



BETTER POLICIES FOR BETTER LIVES

# Energy Taxation and Green Growth: Current OECD Work

## Danish Parliamentary Tax Committee

30 January 2012

# Outline

- The challenge – Environmental Outlook
- The framework – Green Growth Strategy
- Fossil fuel support (including tax expenditures)
- Environmental taxation
  - Principles
  - Trends
  - Mapping energy use and taxation
- Some upcoming projects

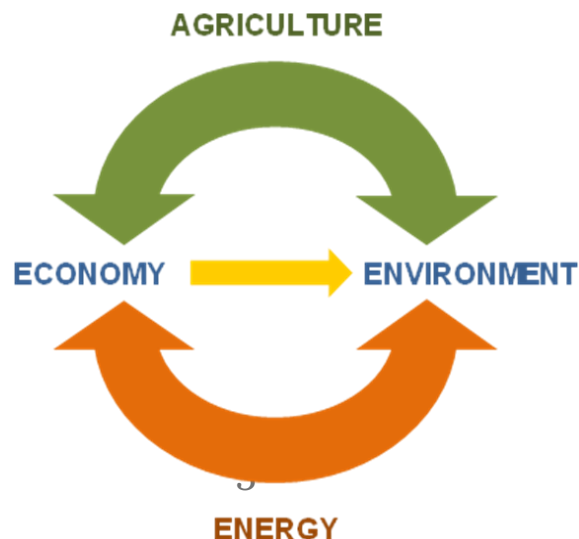
# Environmental Outlook to 2050: Introduction

## Approach and the modelling methodology

### Linking economic and environmental modelling

- a general equilibrium economic modelling framework (ENV-LINKAGES at the OECD/ENV)
- a comprehensive environmental modelling framework (IMAGE suite of models at the Netherlands Environmental Assessment Agency)

Figure 1. Modelling principle for the Environmental Outlook



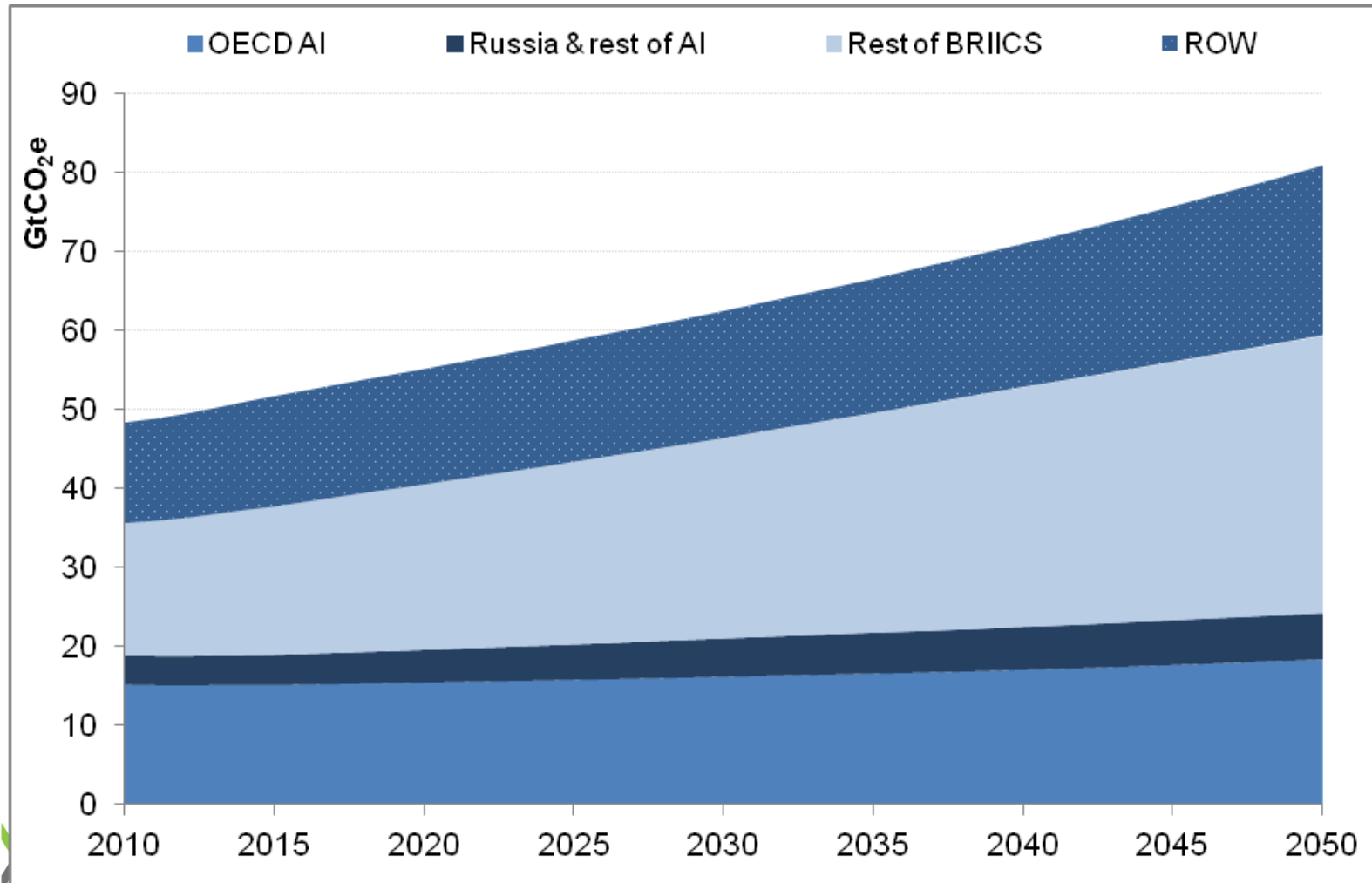
## Structure of the Report

- Executive Summary
- 1. Introduction
- 2. Socioeconomic Developments
- 3. Climate Change
- 4. Biodiversity
- 5. Freshwater
- 6. Health and Environment
- Annex on the Modelling Framework

# Environmental Outlook to 2050

**More disruptive climate change is likely to be locked in..**

Figure 1. GHG emissions by region: *Baseline* scenario

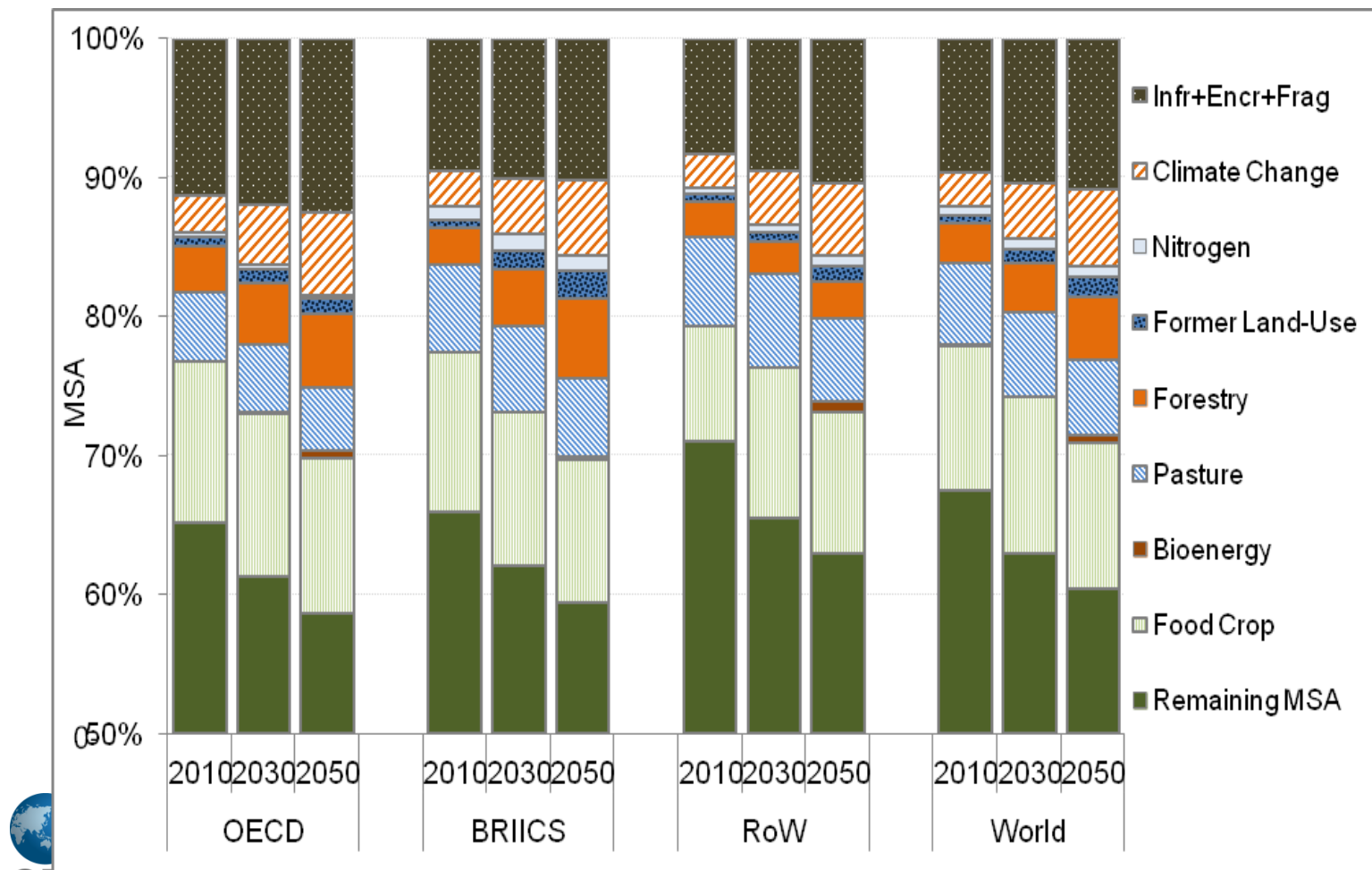




# Environmental Outlook to 2050

## Biodiversity loss is projected to continue...

Figure 2. Pressures on terrestrial Mean Species Abundance (MSA); Baseline scenario

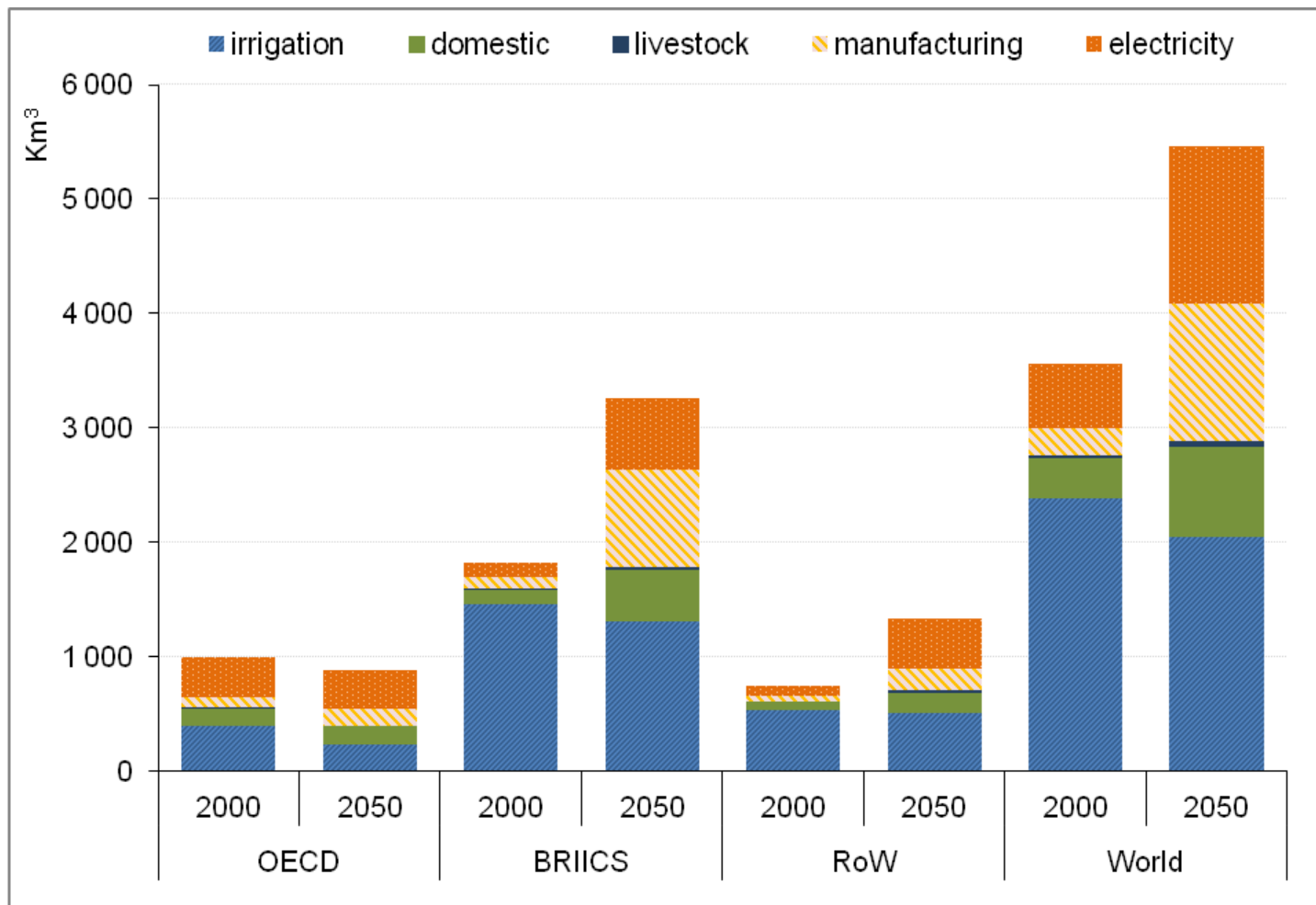


Source: OECD Environmental Outlook Baseline; output IMAGE suite of models

# Environmental Outlook to 2050

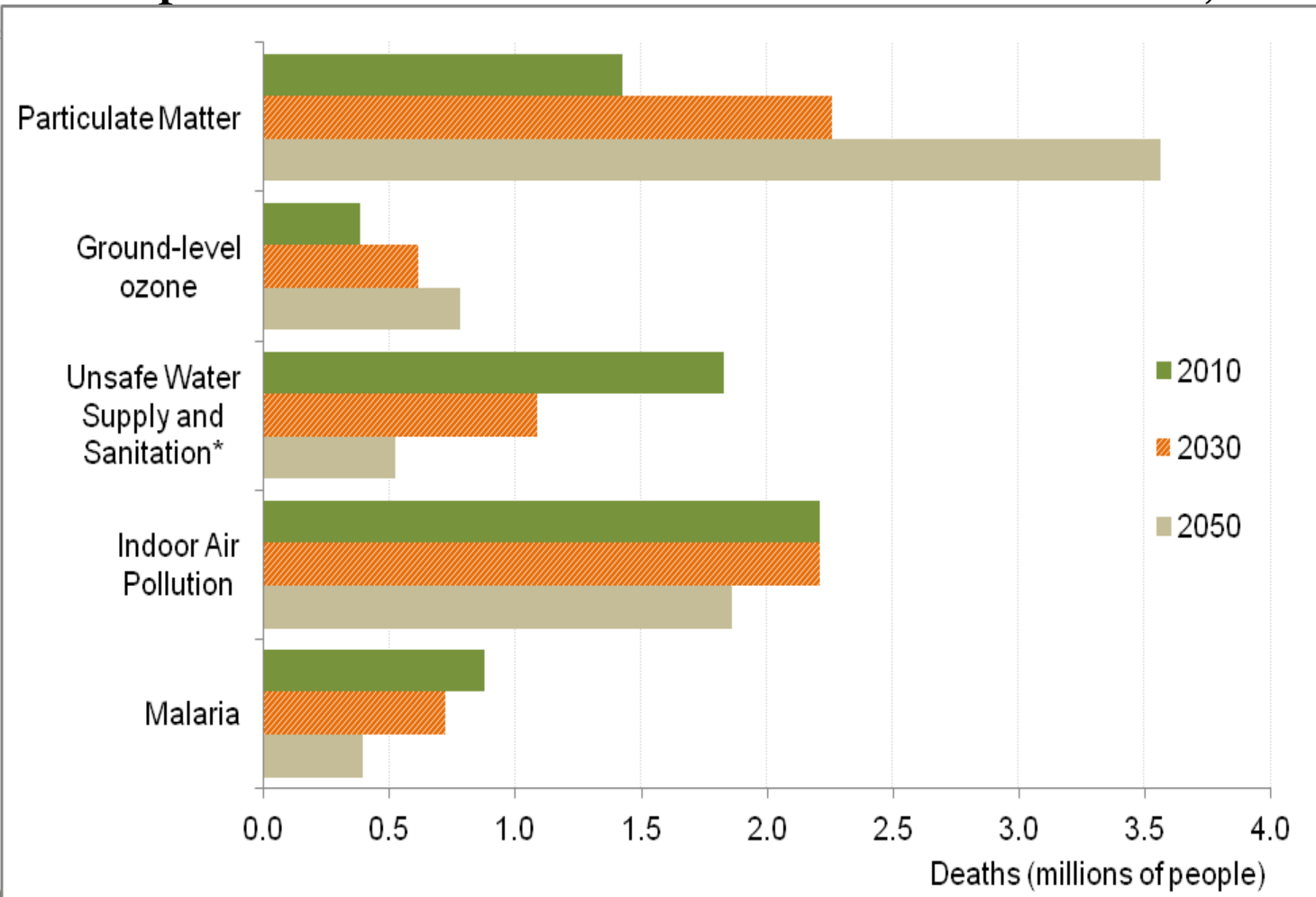
## Freshwater availability will be further strained in many regions...

Figure 3. Global water demand in 2050: *Baseline* scenario



## The health impacts of urban air pollution continues to deteriorate...

**Figure 4. Global premature deaths from selected environmental risks, 2010-2050; Baseline**



Source: OECD Environmental Outlook Baseline; output IMAGE suite of models

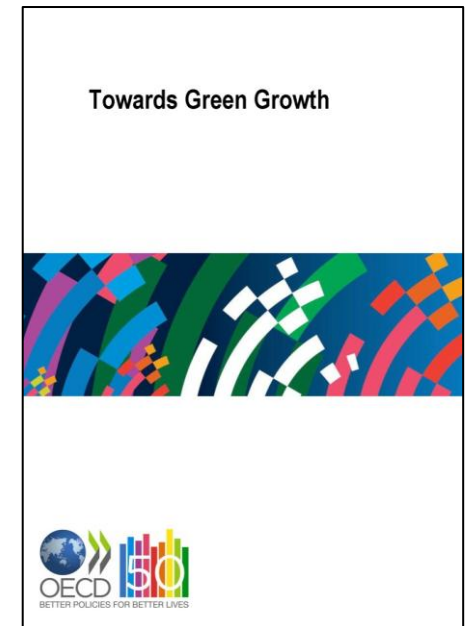


# Policy steps to build a low-carbon economy

1. Set clear, long-term, more stringent and economy-wide GHG mitigation targets
2. Put a price on carbon, preferably through market-based instruments
3. Reform fossil fuel support policies
4. Foster innovation and support new clean technologies in a « technology-neutral » way
5. Complement carbon pricing with well-designed regulations

# The Framework – Green Growth Strategy

- The Green Growth Strategy was launched at the OECD's May 2011 Ministerial Council Meeting
- Practical framework for governments to boost economic growth and protect the environment
- Help countries foster economic growth while preserving the environmental assets on which our well-being relies
- Strategy includes two cost-effective policy avenues of special relevance when fiscal resources are stretched:
  - Reform of environmentally harmful subsidies
  - Use of environmentally related taxes to incorporate the cost of environmental damage into market prices



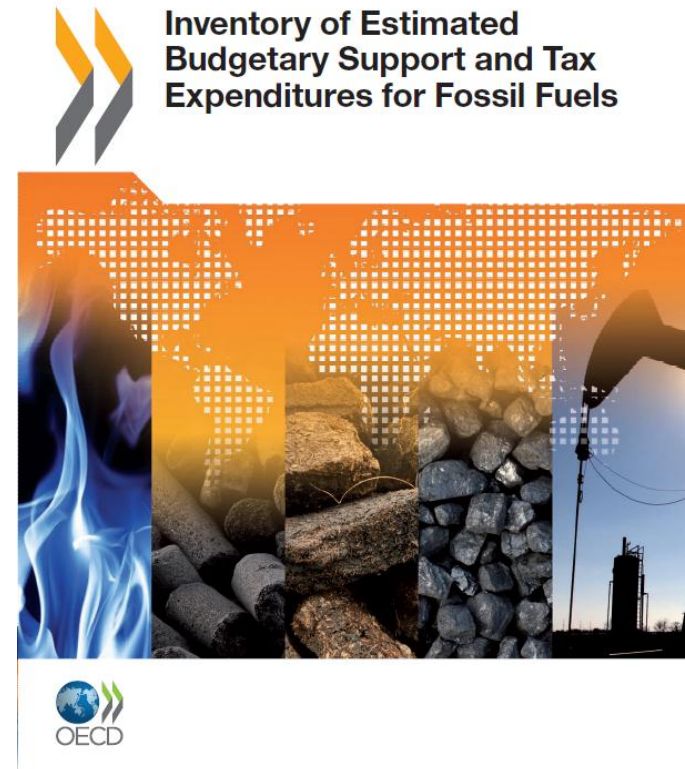
[www.oecd.org/greengrowth](http://www.oecd.org/greengrowth)

# Environmentally harmful subsidies

- Addressing environmental challenges involves not only new policies, but also reform of existing policies that move us in the wrong direction
- In September 2009 G20 leaders committed to “*rationalise and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption*”
- Reform offers opportunity for three “wins”:
  - improve environmental outcomes
  - increase economic efficiency
  - improve fiscal balance
- IEA has estimated value of consumer price supports for fossil fuels in developing countries - USD 409 billion in 2010

# OECD inventory of fossil fuel support

- Until recently, no consolidated source for fossil fuel support measures in OECD countries
- Support in developed countries often in more subtle forms such as tax concessions
- OECD *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels* released October 2011
- 250 reported tax expenditures and budgetary transfers that support consumption and production of fossil fuels in 24 OECD countries
- Extension to remaining 10 members (including Denmark) underway





# Market-based instruments

- From an economic point of view, pollution and environmental damage is a pricing problem: markets do not take pollution into account because it is not factored into prices
- Market-based instruments (environmentally related taxes and tradable emission permits) can be used to incorporate the cost of environmental damage into market prices
- These are among the most cost-effective policy approaches for integrating economic and environment policy objectives
  - Cost-effectiveness is critical when environmental challenges are large, government budgets are strained and economic growth is weak



# Environmental tax work

- OECD has produced a considerable body of work on environmentally related taxes
- Key books:
  - *Taxation, Innovation and the Environment* (2010)
  - *The Political Economy of Environmentally Related Taxes* (2006)
  - *Environmentally Related Taxes in OECD Countries* (2001)
- Recent policy briefs:
  - *Environmental Taxation – A Guide for Policy Makers* (Sep 2011)
  - *Taxation, Innovation and the Environment – A Policy Brief* (Sep 2011)
- For more information:
  - [www.oecd.org/tax](http://www.oecd.org/tax)

# Environmental taxes - benefits

- Taxes directly address the market failure by “pricing in” environmental costs
- Taxes leave consumers and businesses with flexibility to determine the least-cost way to reduce environmental damage
  - Ongoing incentive to abate
  - Strong incentive to innovate
  - Improves competitiveness of low-emission alternatives
- Transparency
- Cost certainty vs. environmental certainty
- Environmental tax revenues can assist fiscal consolidation or help to reduce other taxes

# Environmental taxes - design

- Environmental tax bases should be targeted to the pollutant or polluting behaviour
- The scope of an environmental tax should ideally be as broad as the scope of the environmental damage
- Environmental taxes should apply uniformly with few (if any) exceptions
- The tax rate should be commensurate with the damage - reflecting environmental and non-environmental externalities, and revenue raising considerations
- The tax must be credible and its rate predictable in order to motivate environmental improvements

# Environmental taxes - challenges

- Distributional impacts should be carefully examined
  - Distributional concerns can and generally should be addressed through policies outside the tax system, potentially using tax revenues generated
- Competitiveness concerns need to be carefully assessed
  - International coordination and transitional relief can be effective responses; be careful with recycling revenues back to industry and rate reductions or exemptions
- Clear communication is critical to public acceptance of environmental taxation
- Environmental taxes may need to be combined with other policy instruments to address certain issues
  - Information failures, principal-agent problems, fundamental innovation

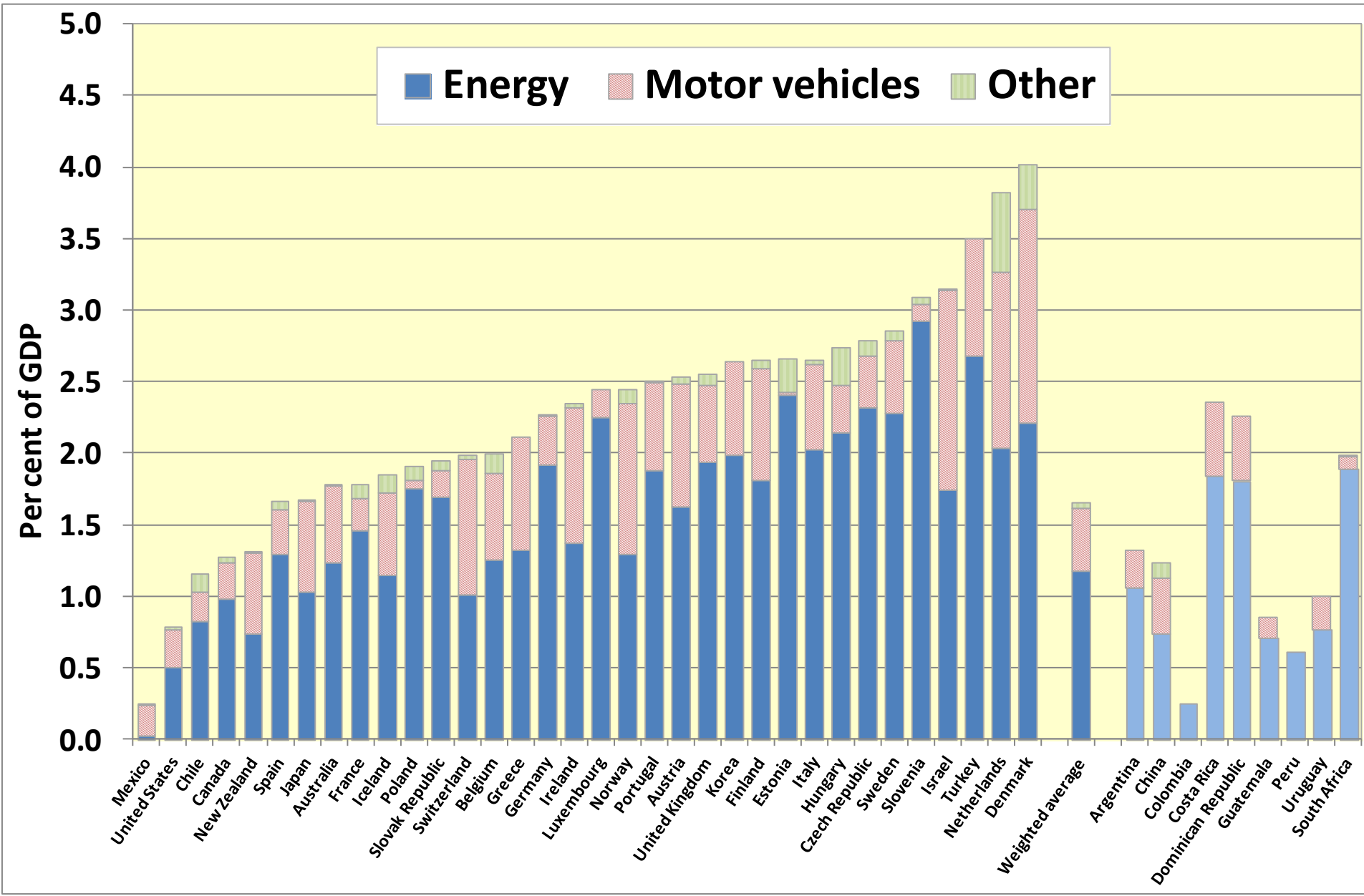
# Database of environmental policy instruments

- OECD/European Environment Agency (EEA) database of instruments for environmental policy:  
[www.oecd.org/env/policies/database](http://www.oecd.org/env/policies/database)
- Important public tool for comparative policy analysis
- Good coverage of environmental taxes



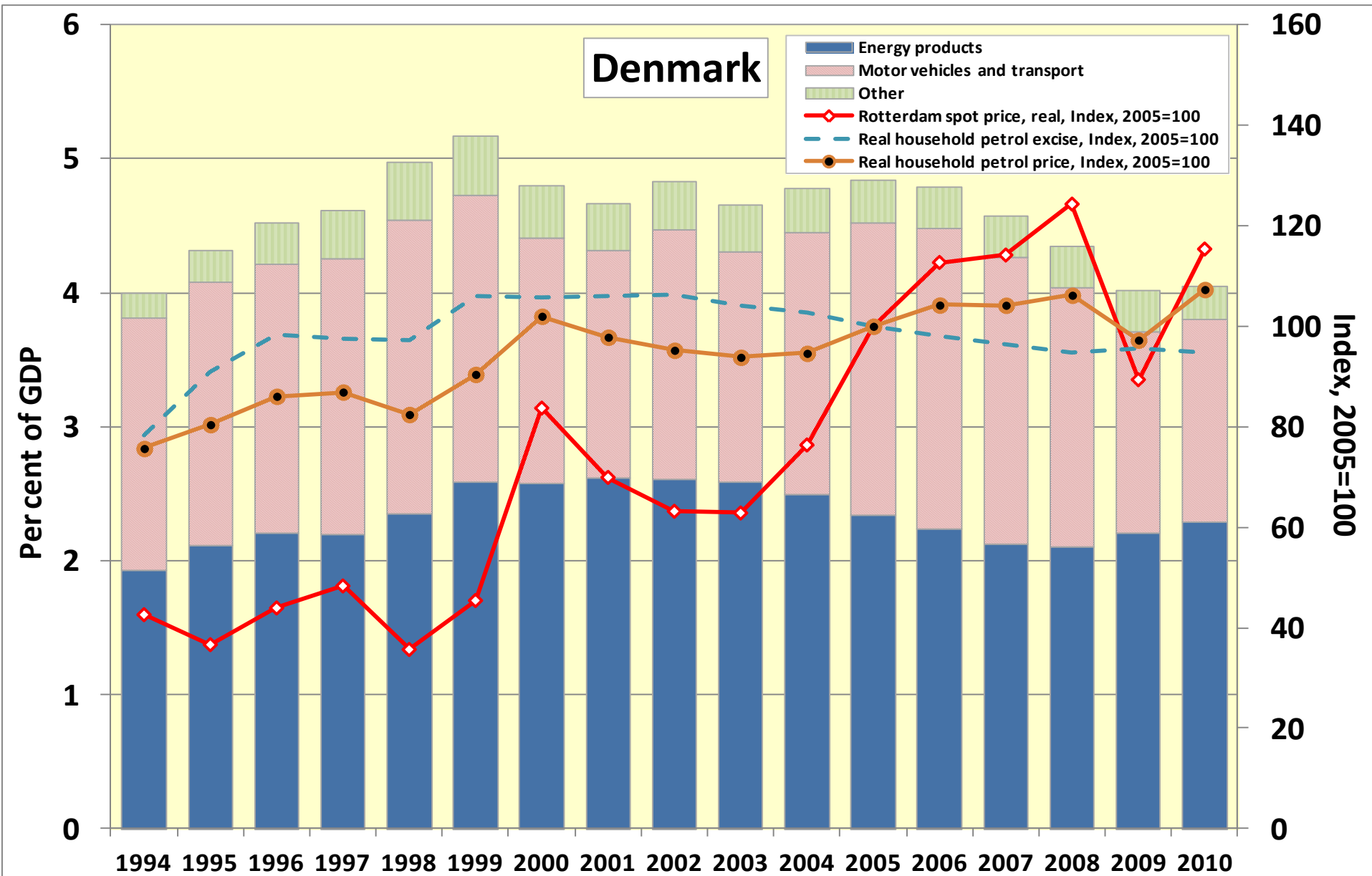
# Revenues from environmental taxes

In per cent of GDP, 2009



# Drivers of revenues from energy taxes

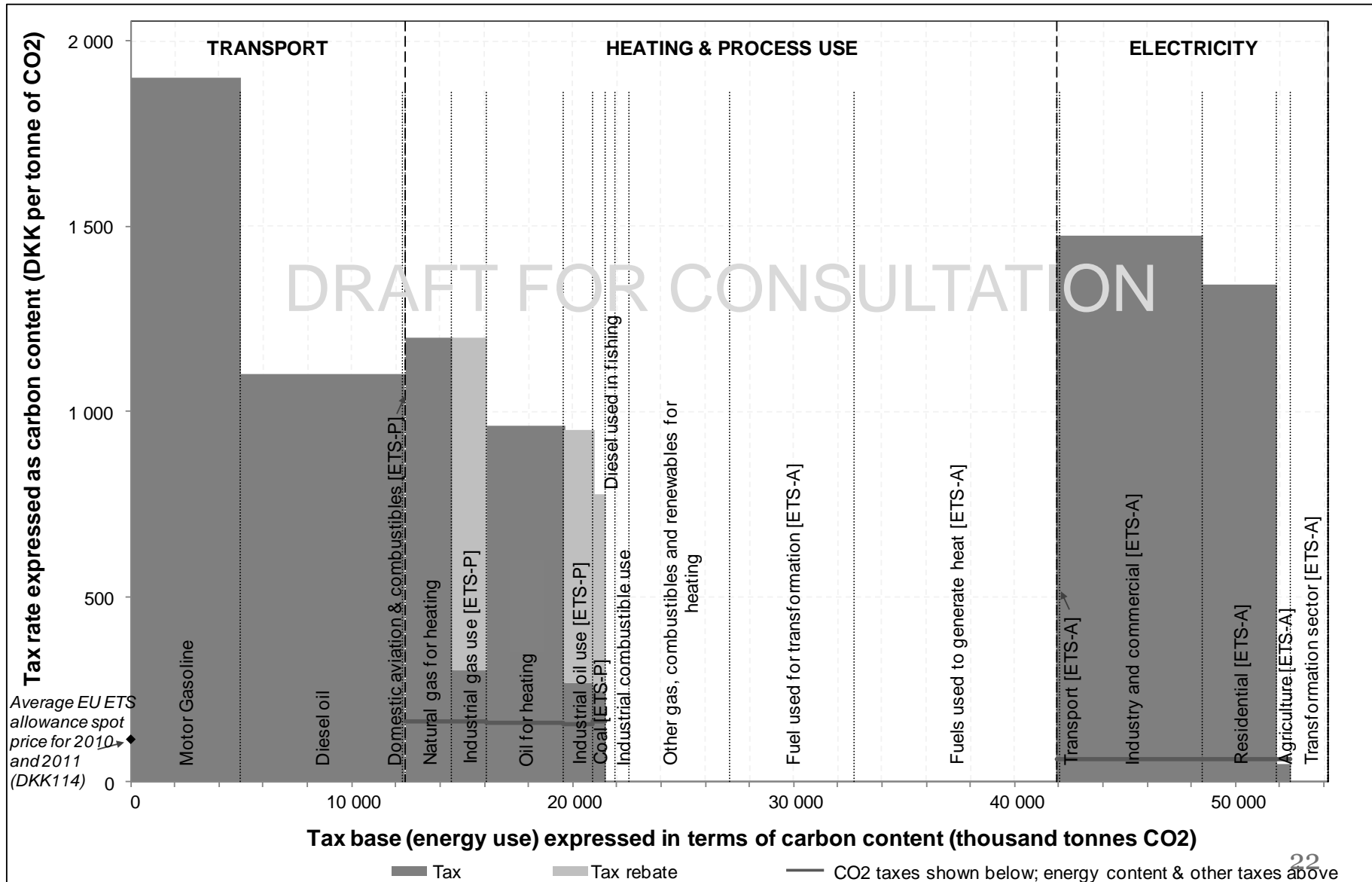
In per cent of GDP, 1994-2010



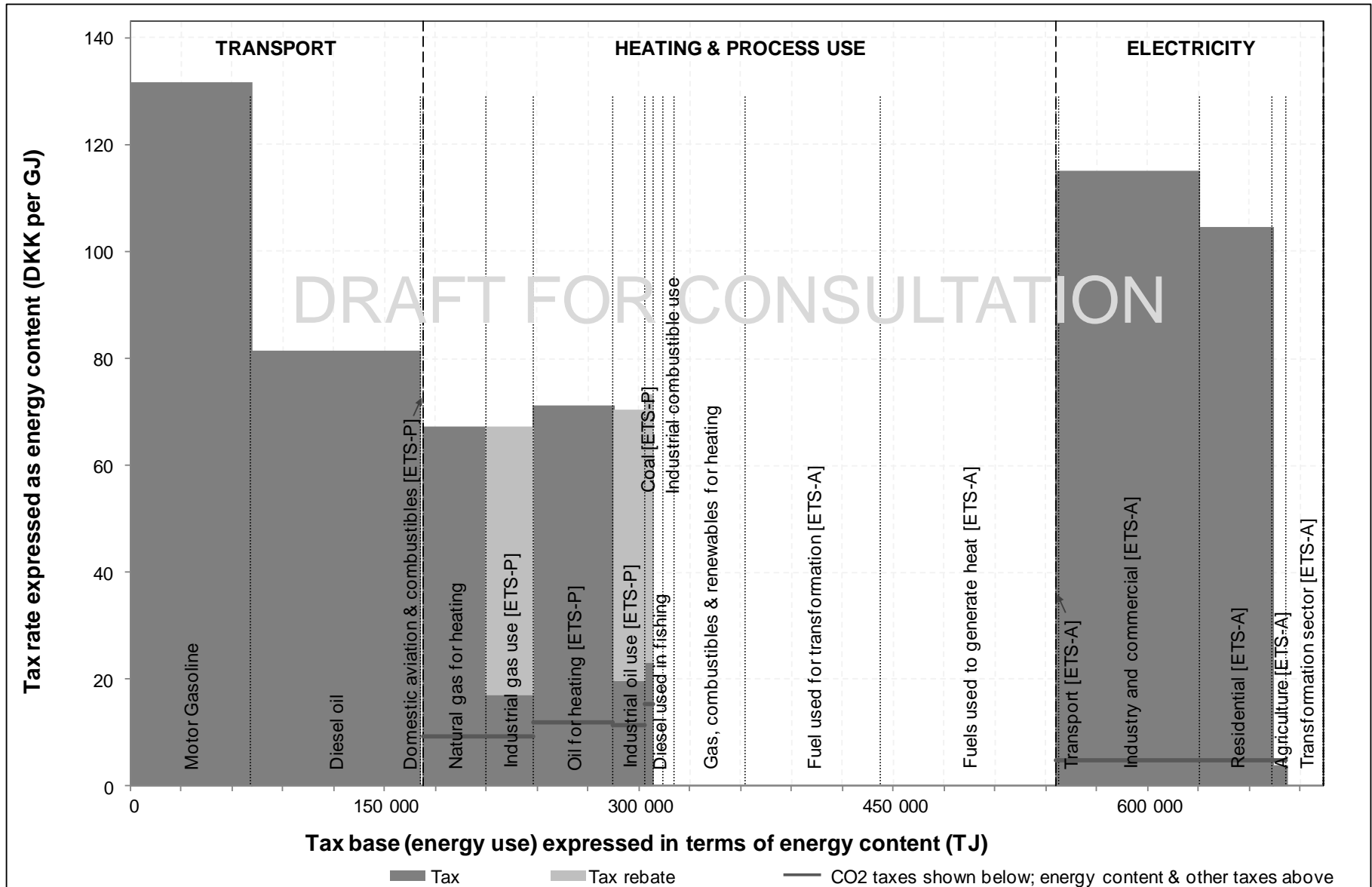
# “Mapping” energy use and taxation

- The largest group of environmentally related taxes is taxes on energy
- Work underway to develop “maps” that provide a common framework for examining the use and taxation of energy, including fossil fuels, within each country
- The maps are a powerful analytic tool:
  - To understand the composition of energy use and related CO<sub>2</sub> emissions
  - To illustrate the structure of energy taxation (coverage, implicit tax rates on different fuels and users, tax expenditures)
  - To establish a foundation for discussion of the rationale for tax settings on different types, users and uses of energy
- The maps show (in terms of CO<sub>2</sub> or energy content):
  - The tax base (energy use in various sectors, based on IEA stats) on the horizontal axis
  - The effective tax rates applied to that energy use on the vertical axis

# Example: Preliminary map of energy use and taxation in Denmark by carbon content



# Example: Preliminary maps of energy use and taxation in Denmark by energy content





# Cross-country observations

- Draft maps have been prepared for 16 countries
- General observations:

<b>Fuel use</b>	<b>Observation</b>
<i>Transport</i>	<p>Generally taxed more heavily than heating and process fuel use.</p> <p>Motor gasoline and diesel taxed in all countries examined; diesel generally taxed at a lower rate than gasoline both on a carbon and energy content basis.</p>
<i>Heating and process</i>	<p>In a few countries, heating and process fuels are not taxed.</p> <p>No general trend that heating use is taxed at a lower rate than process use or vice versa.</p> <p>Level of taxation is often higher for petroleum products than other energy products.</p>
<i>Electricity</i>	<p>Of the countries considered, 10 of 16 tax electricity consumption.</p> <p>Fuels used to generate electricity are generally not taxed except in three of the countries considered.</p>

# Development and use of the maps

- Work underway on refinement of methodology and extension to other member countries
- Going forward, the maps will facilitate analysis and policy discussion on issues including:
  - overall levels of taxation on fuel consumption
  - the impact of taxation in addressing different types of externalities
  - relative taxation of gasoline and diesel
  - low or non-taxation of fuel used for heating, agriculture and industrial use in some countries

# Some upcoming projects

- Taxation of company cars and commuting expenses
  - Surveying countries and determining extent to which current tax settings may be encouraging greater car use or otherwise favouring more environmentally costly forms of transportation
- Environmentally motivated tax preferences
  - What works and what doesn't

# Energy Taxation and Green Growth: Current OECD Work

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Committee

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