Historic Inventory Update

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Overview

- **Methodological changes made this year**
  - Changes affecting both inventories
  - Changes affecting GHG inventory
  - Changes affecting AQ inventory
  - Road transport (both inventories)

- **Trends in emissions**
  - GHGs
  - AQ

- **Next Inventory Cycle**
  - Planned updates this year

- **The Future**
  - Issues that will affect the way inventories are compiled in the future

Methodological Updates affecting both GHG and AQ pollutants (I)

Revision to BERR activity data
- Any revisions to BERR's activity data, published in DUKES incorporated
- Usually affects last three/four years

Offshore oil and gas
- Updated methodology for estimating emissions using new analysis of data in the EEMS database

Aviation
- Updated method to allocate aviation spirit to both TOL and cruise

Waste Lubricants
- Updated methodology to reflect the decrease in the use of this fuel due to the Waste Incineration Directive

Industrial, Commercial and Public Sector Combustion
- Updated method to include stationary engines as a separate combustion type
- Updated emission factors for NMVOC and methane for industrial use of pet coke as fuel

Methodological Updates affecting both GHG and AQ pollutants (II)

Rail and off road machinery
- New passenger km data used
- Changes to the current methodology for reconciling NAEI estimates of gas oil use by off-road vehicles and mobile machinery with official UK energy statistics

Renewable fuel
- Change in methodology to include wood burning and biomass co-firing in power stations

Separating out emissions from the Crown Dependencies
- Fuel use data are included in DUKES totals
- For EU reporting, Crown Dependencies need to be excluded
- Therefore fuel use data from DUKES has been modified to represent UK only, with the Crown Dependencies being allocated the remainder
- Some sectoral reallocations

Methodological Updates affecting GHG pollutants

Introduction of EU-ETS factors for CO2
- Power stations (coal, fuel oil, natural gas)
- Autogenerators (coal)
- Refineries (fuel oil, petroleum coke)

F-gases
- Introduction of some of the results from the review of the F gases in the UK work, carried out in summer 2008

LULUCF
- Method update to account for loss of living biomass due to harvested wood products

Landfill methane
- New model – MELmod – developed. Allows for scenario analysis
- Inclusion of C&I activity data which was previously omitted from the model (affected 1998 onwards)

Agriculture
- Update to N_2O emission factor for poultry from AWMS
- Update to CH_4 emission factor for swine from AWMS

Methodological Updates affecting AQ pollutants

Revision of UNECE Guidelines under the LRTAP

- Amendment of aviation and shipping sub-sectors that are included in the national total under the LRTAP

Heavy Metals

- Review of the metal content of different fuel types and improvement of the data used in the modeling studies

Methodological Updates to road transport inventory (I)

NOx and PM hot exhaust emission factors revised using new speed-EF functions from DfT/TRL. Also uses:
- revised emission degradation with mileage functions
- revised effects of fuel quality on emissions

Effect of biofuels on AQ emissions (NAEI study)

Variable fuel split for cars on different road types
- Data from DfT: diesel cars do 60% more annual mileage than petrol cars

Variation in car annual mileage and composition of car fleet by engine size (DfT)

Use of detailed traffic census data to improve split between vkm on different road types with different speeds

Speed data updated for different road and area types (DfT).
- Improves consistency with road classifications used in mapping and for projections work done for PCM

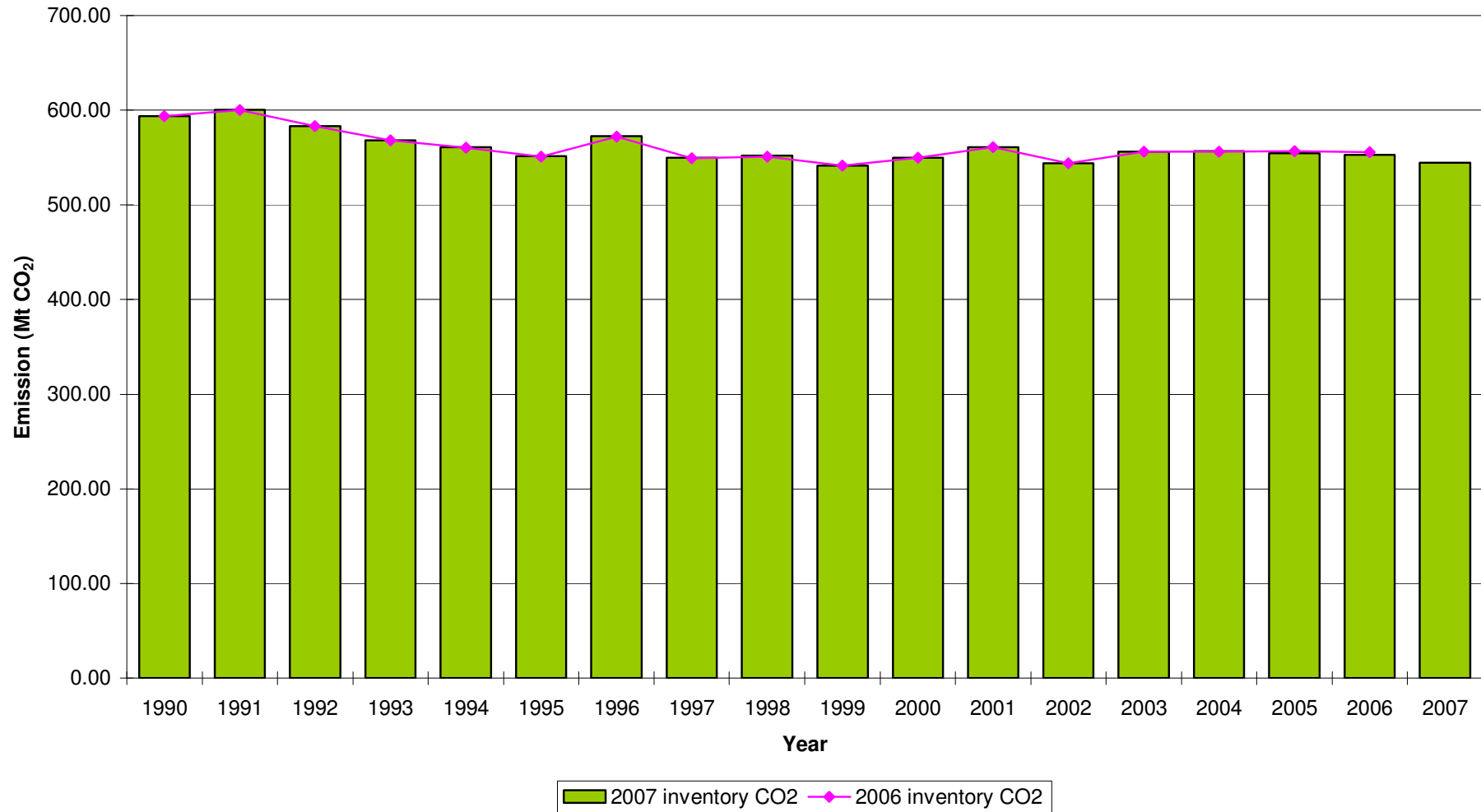## Methodological Updates to road transport inventory (II)

New N$_2$O emission factors
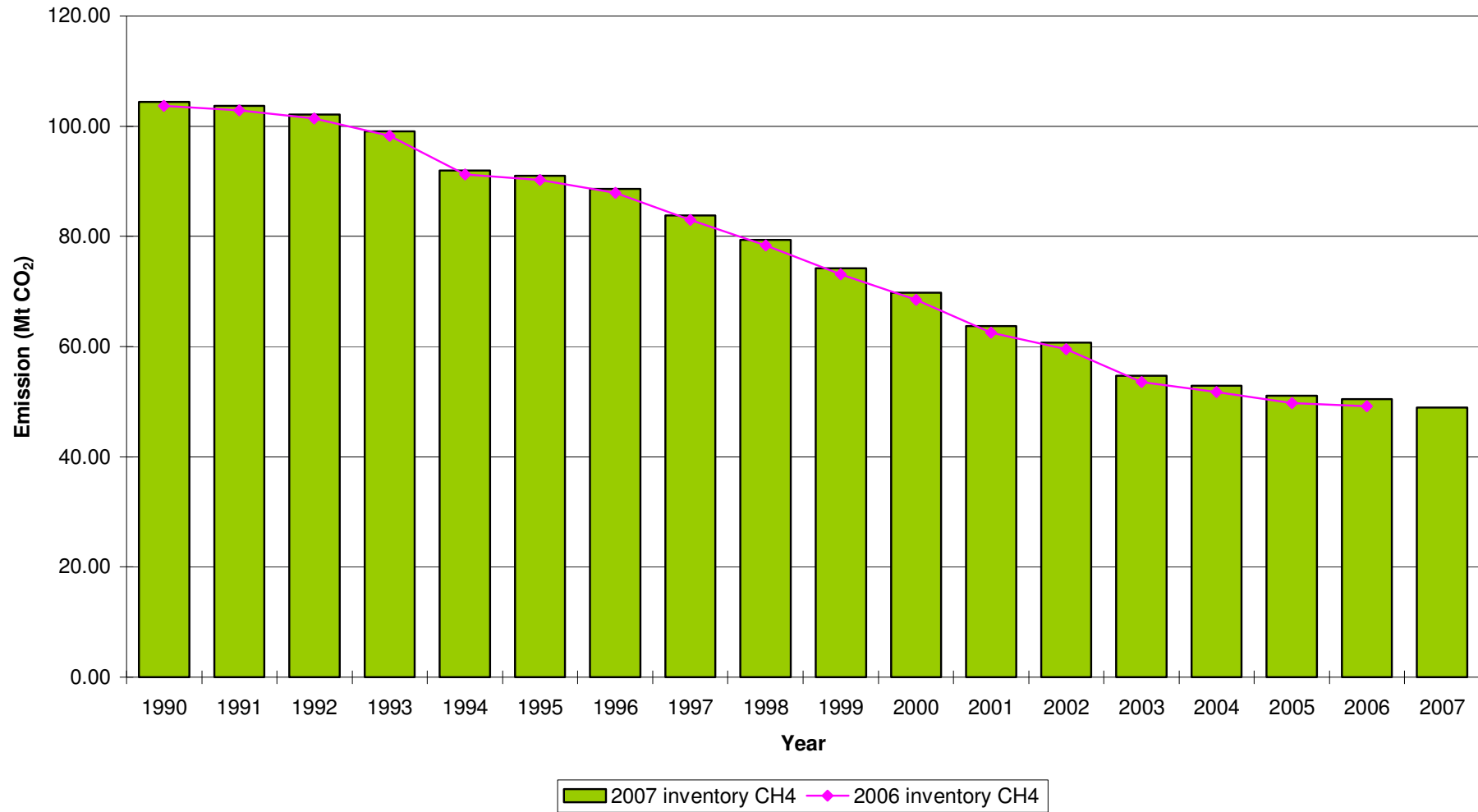- COPERT 4 and Emissions Inventory Guidebook

HGV fuel consumption
- used revised figures from DfT CSRGT on mpg fuel efficiency for different sizes of HGVs, 1993-2007

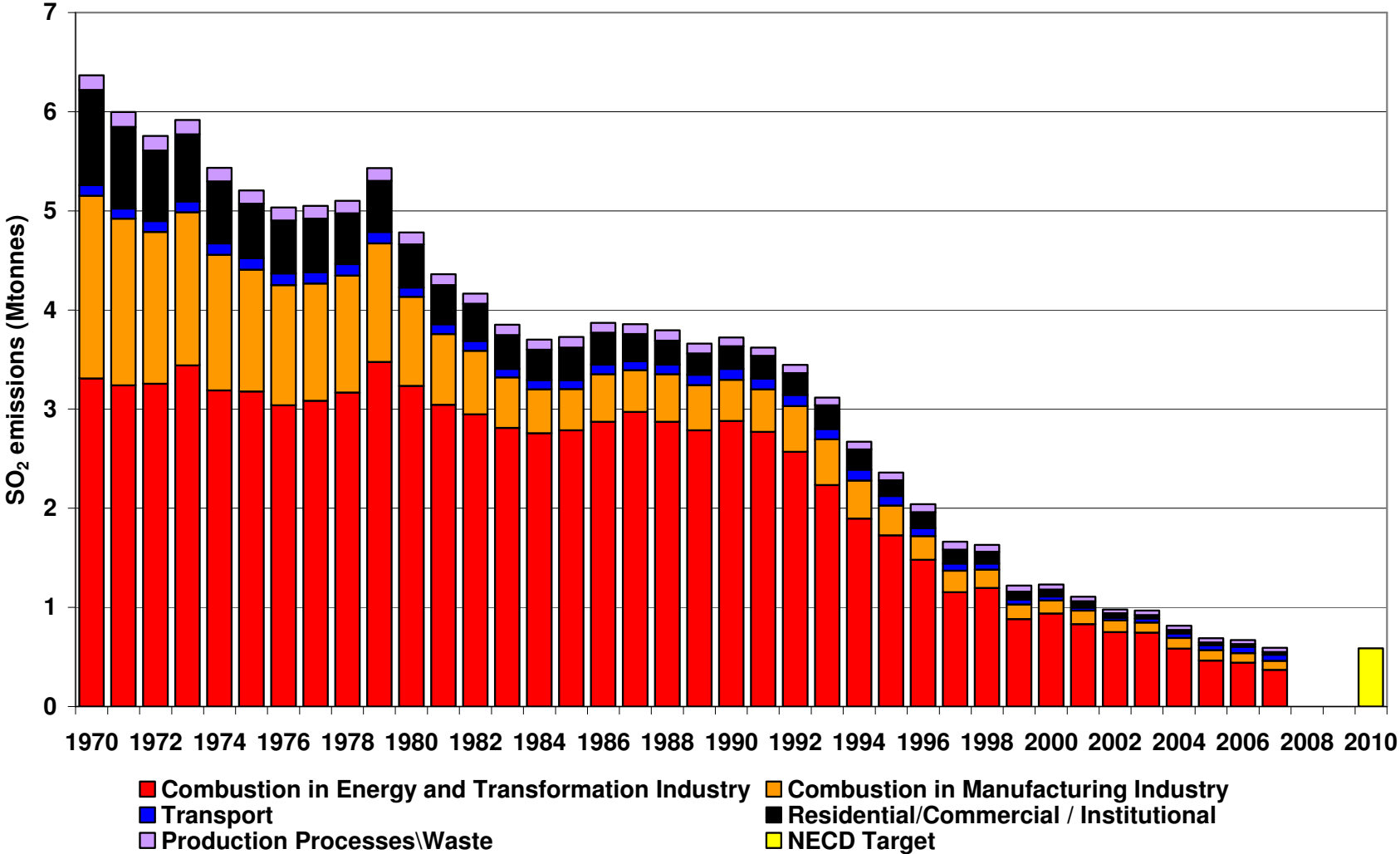**Comparison of CO$_2$ emissions between the 2006 and 2007 inventories**

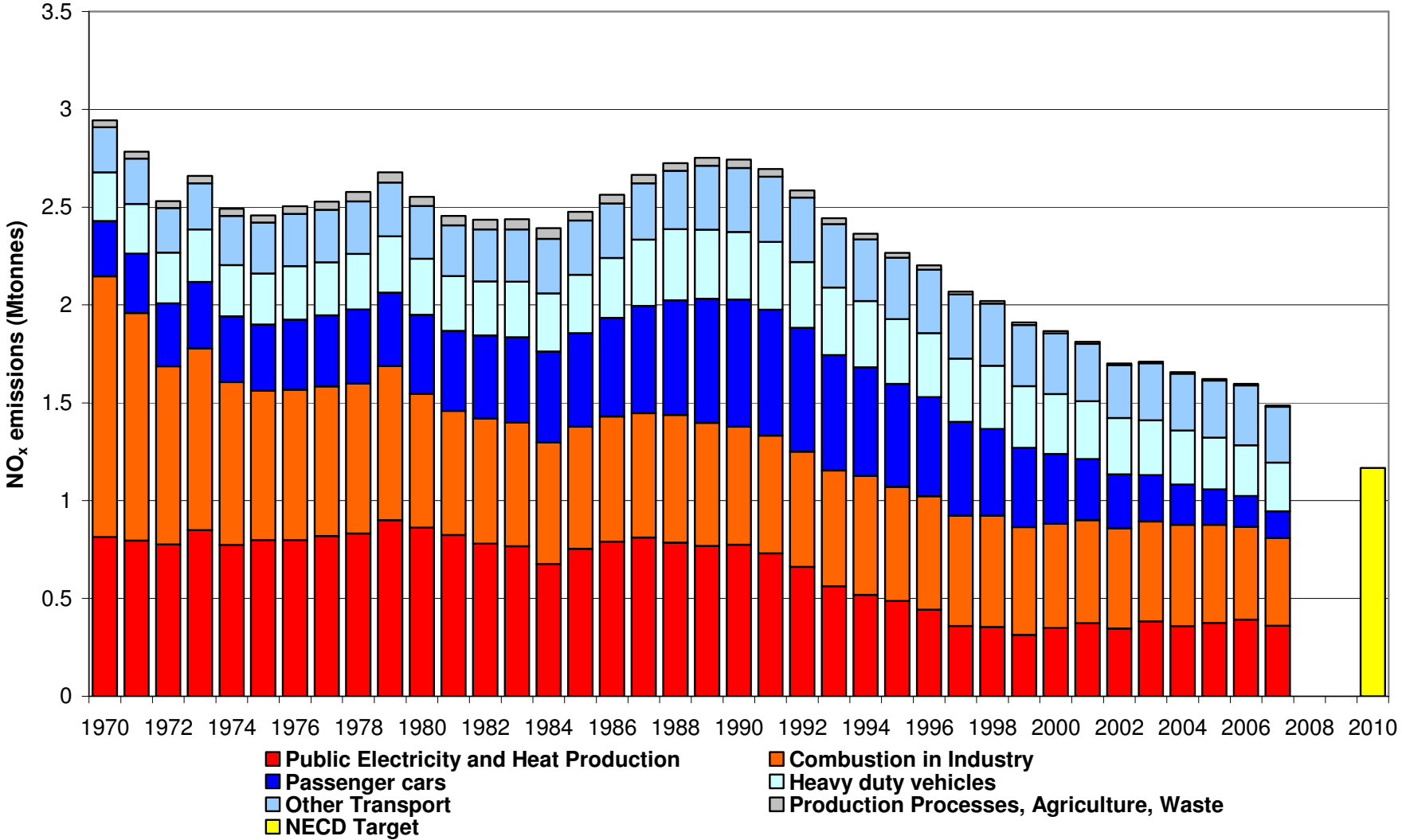**Comparison of CH$_4$ emissions between the 2006 and 2007 inventories**

Comparison of N$_2$O emissions between the 2006 and 2007 inventories

Legend: ■ 2007 inventory N2O ◆ 2006 inventory N2O

Y-axis: Emission (Mt CO$_2$)
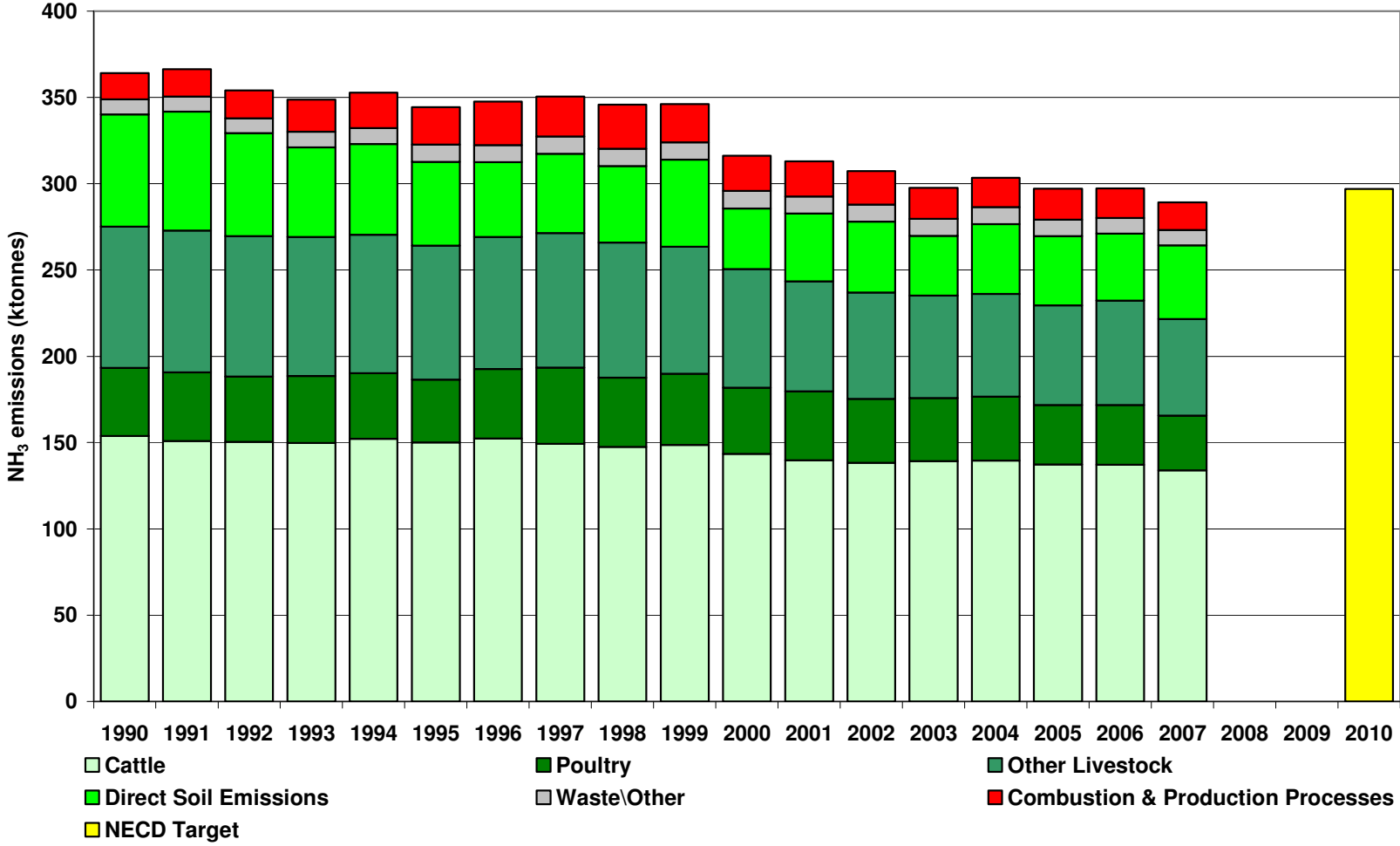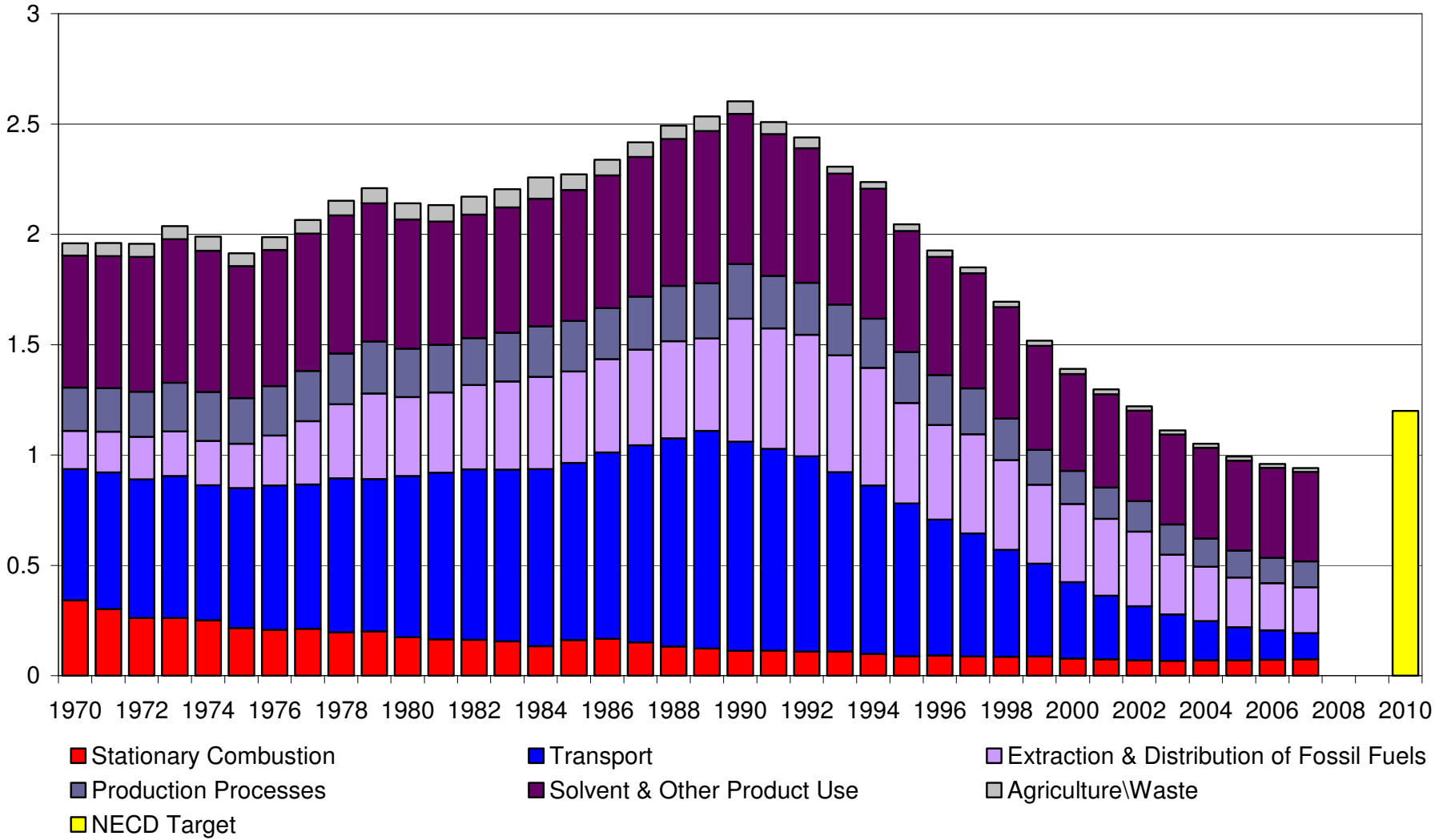
X-axis: Year
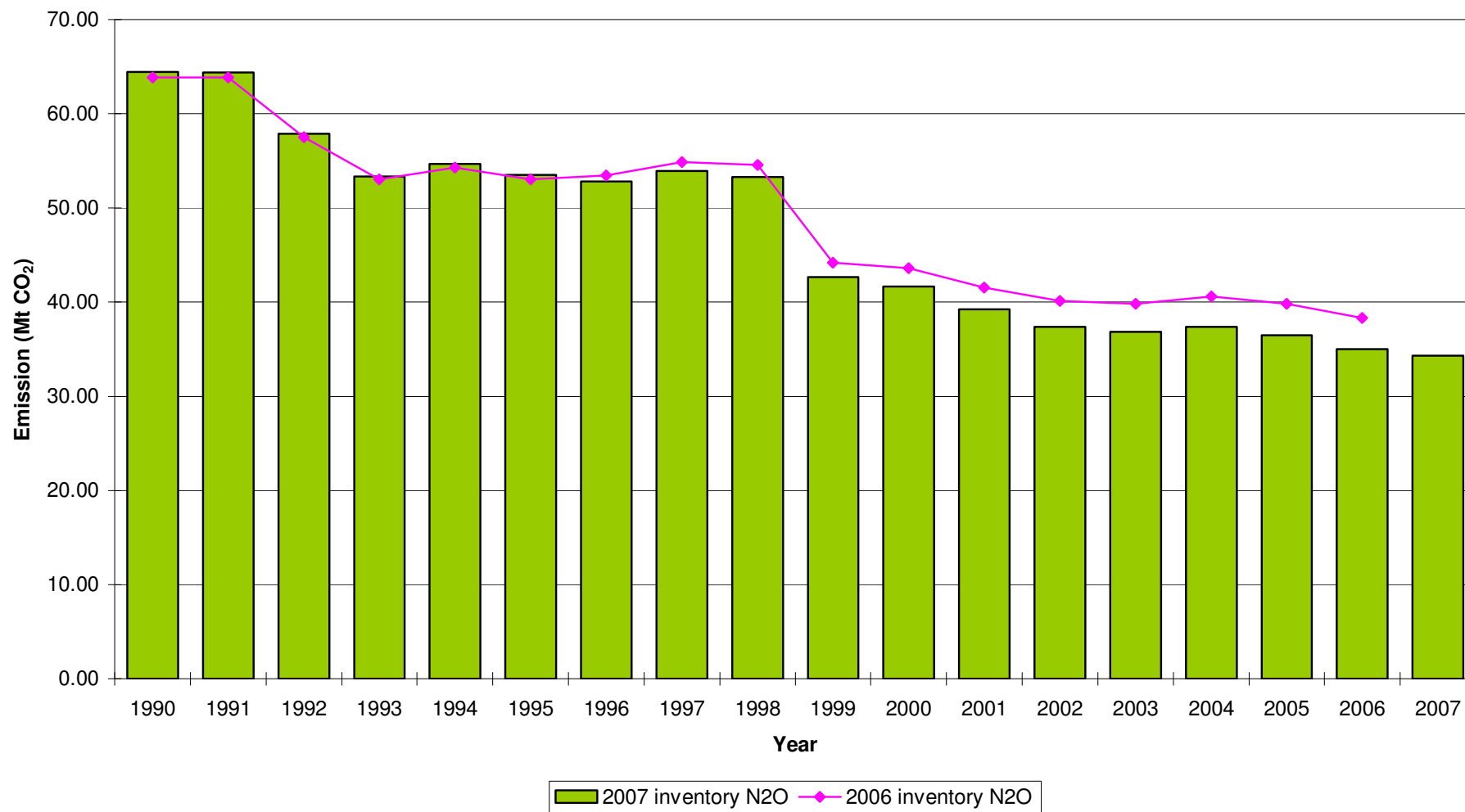
Progress towards NECD Ceiling – SO$_2$

Progress towards NECD Ceiling - NO$_x$

Progress towards NECD Ceiling – NH$_3$

Progress towards NECD Ceiling – NH_3

Legend:
- Stationary Combustion
- Transport
- Extraction & Distribution of Fossil Fuels
- Production Processes
- Solvent & Other Product Use
- Agriculture\Waste
- NECD Target

Planned changes for upcoming inventory cycle

- Changes to lime fuel use estimates resulting in analysis of EUETS data
- Revision of methodology for small-scale waste burning
- Incorporation of changes necessary as a result of work on domestic/small scale combustion sources
- Review of the oil & gas sector emissions
- Review of data from UKWIR software tool and possible development of new emission estimates from municipal WWTW and sewage sludge disposal
- Various updates to RT including adoption of final versions of emission factors from DfT/TRL, new methodology for cold starts, new catalyst failure rates assumptions, more detailed vehicle licensing statistics for N Ireland, adoption of new fuel consumption factor-speed equations from TRL's work

Future

Effort Sharing Decision
- Includes sectors not covered by EU ETS
- UK has a reduction target of 16% from 2005 levels by 2020, over the period 2013-2020
- Accurate calculation of traded/non traded split will be important

Reporting of GHGs to EU and UNFCCC
- New 2006 IPCC GLs expected to come into use in 2015 (for reporting 2013 inventory – 1st year of 2nd Commitment Period)
- EU will require consistent time series of emissions based on the new GL's earlier to enable EU wide inventory
- 2014 (ie reporting of 2012 inventory) – will be expected to report 2 inventories to the EU – one compiled using 96 GLs, and one compiled using 2006 GLs

Streamlining
- Streamlining of different reporting systems – Angela Falconer will talk more about this later