



**TFIAM meeting, Helsinki**  
*6-7 May 2014*

**Current EU policies:**

**The Clean Air Policy Package (highlights)**

**And related initiatives**

**Frederik Neuwahl**

**Air & Industrial emissions**  
**DG Environment, European Commission**

# Main elements of the Package

- ❑ Communication on the new European Clean Air Programme ("Strategy")
- ❑ Proposal for a revised Directive on National Emission Reduction Commitments ("NEC")
- ❑ Proposal for a Directive on controlling emissions from Medium Combustion Plants ("MCP")
- ❑ Proposal for a Council Decision on ratification of the Gothenburg Protocol amendment ("GPRI")
- ❑ Accompanying Impact Assessment ("IA")



# Objective 1: Ensuring compliance by 2020

# Key compliance obstacles pre-2020 (and solutions)

## ❑ **Transport**

- Euro 6 (2014 implementing acts)

## ❑ **Small and medium scale combustion**

- Ecodesign Directive (< 1MW)
- Targeted fuels switching programmes –PL, CZ, SK, BG

## ❑ **Background pollution** (within MS, intra-EU, global)

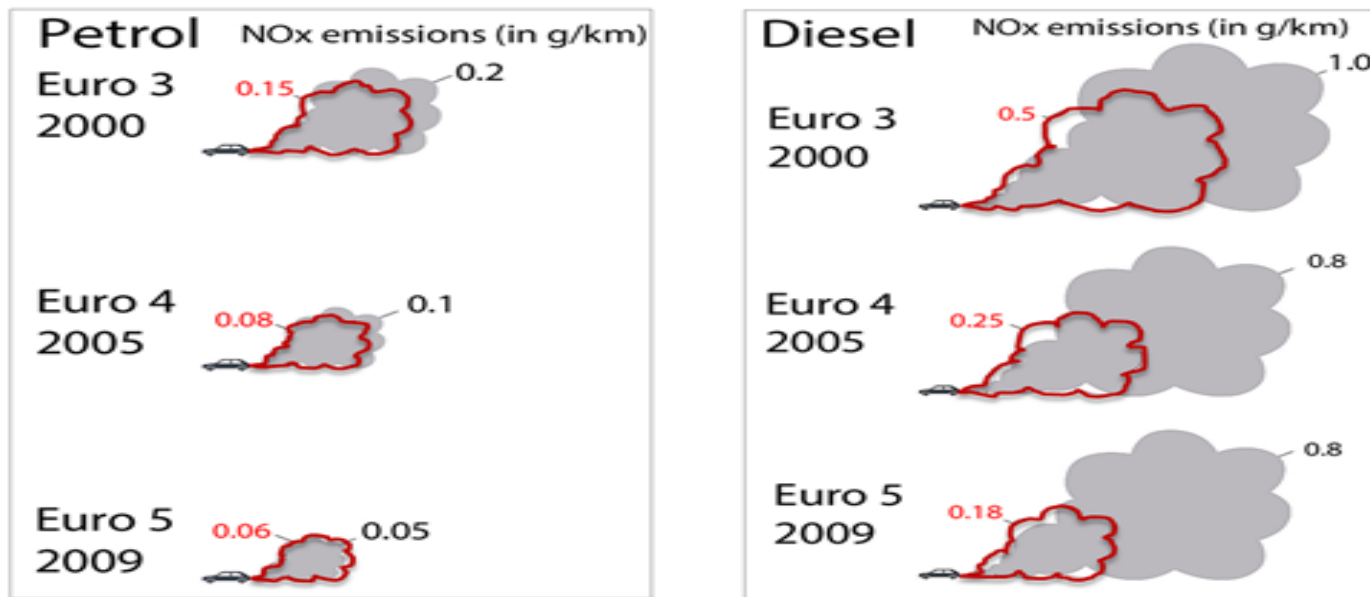
- Implementation of existing legislation (IED, Marine Fuels,...)
- Implementation of National Emission Reduction Commitments for 2020 (GP)

## ❑ **Governance**

- Coordination of AQ and emissions policy, capacity for assessment and management

# Key compliance obstacles pre-2020 (and solutions)

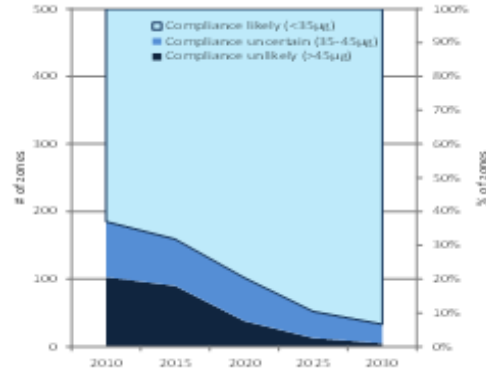
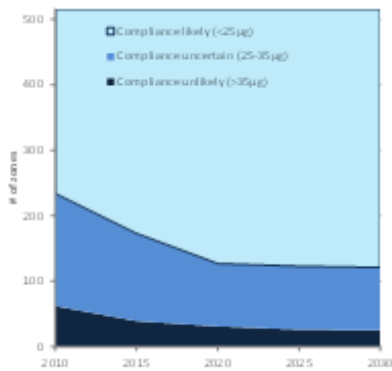
## The problem: diesel car "Real World Emissions"



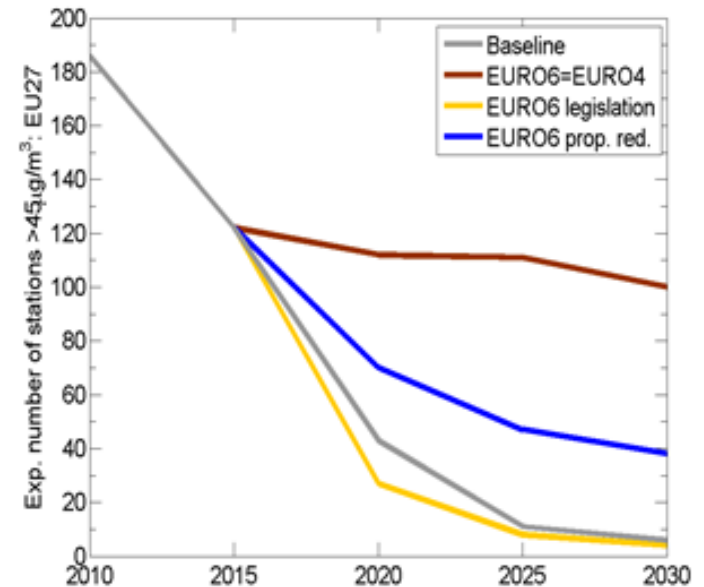
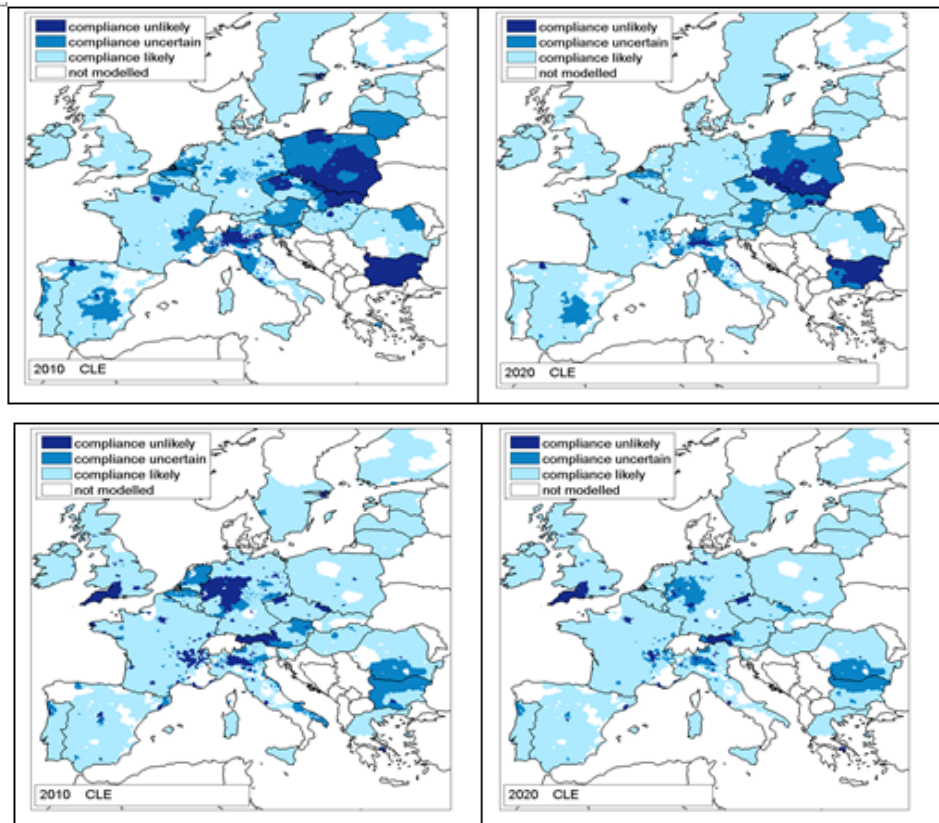
## The solution (Regulation 715/2007, CARS 2020)

- ❑ Real Driving Emissions of Euro 6 recorded and communicated as from mandatory Euro 6 dates (2014)
- ❑ No later than three years after, RDE compliance with limit values should be the basis of type approval (with robust not-to-exceed limits)
- ❑ Committee vote on new test procedure late 2014

# How Will the Problem Evolve?



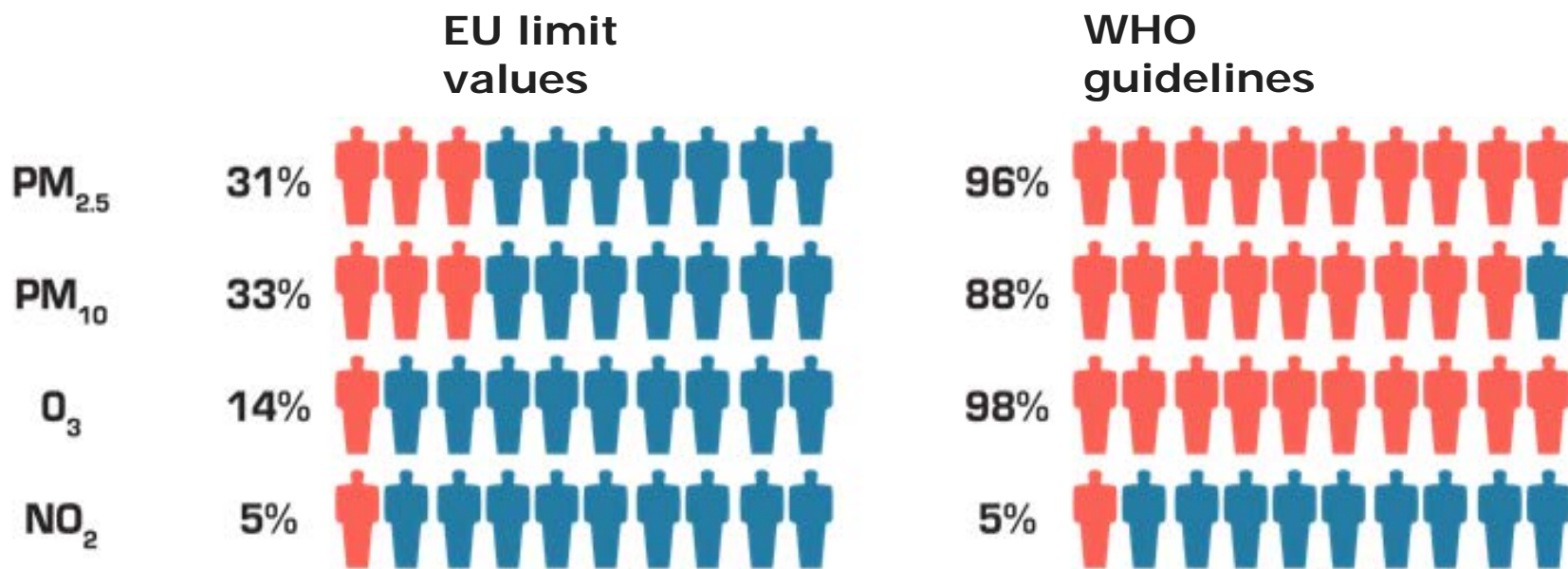
## Compliance Prospects





## Objective 2: Impact reduction beyond 2020

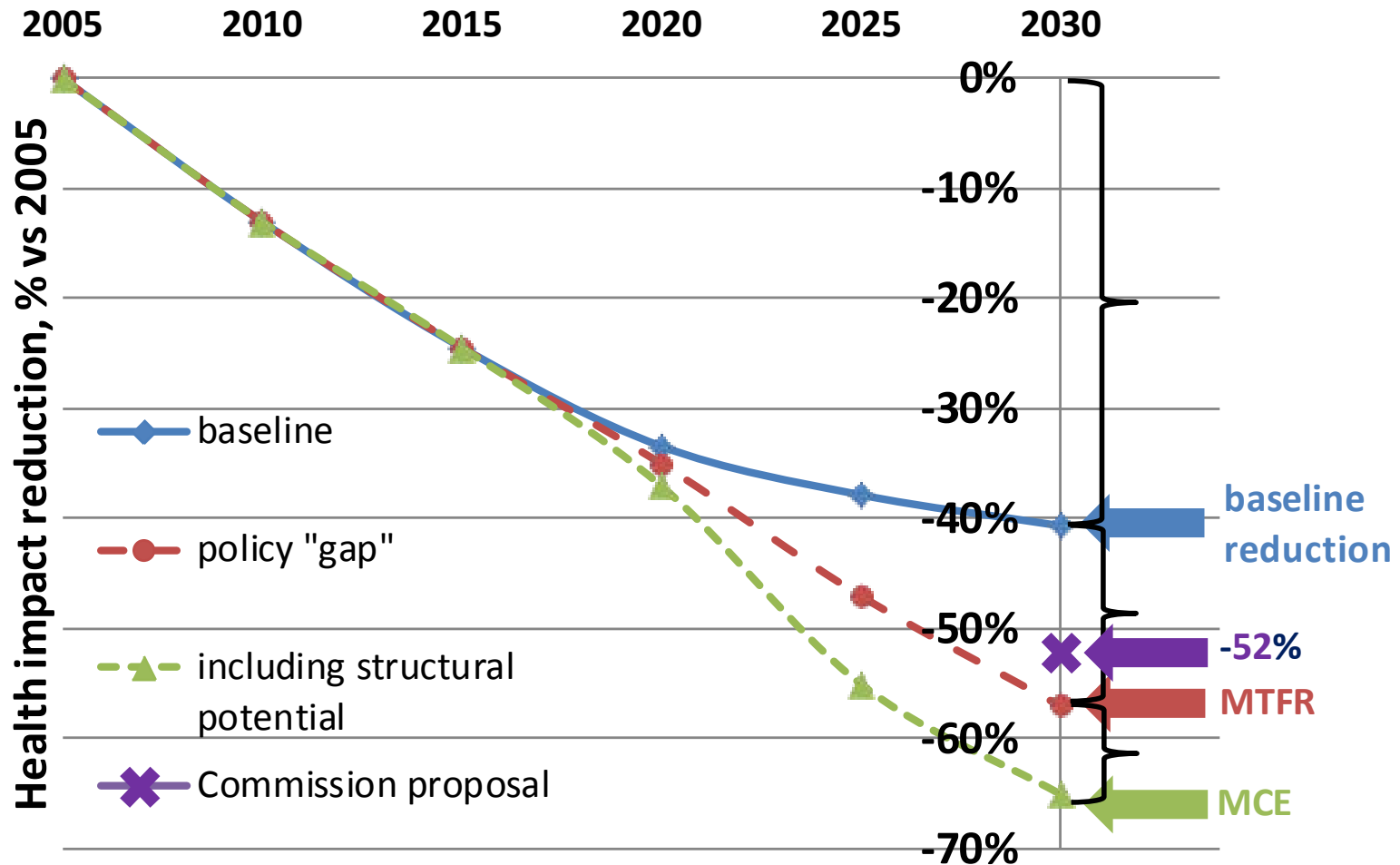
# Post 2020: Persisting problems even after full implementation





# Gap-closure approach focussed on PM-health

## Health impact in 2030



# Policy Scenarios: IA and further updates

- ❑ IA was finalised in September 2013, supports DG ENV proposal (75% gap closure in 2025)
- ❑ Commission reached compromise on adjusted objectives (70% gap closure in 2030)
- ❑ Documented in IIASA report TSAP#11
- ❑ Complemented by full CBA analysis (EMRC)

# Economic rationale for societally optimal outcome

- ❑ Maximisation of net societal benefits occurs when marginal benefits equal marginal costs
- ❑ Most conservative approach taken on valuation of benefits:
  - ❑ Only considering mortality external costs
  - ❑ Median VOLY for mortality valuation
- ❑ With this assumptions, max net benefit point is found at 76% gap closure

# Commission's final proposal: Rationale for 70% GC.

- Adjusting gap closure level from 75% to 70% reduces costs almost 30%.
- Distributional effects substantially mitigated, with much lower impacts in refineries and agriculture

**Output by sector**

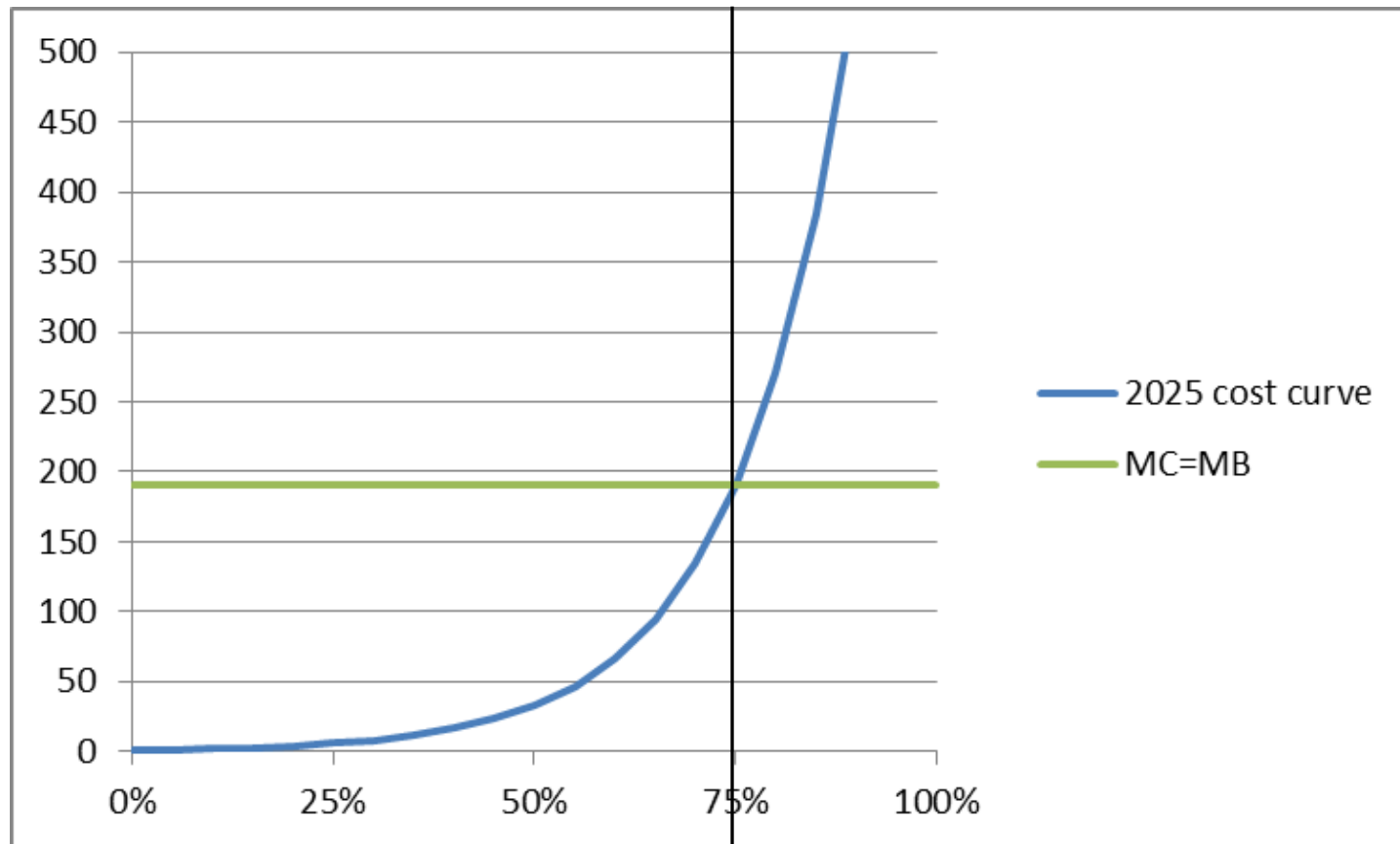
|                                | 6C*    | Final Cion |
|--------------------------------|--------|------------|
| Agriculture                    | -0,21% | -0,12%     |
| Construction                   | 0,08%  | 0,06%      |
| Electric Goods                 | 0,13%  | 0,09%      |
| Transport equipment            | 0,08%  | 0,07%      |
| Market Services                | 0,02%  | 0,02%      |
| Refinery sector                | -0,09% | -0,04%     |
| Electricity supply             | 0,13%  | 0,09%      |
| Ferrous and non ferrous metals | 0,05%  | 0,04%      |
| Chemical Products              | 0,05%  | 0,05%      |
| Other energy intensive         | 0,01%  | 0,01%      |
| Other Equipment Goods          | 0,11%  | 0,09%      |
| Consumer Goods Industries      | -0,01% | 0,00%      |
| Transport                      | 0,02%  | 0,02%      |
| Non Market Services            | 0,01%  | 0,01%      |

# Moving the gap closure level to 2030

- ❑ Structural changes occur between 2025 and 2030. This implies that the cost curve between CLE and MTFR is not the same. 70% gap closure in 2025 is not exactly the same as 70% in 2030.
- ❑ More than by the gap closure %, options are defined by sets of cost-effective technical measures

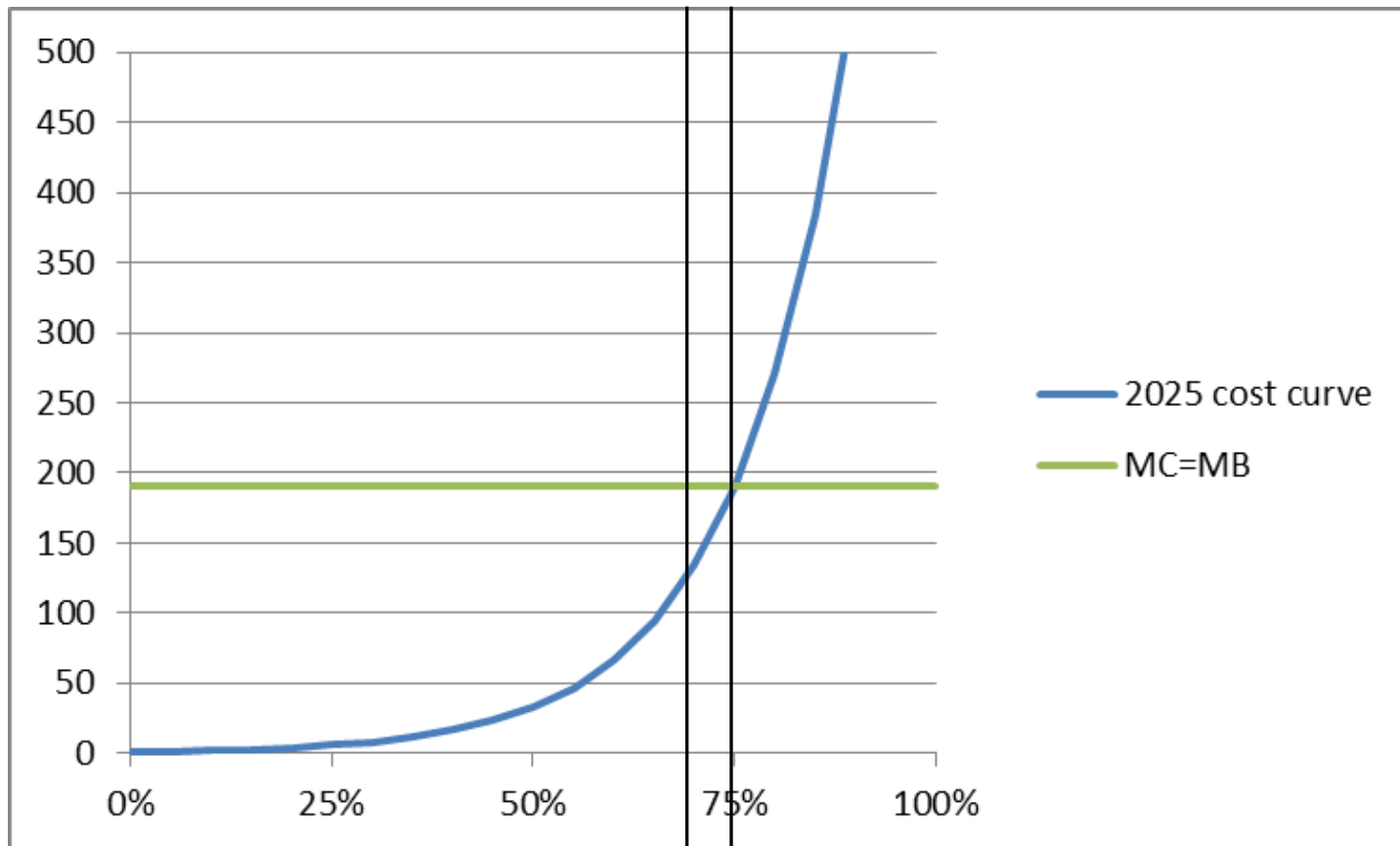
# In 2025

- At the 76% gap closure level, all measures available at cost lower than the resulting health benefit are taken



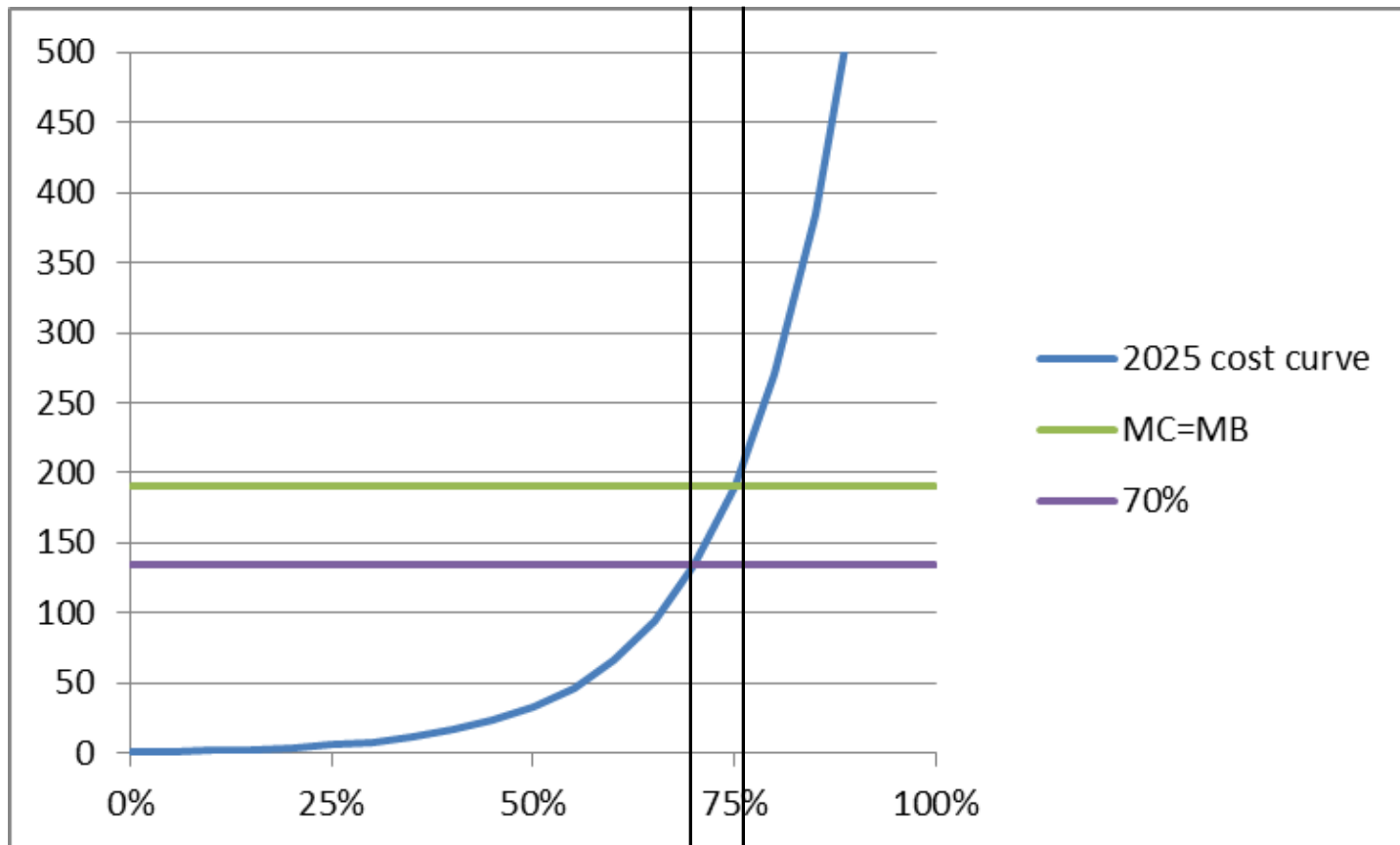
# In 2025

- Moving to 70% gap closure, the most expensive measures of the initial portfolio will be dropped



# In 2025

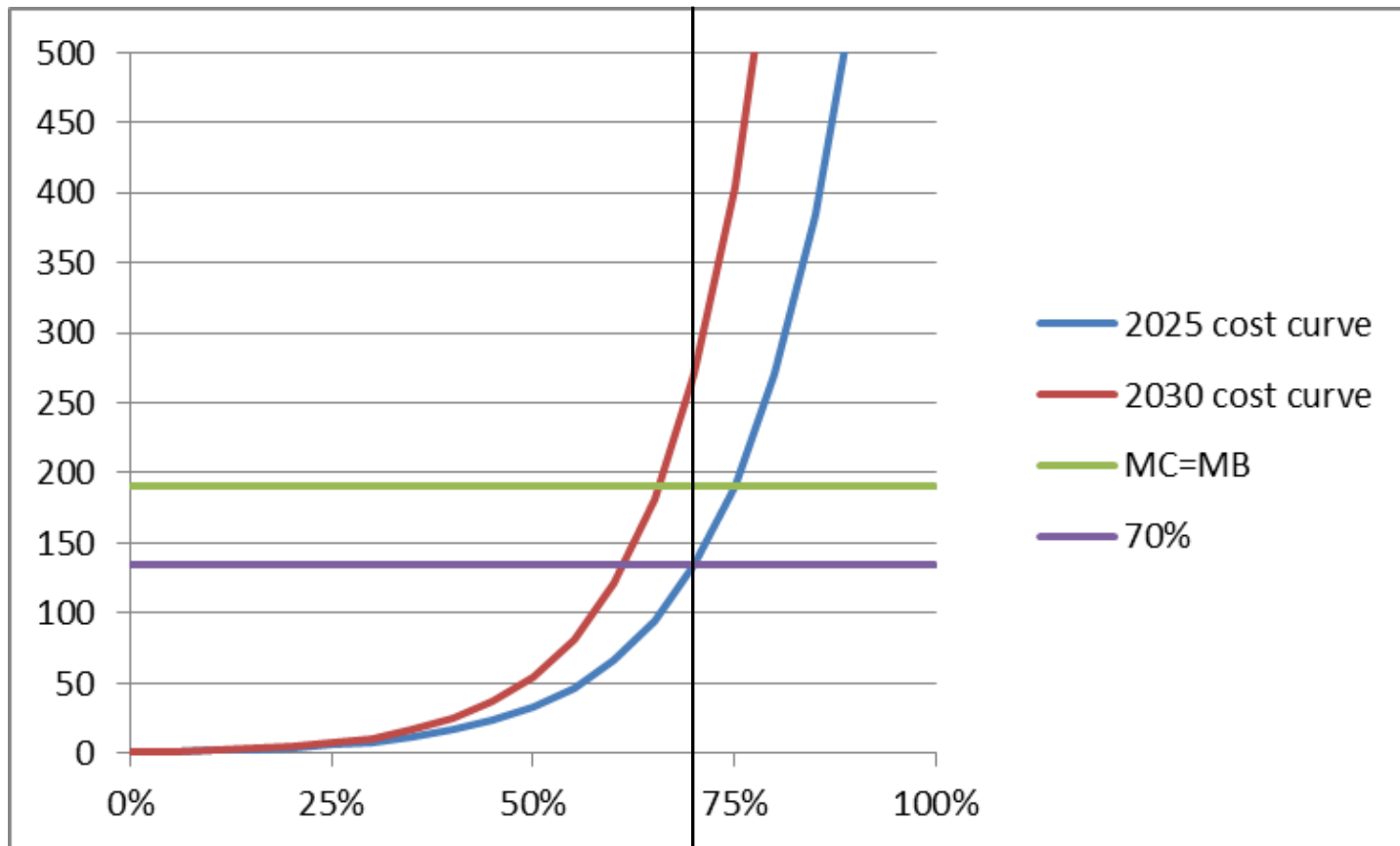
- At the 70% gap closure level, all measures cheaper than ~1/2 the benefit delivered are selected.





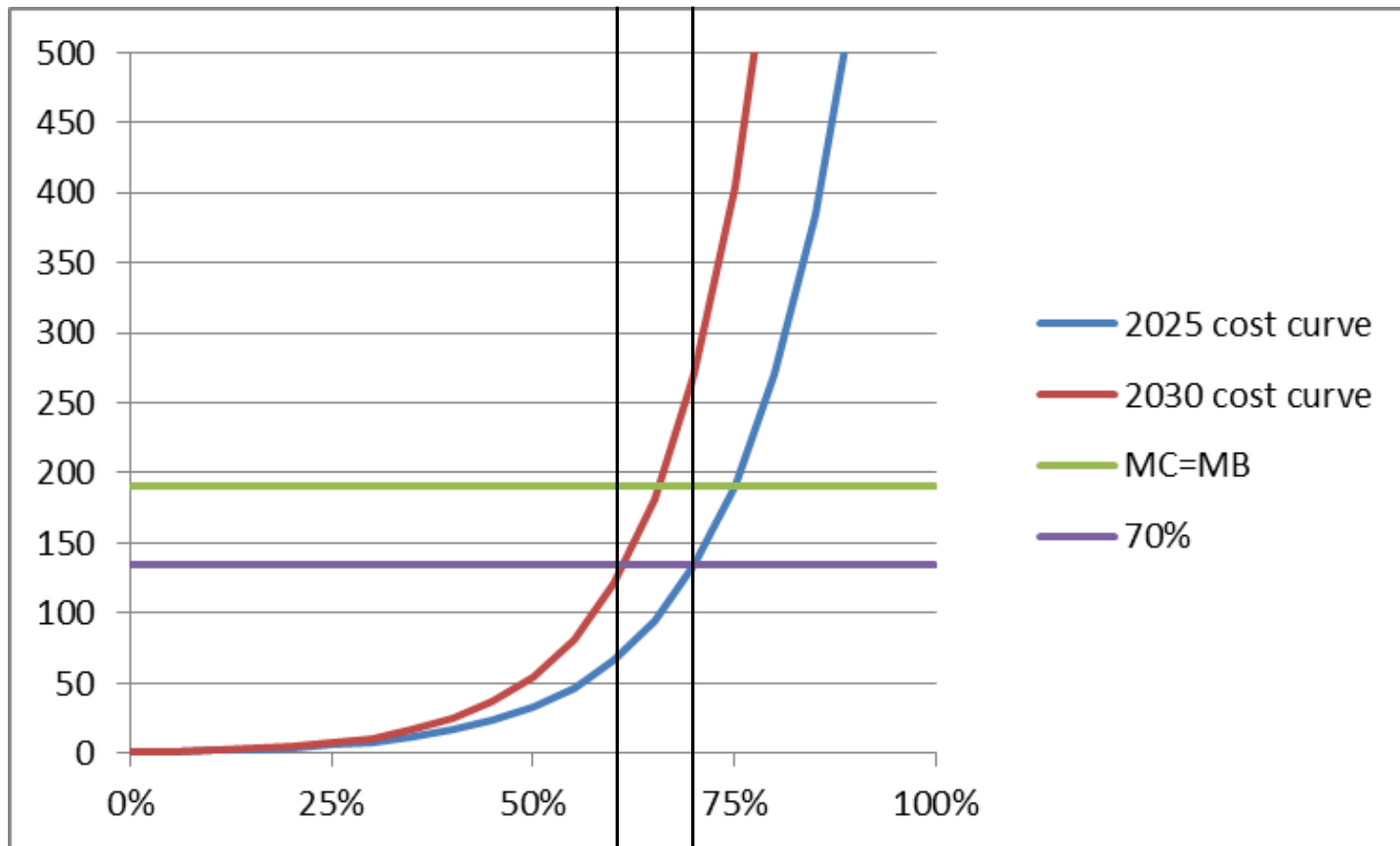
# Moving to 2030

- The 2030 cost curve is different due to structural change.



# Moving to 2030

- The 2030 gap closure that deploys the same technical measures maintains the same marginal cost. This level is 67%



# The final 2030 Commission proposal

- Emission reductions in the range 27-81% compared to 2005 levels, achievable at a cost of €3,3bn

|       | 2005  | 2030     |      |       |
|-------|-------|----------|------|-------|
|       |       | Baseline | NECD | MTFR  |
| SO2   | 8172  | 2211     | 1530 | 1382  |
|       |       | -73%     | -81% | -83%  |
| NOx   | 11538 | 4051     | 3599 | 2948  |
|       |       | -65%     | -69% | -74%  |
| PM2.5 | 1647  | 1200     | 804  | 607   |
|       |       | -27%     | -51% | -63%  |
| NH3   | 3928  | 3663     | 2871 | 2568  |
|       |       | -7%      | -27% | -35%  |
| VOC   | 9259  | 5460     | 4598 | 3191  |
|       |       | -41%     | -50% | -66%  |
| Cost  |       |          | 3311 | 50575 |

# Interactions with the 2030 framework for climate and energy

- ❑ The IA to the 2030 CEfw reports air pollution co-benefits for a range of decarbonisation scenarios (from -35% to -45% GHG in 2030).
- ❑ Also, will the CEfw implementation help achieving the emission reductions required by the NECD?
- ❑ This is documented in the TSAP report #11, although an update is necessary to fully align with the precise low-carbon scenario corresponding to Commission communication (40%GHG, 27% RES)

# Achieving the emission reductions in a low-carbon economy

- Objectives coherent and mutually reinforcing with the 2030 framework for climate and energy

|       | 2005  | 2030     |      |       | % of NECD |
|-------|-------|----------|------|-------|-----------|
|       |       | Baseline | NECD | GHG40 | Cost      |
| SO2   | 8172  | 2211     | 1530 | 2123  |           |
|       |       | -73%     | -81% | -74%  | 13%       |
| NOx   | 11538 | 4051     | 3599 | 3860  |           |
|       |       | -65%     | -69% | -67%  | 42%       |
| PM2.5 | 1647  | 1200     | 804  | 1175  |           |
|       |       | -27%     | -51% | -29%  | 6%        |
| NH3   | 3928  | 3663     | 2871 | 3660  |           |
|       |       | -7%      | -27% | -7%   | 0%        |
| VOC   | 9259  | 5460     | 4598 | 5377  |           |
|       |       | -41%     | -50% | -42%  | 10%       |
| Cost  |       |          | 3311 |       | 2564      |

# Benefits to costs outlook for 2030

**External cost benefits (health only): €38 -138 bn/year**

**Direct (incurred) cost savings: €2,8 bn/year**

- Higher productivity of the work force: €1870 m
- Lower health care costs: €550 m
- Higher crop yields due to lower ozone levels: €250 m
- Less damage to buildings: €130 m

**Implementation costs: € 3,3 bn per year**

- Down to 2,5bn if 2030 climate and energy package is implemented
- GDP impact: + 0,007% (€1bn)
- Employment impact: +100,000 FTE (of which 40,000 new jobs)

*= Costs 12-42 times lower than benefits*

*= Costs about equal to direct economic cost savings*

# What the policy brings over time

## Policy milestones

| Year                        | PM health impact reduction vs 2005 | Air quality compliance (PM <sub>2,5</sub> )  |
|-----------------------------|------------------------------------|--|
| <b>2020</b>                 | 33%                                | Full compliance with existing legislation (25µg/m <sup>3</sup> )   |
| <b>2030</b>                 | 52%                                | Full compliance with 20µg/m <sup>3</sup> , and 90% of stations comply with 15µg/m <sup>3</sup><br>(USA at 12µg/m <sup>3</sup> since 2012 for 2020) |
| <b>2050</b><br>(indicative) |                                    | 90% of stations comply with 10µg/m <sup>3</sup><br>(WHO guideline value)   |

# Current stage

**Commission adoption of proposed package: December 2013**

## **Council**

- NECD analysis stated in January 2014, monthly meetings with WPE
- Bilateral technical meetings at IIASA: until May
- Clarifications on specific topics (e.g. marine offsets)
- Reporting back to Council ca. June
- Orientation debate in June Council

## **Parliament**

- Slower pace expected until new Parliament in office
- Rapporteur nominated
- Parliament's IA services can conduct supplementary analysis



# Other linked policy initiatives

## Initiatives delivering part of required emission reductions:

- Parallel MCPD interinstitutional process
- Ecodesign implementing acts
- NRMM directive revision
- Implementing acts Euro 6

## Process on 2030 C&E framework

- Council conclusions 20-21 March
- Analyse MS implications
- Develop effort sharing mechanisms
- Develop measures to prevent carbon leakage
- Review EED and develop EE fw.
- Final decision by Oct 2014