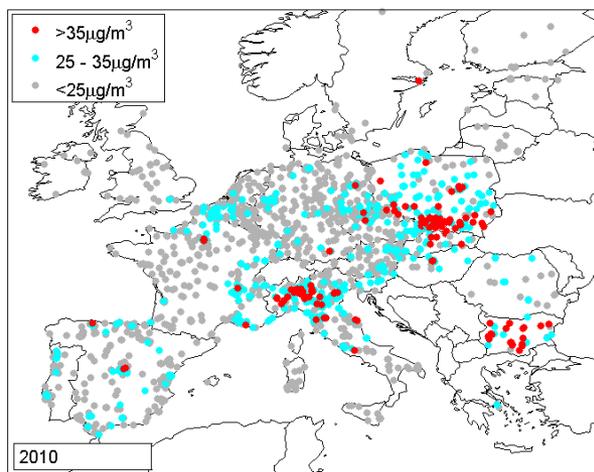
# Option 1: Baseline compliance projection for 2020: NO2



**Baseline reduces percentage of most problematic stations from 15% in 2010 to 3% in 2020**

Critical EURO6 performance

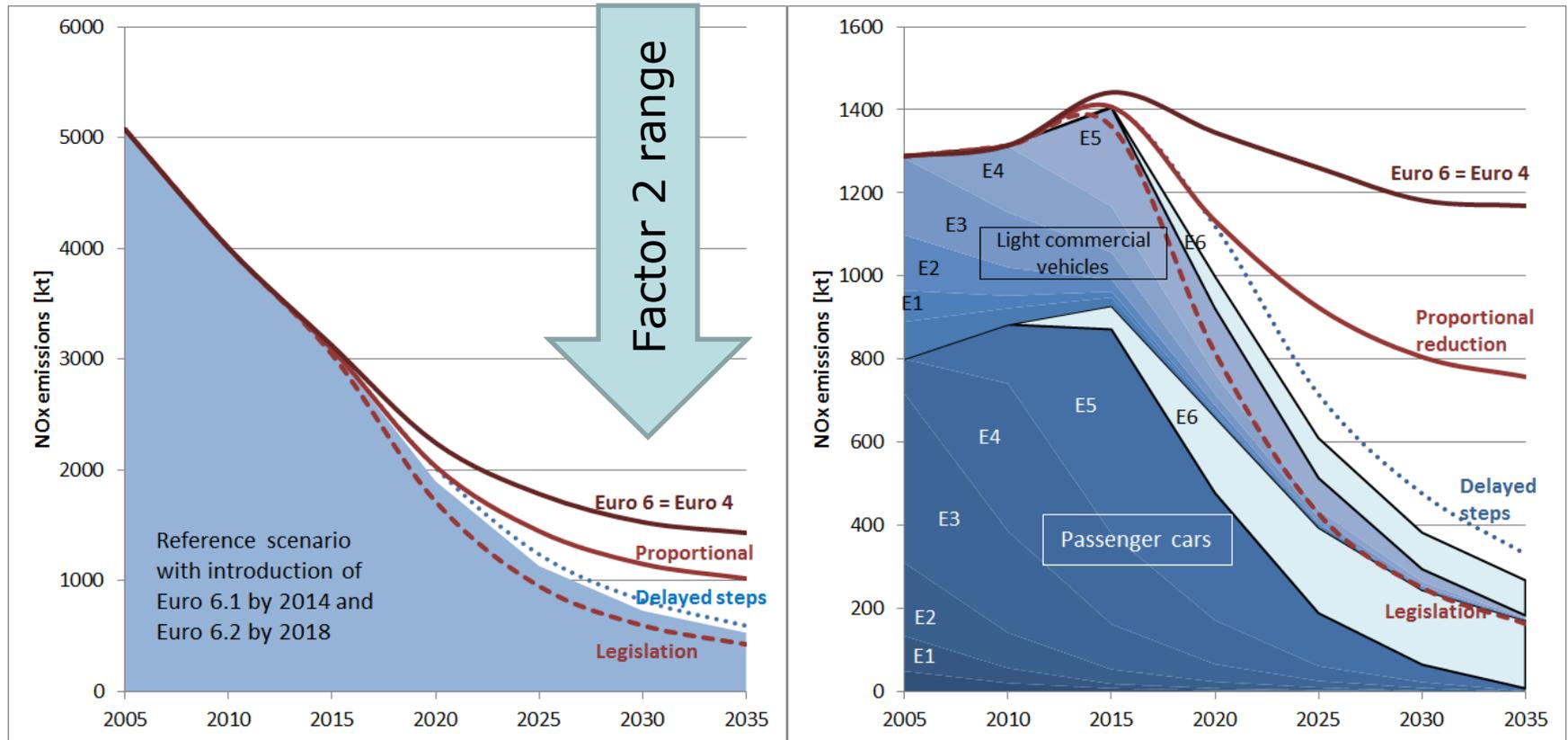
# Option 1: Baseline compliance projection for 2020: PM10



**Baseline reduces percentage of most problematic stations from 8% in 2010 to 3% in 2020**

Localised problem areas (solid fuels for residential heating)

# NO2 compliance: Euro 6 sensitivity

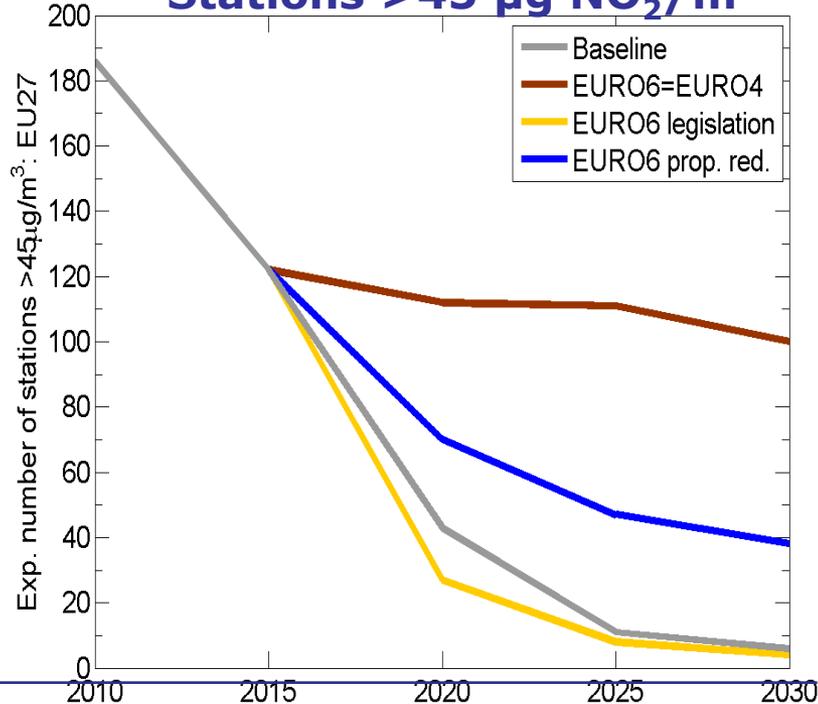


**Reference scenario:** Euro 6 = 380 mg/km from 2015 and 120 mg/km from 2018.

**“Legislation”:** Euro 6 = 80 mg/km from 2015. **“Delayed steps”:** As Reference, but Euro 6.2 only from 2020 onwards. **“Proportional reduction”:** Euro 6 = 380 mg/km from 2015. **“Euro 6 = Euro 4”:** Euro 6 = 730 mg/km from 2015

# NO2 compliance: Euro 6 sensitivity

**Stations >45 µg NO<sub>2</sub>/m<sup>3</sup>**



2010: 2 in 3 traffic stations safely within compliance

## Baseline scenario:

2020: 9 in 10 traffic stations ok  
2030: 96 in 100 traffic stations ok

**OR**

## Euro 6 = Euro 4 scenario:

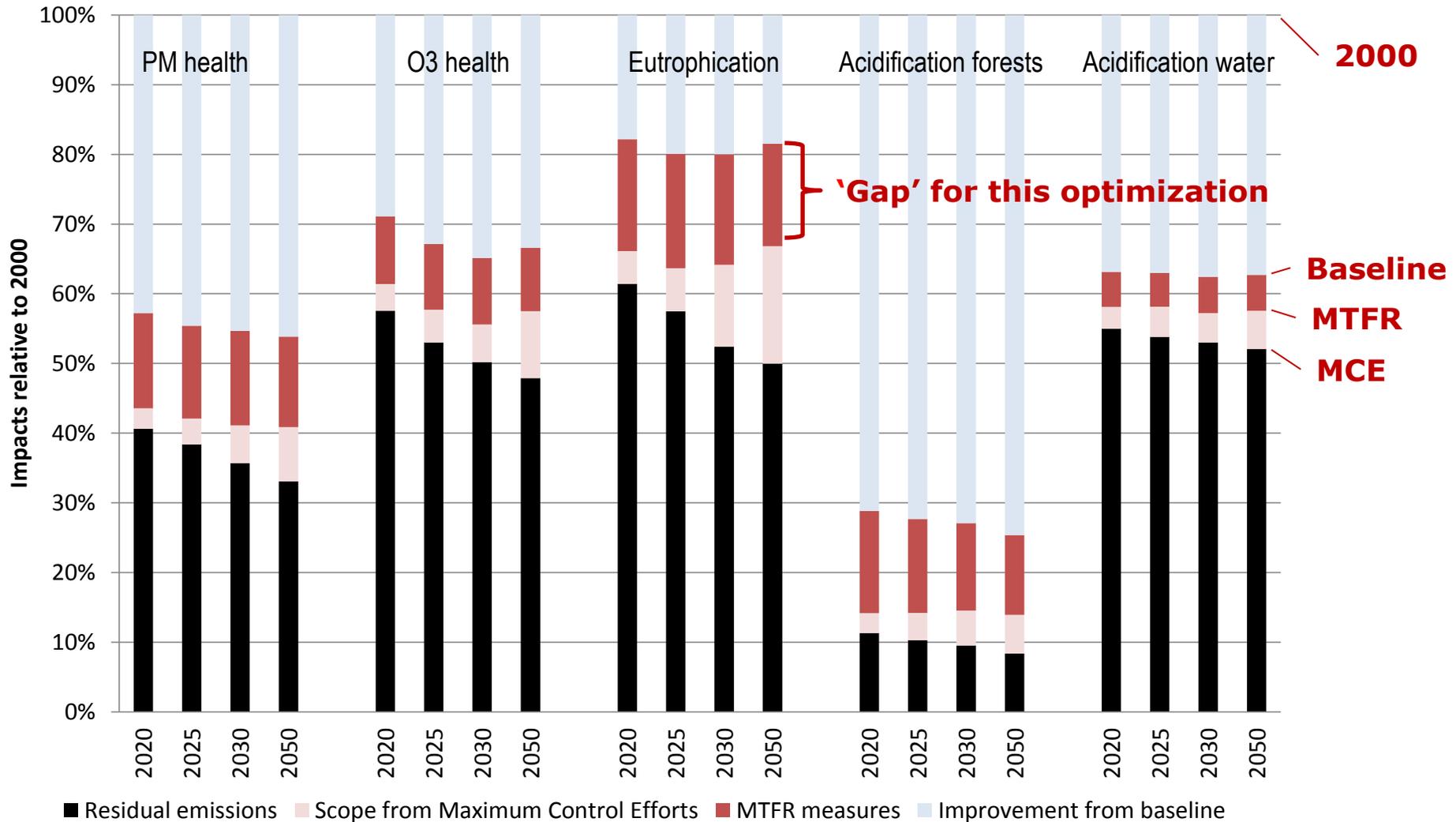
2020: <8 in 10 traffic stations ok  
2030: 8 in 10 traffic stations ok

**Compliance beyond 2015 depends crucially on level and timing of real-driving emissions from Euro 6 LDDV**

µg NO <sub>2</sub> /m <sup>3</sup>	>45	35-45	<35
<b>2010</b>	186	216	772
<b>2020</b>	43	99	1032
<b>2030</b>	6	35	1133

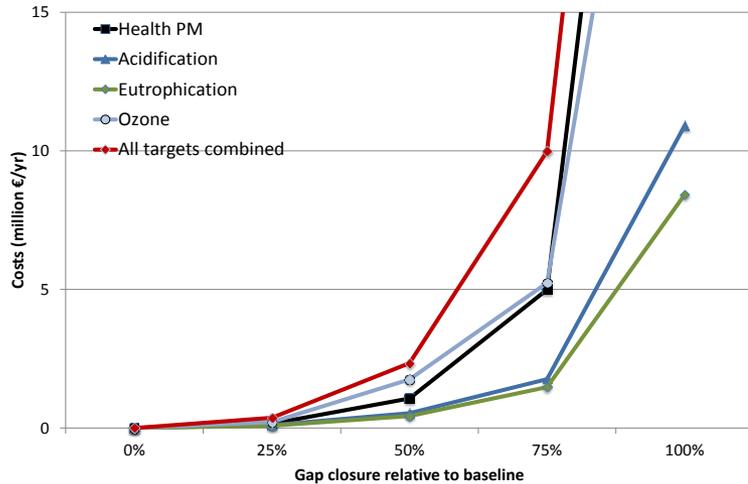
# Draft gap-closure scenarios

## feasible gap closure per indicator



# Draft gap-closure scenarios

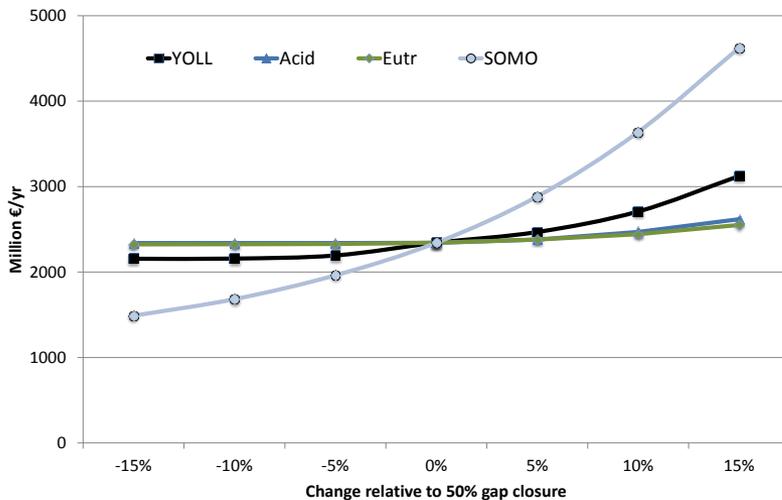
## Single- and multi-effect optimizations



- *Single-effect gap-closure optimizations are most costly for health impacts; ecosystems improvements are possible at lower costs*

- *Combined optimizations for 25/50/75% gap closure; costs amount to 0.3, 2.2 and 8.5 bn €/yr in 2025*

- *E.g. in the high case, 75% of the environmental improvements offered by MTFR would be attained for ~20% of the MTFR costs.*

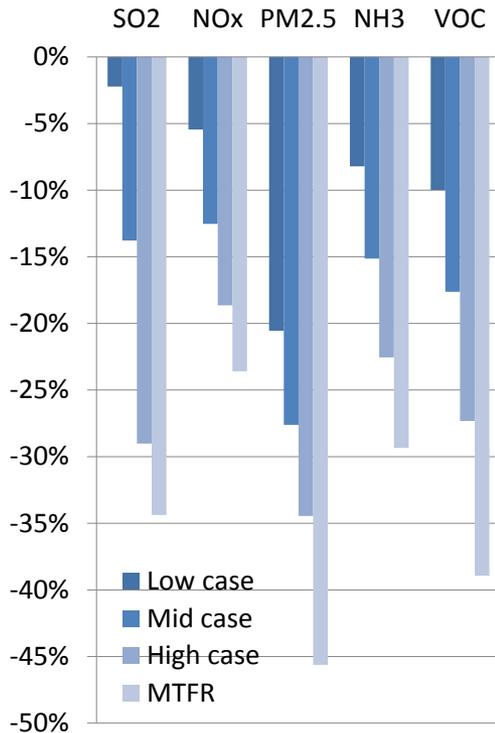


- *Sensitivity analysis on marginal optimisation indicates potential for increased cost-efficiency (relaxing 10% on ozone could pay for more ambitious PM and eutrophication targets)*

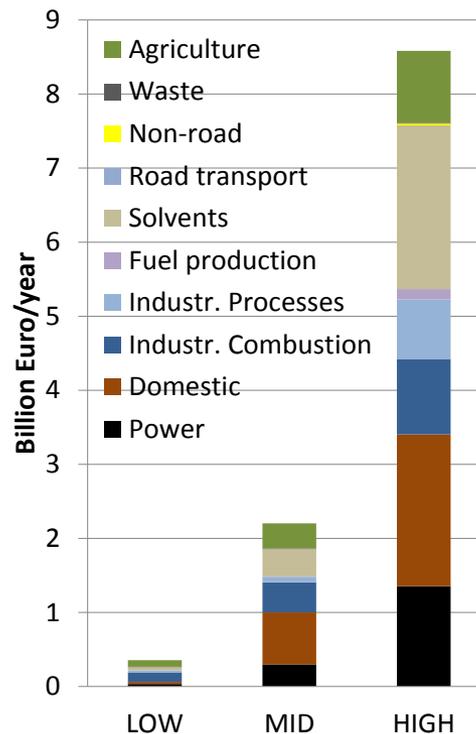
# Draft gap-closure scenarios

## Required emission reductions and burden sharing among sectors

Emission reductions relative to baseline 2025



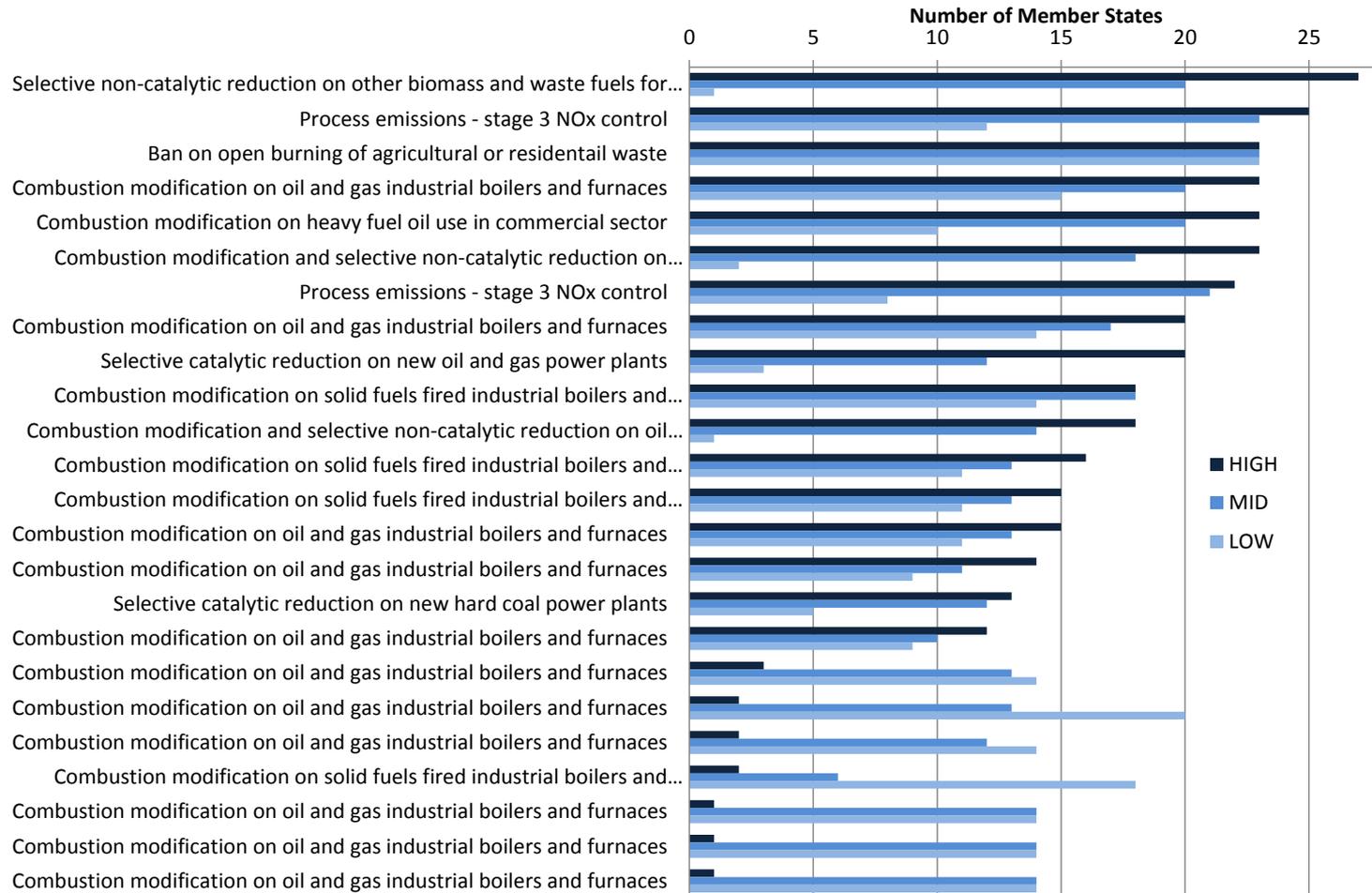
Emission control costs by SNAP sector, 2025



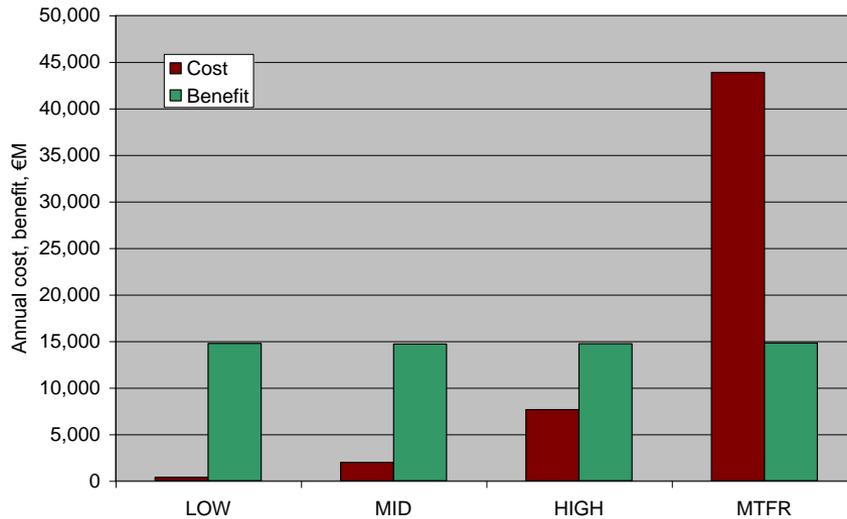
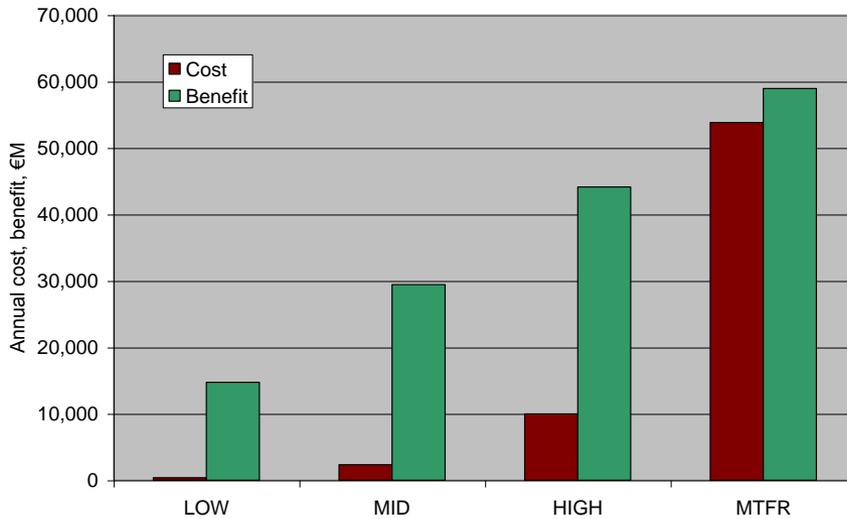
- *Measures affect all pollutants*
- *Even in the 'High' case there is a safe distance to MTRF*
- *Costs in 2025: 0.3-2.2-8.5 bn €*
- *Highest costs for the domestic and solvent sectors*

# Draft gap-closure scenarios

## Subsidiarity: EU-wide or national measures



# Draft CBA



- **All-cause mortality HIA (to be revised following WHO in January)**
- **Results presented in charts are for most conservative estimate (lower bound VOLY)**
- **Possible revision following most recent OECD advice**
- **Preliminary analysis indicates positive marginal benefits at least up to around the High level**

# Draft CBA: quantified incurred costs

## ***EFFECTS ON CROPS AND MATERIALS***

*Include:*

- **Effects of ozone on crops**
- **Effects of acidity on 'utilitarian' materials**
  
- **Materials and crops combined around only 1% of health impacts**
- **For LOW scenario account for 48% of abatement costs (€174M vs €362M/year)**
- **Figures currently under review, suggestion of larger effect for crops**
- **Cultural heritage?**

## ***LABOUR ABSENTEISM***

**Included in 'Restricted activity days'**

**Based on marginal value of productivity**

**CAFE values: €98/day,**

**CBI (2011): €146/day**

**Marginal benefit: €360M to €540M/year**

***Healthcare costs currently under review***

# What we will deliver (tentative)

## ***EU Air Quality Strategy***

- Updating the 2005 Thematic Strategy on Air Pollution
- Strategic impact and emission reduction objectives 2020/25/30
- Strategic actions for the period up to 2020 (with lasting effects)
- ...

## ***Legislative actions already under consideration***

- Revision of the NECD (National Emissions Ceilings Directive)
- Euro-6 (including managed RWE) (~ base case), "SULEV",...
- Non-road emissions (~ base case)
- Small scale combustion installations (<50 MW)
- ...

## ***Non-legislative actions already under consideration***

- uCLAP (Urban CLean Air Programme)
- iCLAP (International CLean Air Programme)
- CLIP (CLEan air Innovation Programme)
- CLARA (CLEan Air Research Agenda)
- ...

# Thank you

*[http://ec.europa.eu/environment/air/review\\_air\\_policy.htm](http://ec.europa.eu/environment/air/review_air_policy.htm)*

Public consultation accessible from  
website: closing date 4 March 2013