

# Background NEC

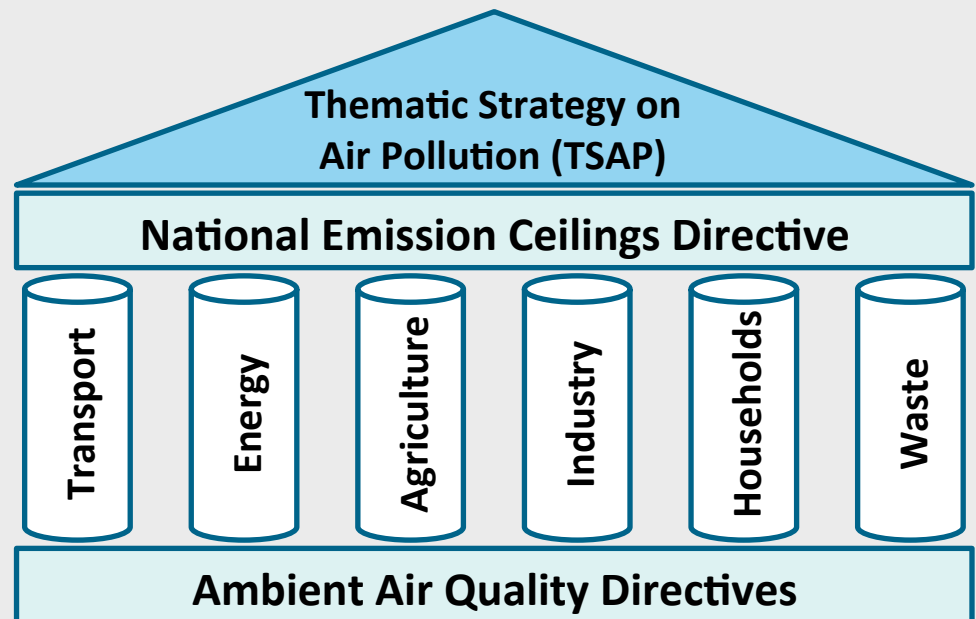
TR 2008 IB-EN-02

# Content

- NEC Framework & (By-) Law
- Inventory & Projections
- National Programme (Action Plan & Roadmap)

# NEC Framework (1): One directive covers all sectors

- **National Emission Ceilings (NEC)  
Directive 2001/81/EC**
- Air Quality Directive  
2008/50/EC,  
4<sup>th</sup> Daughter Dir. 2004/107/  
EC
- Industrial Emissions  
Directive (IED) 2010/75/EC
- Sulphur content of  
(maritime) fuels
- EURO standards for  
vehicles
- Non-road Mobile Machinery  
emission standards



source: DG ENV

## NEC Framework (2): Ceilings and Goals

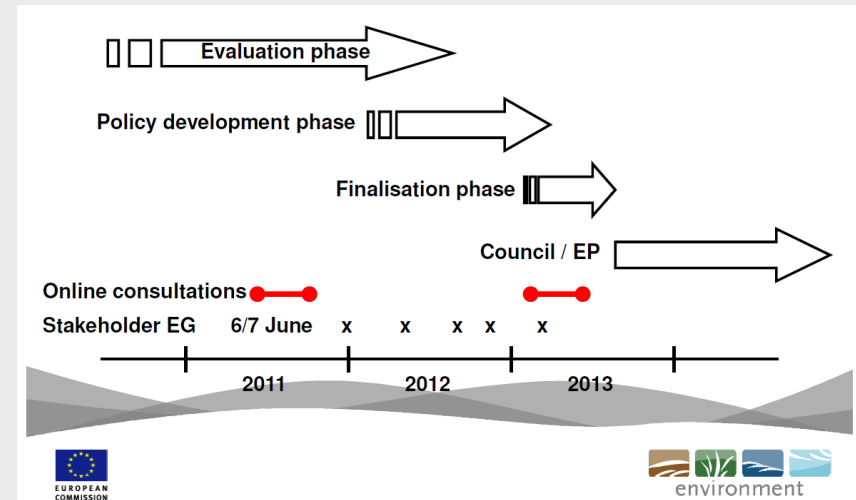
- Sets limits for national emissions in 2010 for SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub> and NMVOC (ceilings)
- Goal: to abate acidification, eutrophication and ground level ozone
- Based on the Gothenburg Protocol and calculations of IIASA under the UNECE Convention on Long-range Transboundary Air Pollution framework
- Revision foreseen since 2006, delayed *inter alia* due to the EU Climate and Energy package

## NEC Framework (3): (By-) Law

- NEC Implementation differs in the European Member States
- Most opted for a specific legal instrument to transpose all requirements
- Austria adopted a NEC-law through parliament approval
- Austria sent a National Programme approved by government decree
- Within the Twinning project, we already developed a draft content outline of a Turkish legal instrument

# NEC Framework (4): Review and revisions

- Review by 2013 of obligations for PM<sub>2.5</sub> and, as appropriate, other pollutants
- Considering: latest WHO information, air quality situation, reduction potential, revision of NEC directive, progress in implementation, ...
- Review of heavy metals and PAHs target values
- Revision of NEC Directive (new ceilings for future)
- Public consultations
- Stakeholder Expert Group meetings



# NEC Framework (5): Revision of Gothenburg Protocol

- Should be finalised by end of 2011
- 6 scenarios and baseline analysed with a scenario model (GAINS)
- aims also at attracting more parties
- PM or BC will be included
- Suggestions to streamline technical annexes
- Several flexibility mechanisms considered:
  - Relative Emission Ceilings
  - Accounting for Change and Uncertainty
  - Time Based Mechanisms (3 years average, delayed compliance)
  - Domestic Pollutant Swapping
  - Emissions Trading Scheme Variants

# Inventory & Projections (1)

- Every Member State has to prepare an annual emission inventories and Projections (Articles 2, 6,7, 8)
- This inventory is the basis for compliance checking
- Delivery date is the 31 December
- The inventory is even more complex than the greenhouse gas inventory (technology influence is higher)
- The inventory has to be based on available statistics from all(!) sectors
- There is an annual review linked to the related protocol of the United Nations (Gothenburg Protocol)
- Austria has a National System for Inventories and Projections based on Data from other Ministries and Stakeholders



# National Programmes (1)

## To show how

- National Programmes have to show how NEC Ceilings have been implemented and to what extent long-term objectives could be met
- Member States were obliged to send National Programmes in 2002 and an update in 2006
- The European Commission evaluated these Programmes and issued recommendations/guidelines

## National Programme (2): Questions answered in evaluation

- Will ceilings be met?
- Concerns with respect to meeting ceilings
- Key measures? Community measures?
- Recommendations to encourage implementation of policies and measures?
- Reporting requirements achieved?
- Did guidance on reporting help?
- How can reporting requirements be improved?
- Consistency with other reporting requirements?
- Policy level of national programmes?
- Role of programmes, inventories, projections in reducing emissions

# National Programme (3)

## Process, consultations & adoption

- Formal process and intergovernmental procedures in some MS
- Consultations have taken place with:
  - public
  - stakeholders
  - industry and business associations
  - NGO
  - advisory council
- Consultations have taken between 2 months and one year
- Only few MS reflected consultation in programme

## **National Programme (4): Process, consultations & adoption**

- Programme mostly prepared by environment ministry in collaboration with other bodies
- Adoption either as a whole e.g. by parliament or for individual measures
- Synergies with Air Quality and Climate Change programmes

## **National Programme (5): Key sectors addressed**

- SO<sub>2</sub>: Energy, Industry, Transport
- NO<sub>x</sub>: Energy, Industry, Transport, Domestic, Agriculture
- NMVOCs: Industry, Transport
- NH<sub>3</sub>: Agriculture

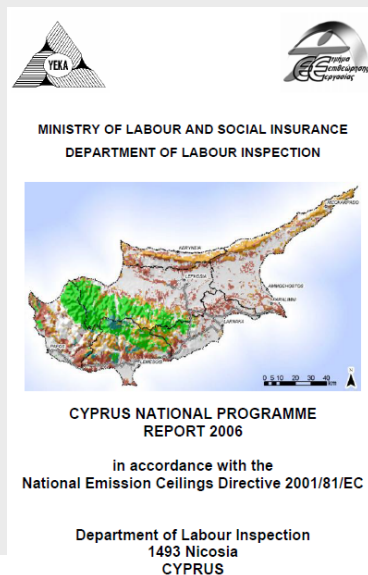
# National Programmes (6): Examples

Member State	Inventories (max 6)	Projections (max 8)	PAMs (max 14)	General (max 10)	Total (max 38)	Score Index (%)
Austria	6	8	4	8	26	68%
Belgium	6	8	14	7	35	92%
Cyprus	6	7	14	10	37	97%
Czech Republic	6	8	9	7	30	79%
Denmark	6	8	10	10	34	89%
Estonia	6	7	9	8	30	79%
Finland	6	6	7	9	28	74%
France	6	8	8	6	28	74%
Germany	6	8	12	9	35	92%
Greece	6	4	0	0	10	-
Hungary	3	7	10	9	29	76%
Ireland	6	7	7	5	25	66%
Italy	6	8	8	6	28	74%
Latvia	6	8	12	10	36	95%
Lithuania	6	8	9	7	30	79%
Luxembourg	0	0	0	0	0	-
Malta	6	8	11	9	34	89%
Netherlands	6	6	9	8	29	76%
Poland	6	5	9	4	24	63%
Portugal	6	8	12	9	35	92%
Slovakia	6	5	5	7	23	61%
Slovenia	6	8	10	9	33	87%
Spain	6	6	10	6	28	74%
Sweden	6	5	7	8	26	68%
UK	6	8	12	8	34	89%

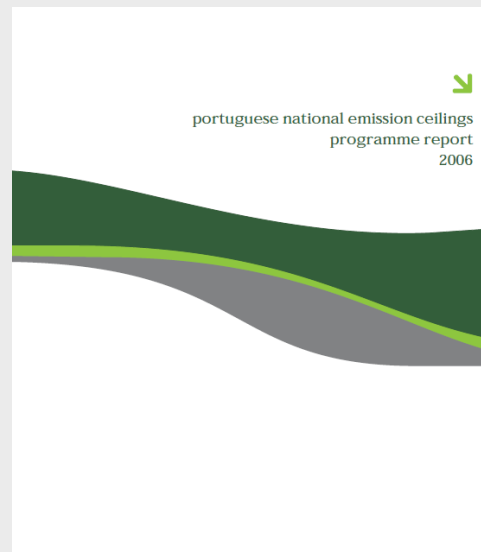
source: AEA 2008

# National Programmes (7): Examples of best practice

- BE, CY, DK, DE, (LV), MT, PT, SL, UK
- available at European Commission's NEC website:  
[http://ec.europa.eu/environment/air/pollutants/nationalprogr\\_dir200181.htm](http://ec.europa.eu/environment/air/pollutants/nationalprogr_dir200181.htm)

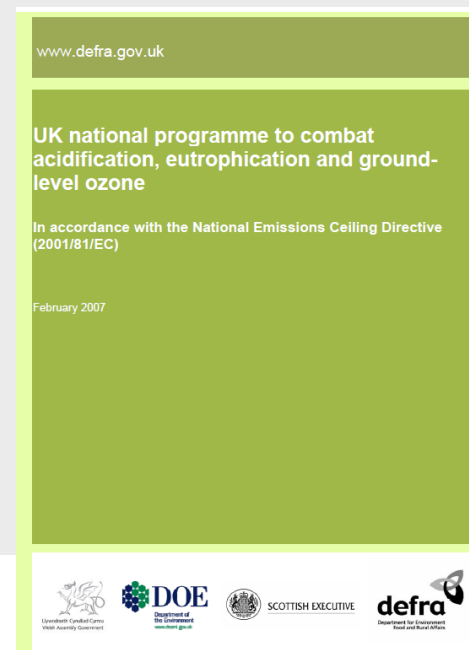


DECEMBER 2006



Universidade Nova de Lisboa  
Faculdade de Ciências e Tecnologia

Instituto do Ambiente  
INIA



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## Rough Product Timeline 2012

2012	Inventory	National Programme	By-Law
Q1	Basic Training Inventory- Reporting	Draft projections & Ceilings	Content outline
Q2	Inventory training Draft Report	Draft set of measures	By-Law draft
Q3	Inventory training Documentation	Draft action plan	By-Law draft rev. 1
Q4	Inventory preparation	Draft road map	By-Law draft rev. 2



## Contact & Information

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CoCom  
Ankara ■ 16.12.2011

# Annex

# NECD programme: Outline according to guidelines

- Executive summary
- Political and administrative procedure of adoption
  - i. a basic description of the procedure for preparation and adoption
  - ii. the regulatory status of the national programme
  - iii. the authorities that have been involved in the development of the programme
  - iv. the consultation(s) that undertaken with stakeholders;
  - v. any co-ordination with other national plans, programmes and reporting requirements



emission abatement roadmap

# NECD programme: Outline according to guidelines

## ■ Policies and measures

- i. name and brief description of policy or measure;
- ii. the objective of the policy or measure. This should highlight the key benefits of the policy or measure including identification of the source categories affected;
- iii. NECD pollutant(s) affected;
- iv. the type of policy instrument;
- v. the status of implementation of the policy or measure (where relevant, a policy or measure should be described as implemented, adopted or planned);

# NECD programme: Outline according to guidelines

- vi. the responsible body or bodies for implementing the policy or measure should be described;
- vii. aggregated quantitative estimate of the impact of policy or measure on emissions of each NECD pollutant in 2010 and 2020 should be provided (expressed in kilotonnes). This may be expressed as a range of potential impacts to reflect the uncertainty in any estimates.
- viii. clear indication of whether the policy or measure has been taken into account in the 'with measures' or 'with additional measures' emission projections.
- ix. Indication of the impacts of this measure on greenhouse gas emissions (e.g. is it an energy intensive measure that increases GHG emissions).

# NECD programme: Outline according to guidelines

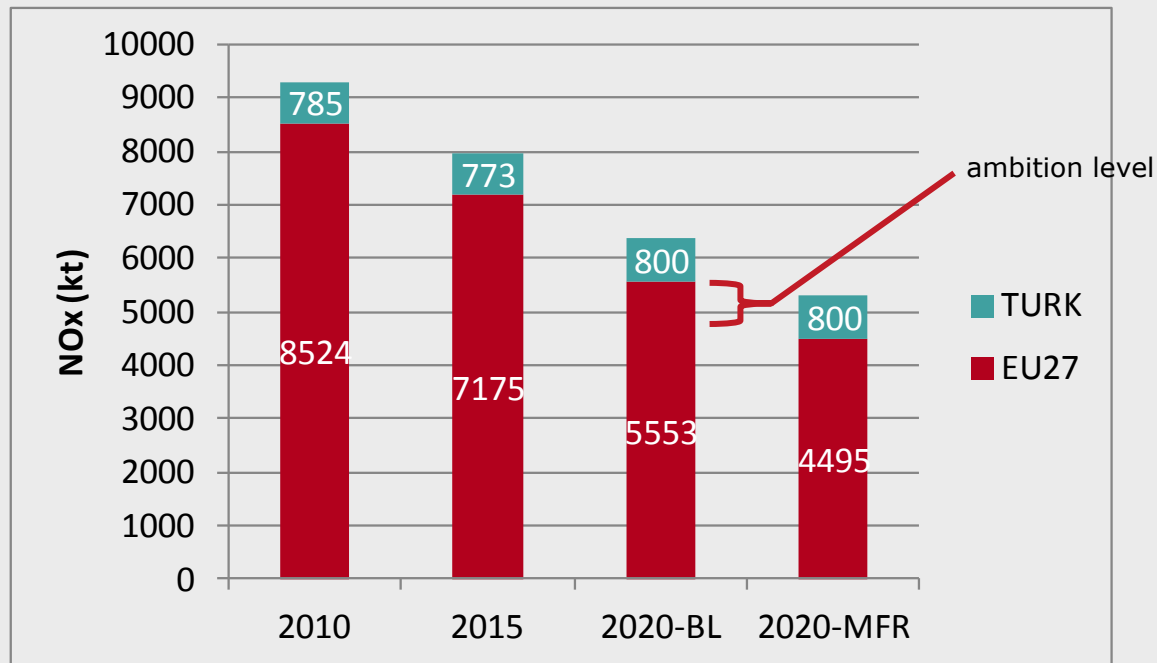
- Emissions and projections
  - Data on Historic Emissions
  - Data on Emissions Projections
    - A 'with measures' projection taking into account all currently implemented and adopted policies and measures
    - A 'with additional measures' projection taking into account all planned policies and measures
    - A business as usual 'without measures' projection should exclude all policies and measures implemented, adopted or planned after the year chosen as the starting year for this projection
  - Data on socio-economic assumptions
  - Background information
    - Explanation of sources excluded from the estimates, including the reason(s) for exclusion

# NECD programme: Outline according to guidelines

- Geographical distribution of emissions
- Costs and benefits of policies and measures
- Evaluation and monitoring of the national programme

# Gothenburg Revision: NO<sub>x</sub> in EU27 and TR

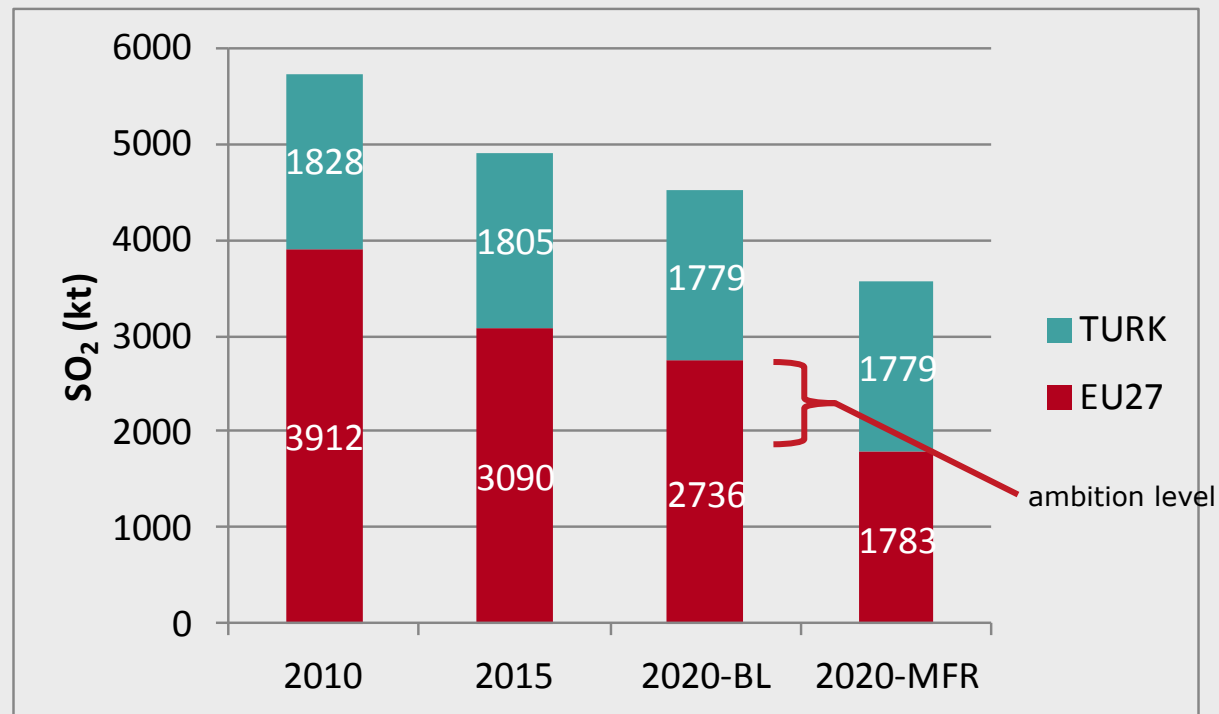
- IIASA calculations for revision of Gothenburg Protocol



Source: IIASA, Scenario: GOTH\_PRIMESBL2009\_baseline\_rev1, GOTH\_PRIMESBL2009\_MFR\_rev1



# Gothenburg Revision: SO<sub>2</sub> in EU27 and TR



Source: IIASA, Scenario: GOTH\_PRIMESBL2009\_baseline\_rev1, GOTH\_PRIMESBL2009\_MFR\_rev1

# Environmental Objectives

- Interim environmental objectives to be achieved by 2010 compared to a 1990 baseline:
  - 50% reduction in areas where critical loads are exceeded,
  - Ground-level ozone concentrations above the critical level for human health to be reduced by two thirds,
  - Ground-level ozone concentrations above the critical level for crops and vegetation to be reduced by one third. Absolute air quality exposure limits for ozone are also specified
- Should be met through compliance with national emission ceilings

## Guidance on reporting

- “Recommendations on developing and reporting national programmes under the National Emission Ceilings Directive” by Working Group on Implementation of the Clean Air For Europe (CAFE) programme
- Available at:  
[http://ec.europa.eu/environment/air/pdf/nec\\_rev/final\\_report.pdf](http://ec.europa.eu/environment/air/pdf/nec_rev/final_report.pdf)

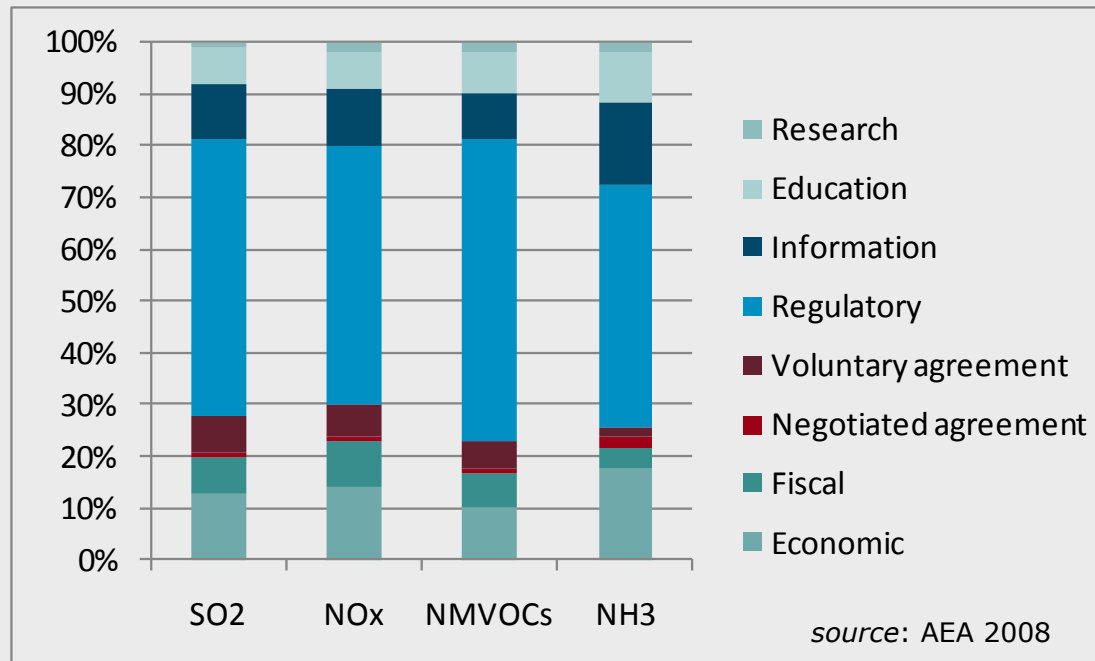
# Guidance on reporting

- 1. Background
  - 1.1 Legislative context
  - 1.2 Purpose and structure of the recommendations
- 2. Structure of the reports on national programmes
- 3. How to prepare emission inventories and projections
  - 3.1 Principles of emission estimation
  - 3.2 Methodologies
- 4. How to prepare the national programme
  - 4.1 General
  - 4.2 Political and administrative procedure of adoption
  - 4.3 Policies and measures
  - 4.4 Evaluation and monitoring of the national programme

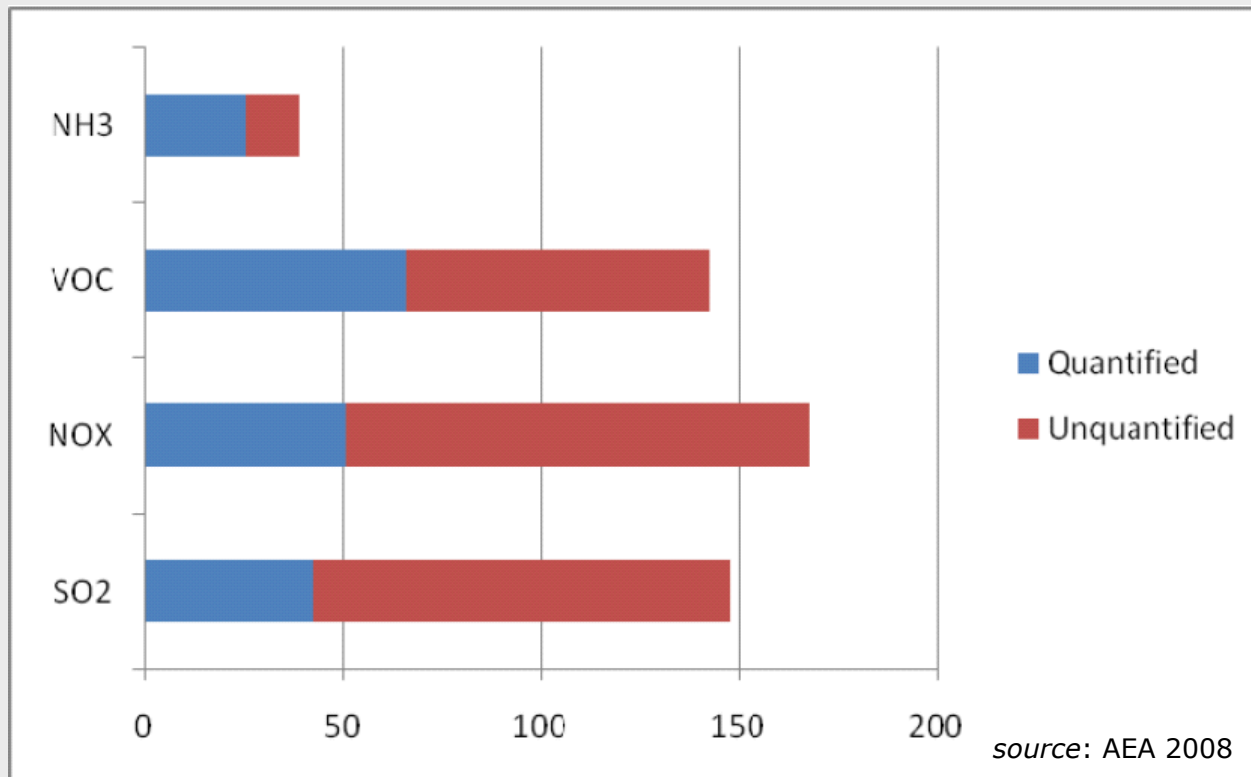
# Guidance on reporting

- 5. How to report on the national programme to the Commission
  - 5.1 General
  - 5.2 Executive summary
  - 5.3 Political and administrative procedure of adoption
  - 5.4 Policies and measures
  - 5.5 Emissions and projections
  - 5.6 Geographical distribution of emissions
  - 5.7 Costs and benefits of policies and measures
  - 5.8 Evaluation and monitoring of the national programme

# Types of instruments used



# Quantification of measures



# Key measures

- EU measures (LCP, vehicle standards, solvent Dir, ...)
- Energy sector
  - NO<sub>x</sub> trading scheme in SE, NL
  - Emission limit values going beyond LCP, ICPP Dir.
- Vehicle sector
  - Congestion charge
  - Low emission zones
  - Road pricing
  - Financial incentives for switching to less polluting vehicles and transport modes

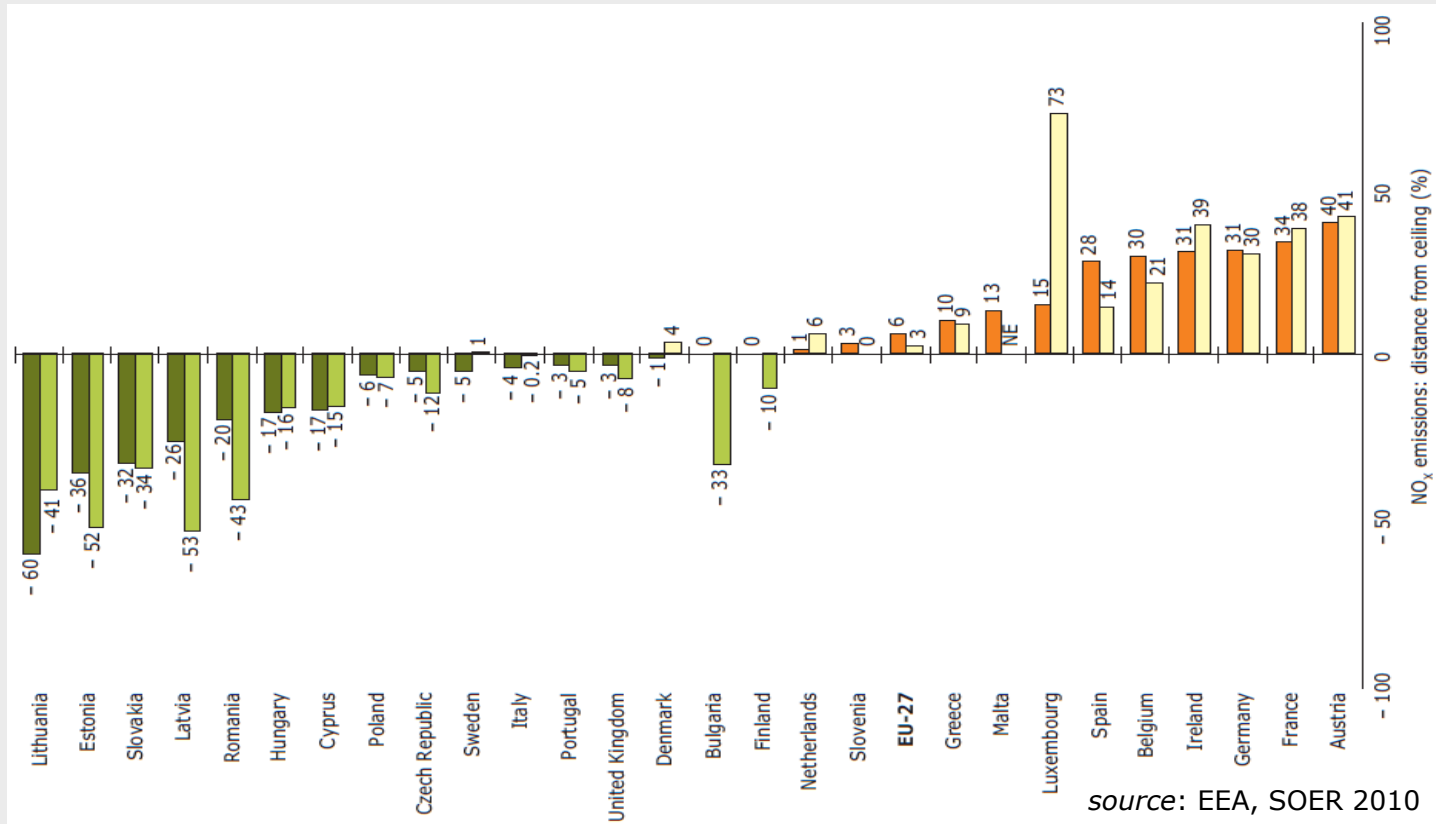




# Key measures

- Industry sector
  - EU Directives
  - voluntary agreements
- Domestic sector
  - mostly linked to climate change
  - energy efficiency
  - low NO<sub>x</sub> or type-approved boilers
- Agriculture
  - reduction of livestock
  - promotion of low emission fertilisers
  - alteration of animal housing
  - alteration of animal feed
  - use of anaerobic digesters for biogas production

# Compliance with ceilings

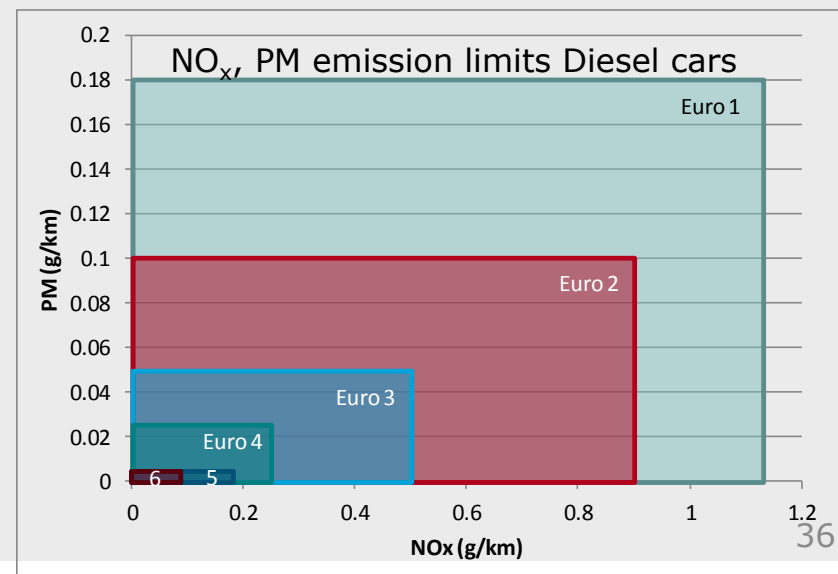
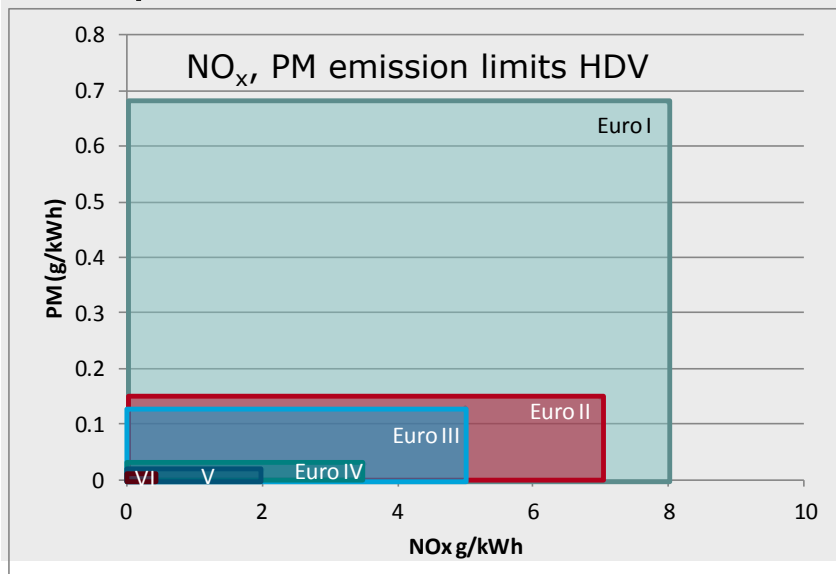


## Key findings

- NO<sub>x</sub> target will not be met by some MS
- Reason: emission factors, higher than expected economic growth, diesel vehicles, political resistance
- Hardly any cooperation between MS
- Reporting in general good, but comprehensive programmes often missing; quality should be improved
- Guidelines fulfilled only by few MS
- Harmonisation with other legislation (AQ, CC) should be improved

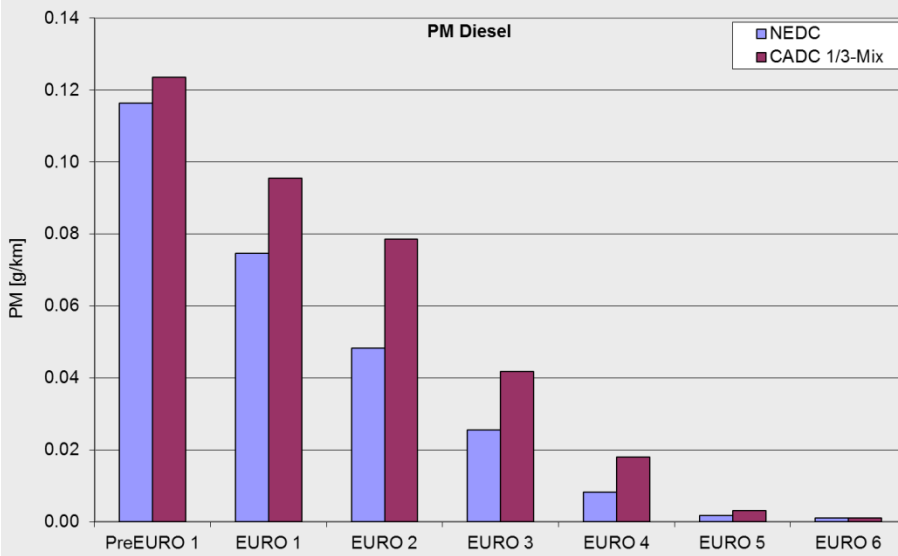
# Vehicle emission standards

- European emission standards – Directives 70/220/EEC, 94/12/EC, 98/69/EC, 1999/96/EC, 2005/55/EC
- Zero-sulphur fuel - Directive 98/70/EC on the quality of petrol and diesel fuels

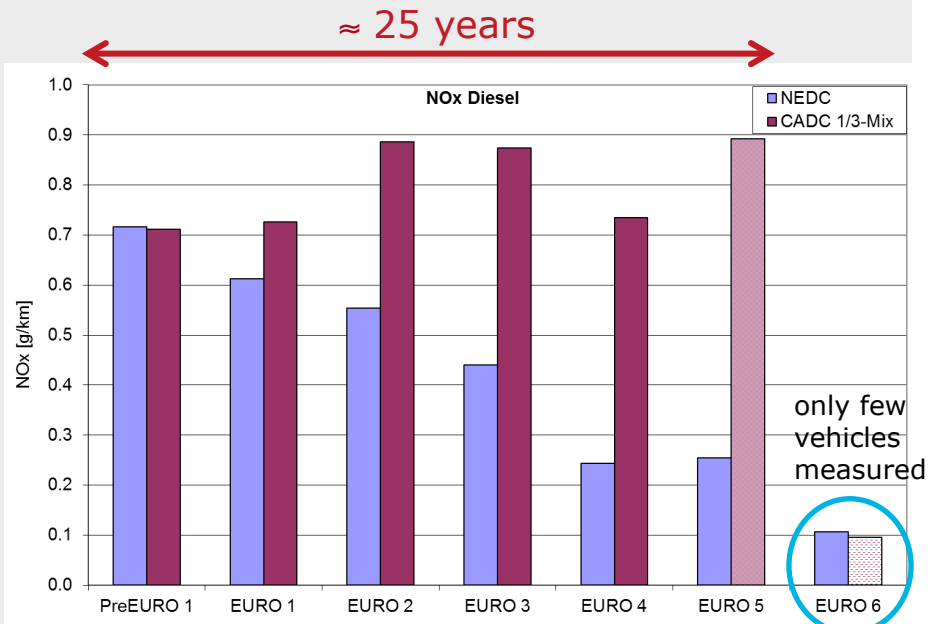


# Vehicle emission standards – real world

- Discrepancy between type approval and real world emissions
- In addition: increase of primary NO<sub>2</sub> emissions



Source: Hausberger 2011



## Summary and conclusions

- NECD is an effective instrument to tackle eutrophication, acidification and ground level ozone
- Revision will bring Europe closer to achieving environmental targets
- Problems remain for NO<sub>x</sub> (NO<sub>2</sub>), PM (BC) and ozone
- Quality of reporting varies considerably between MS
- Essential information often missing
- Consistency with other programmes not established in all MS