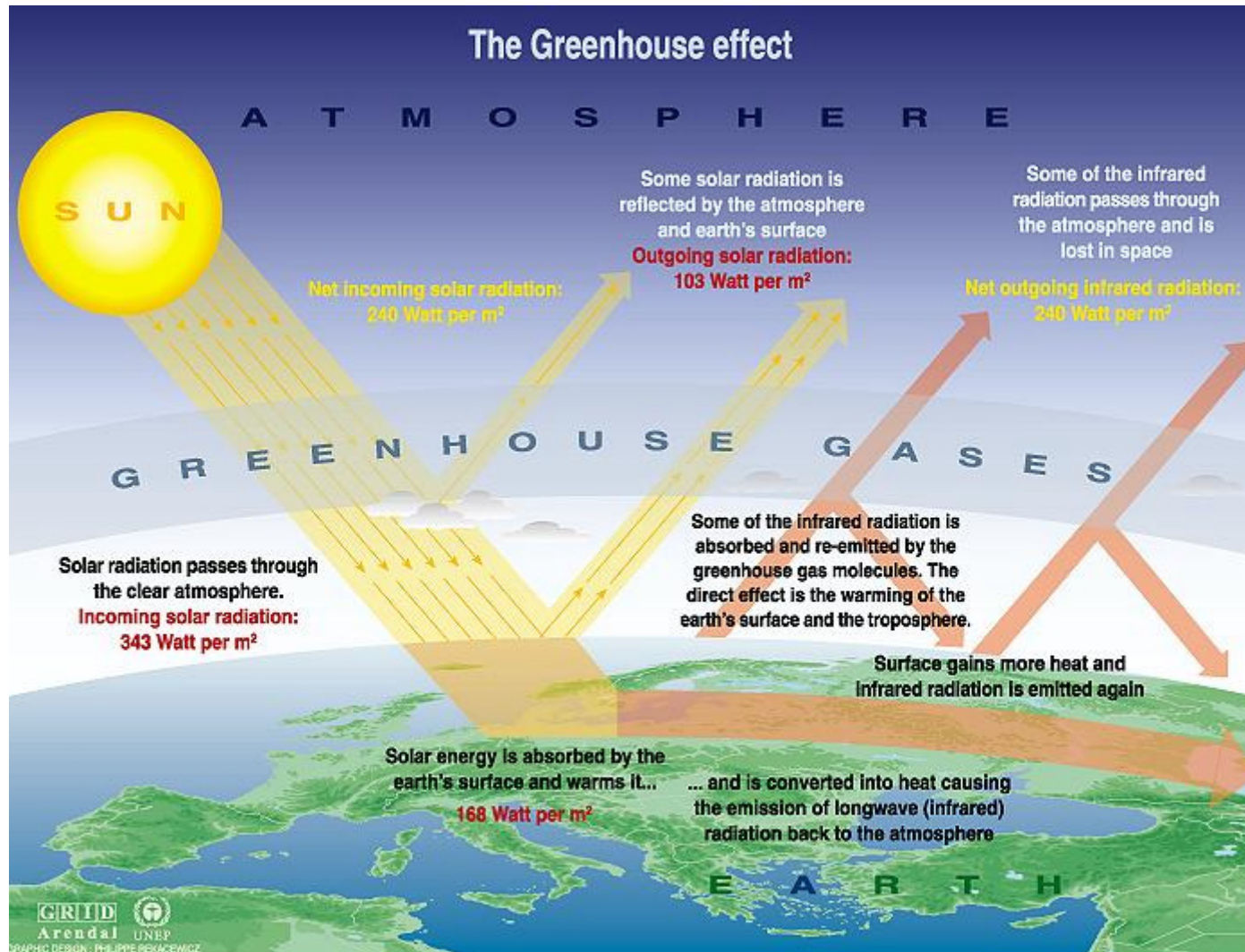


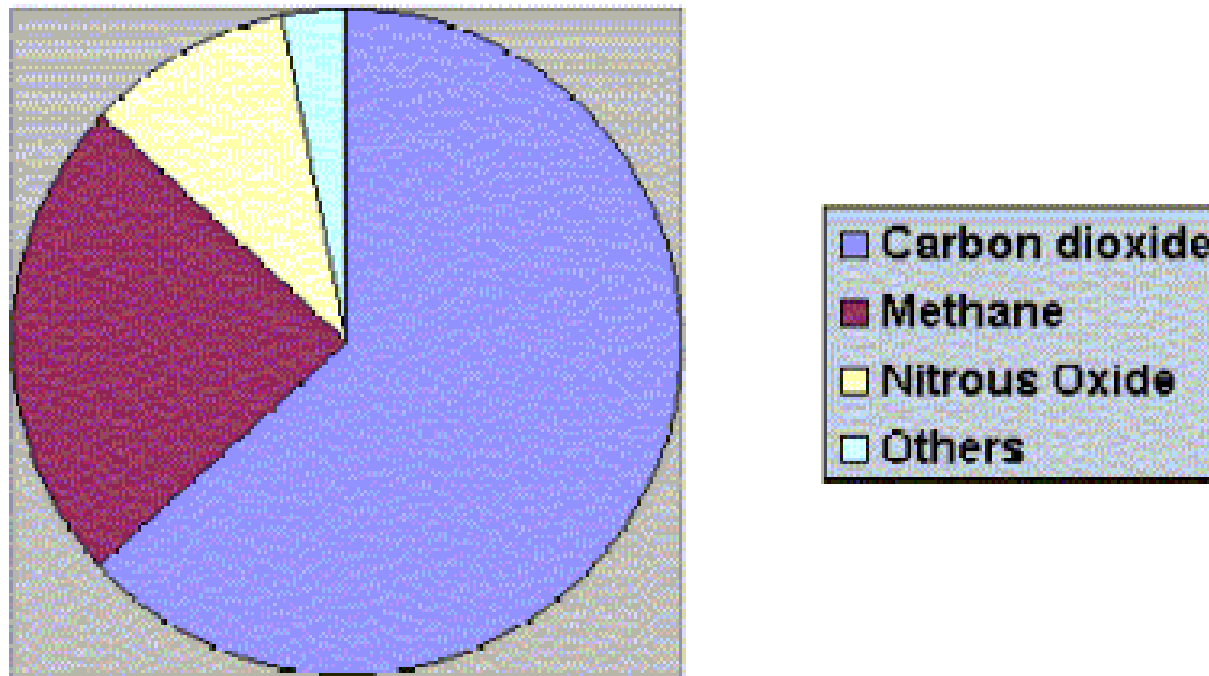
# The need for renewable energy



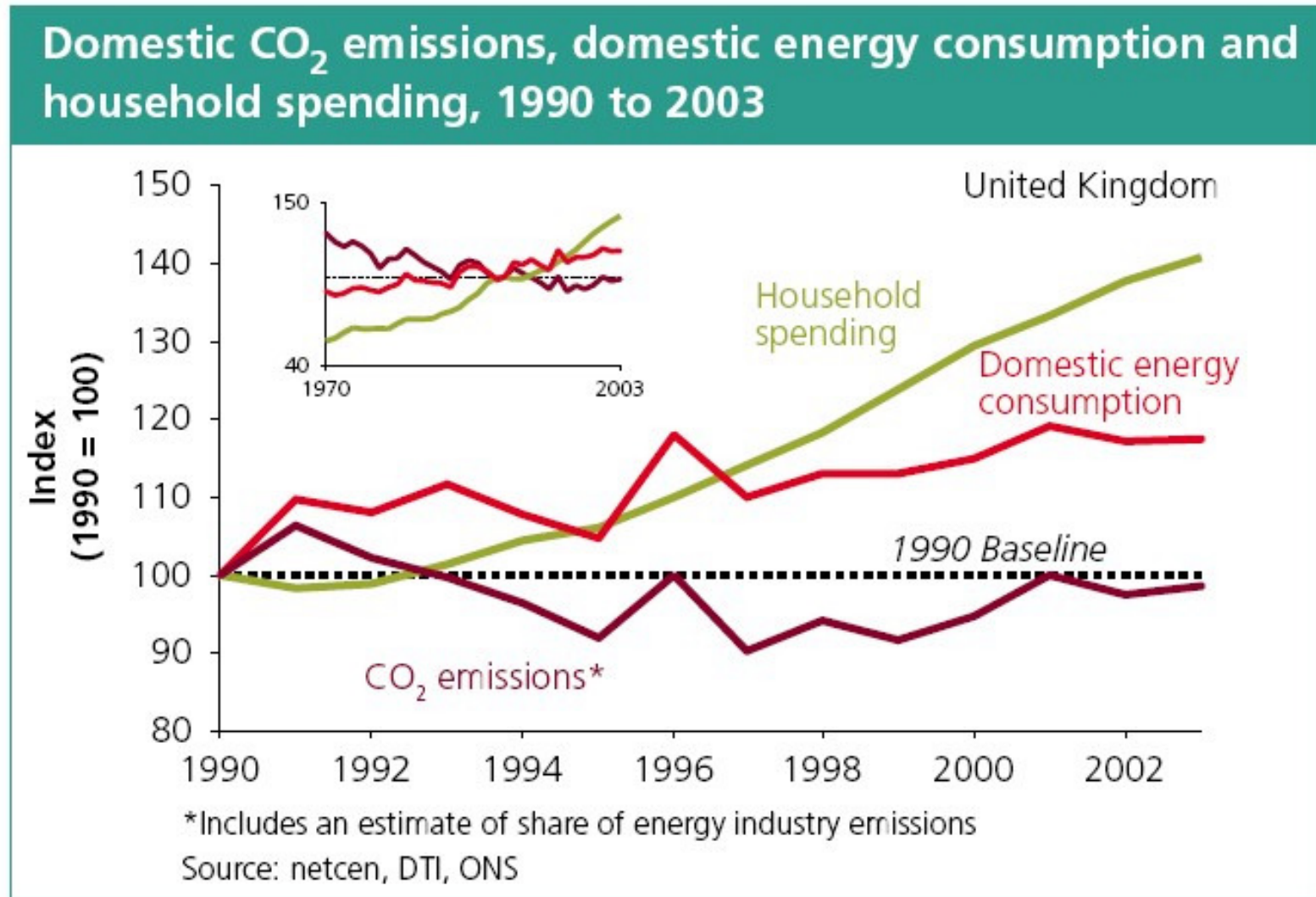


Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

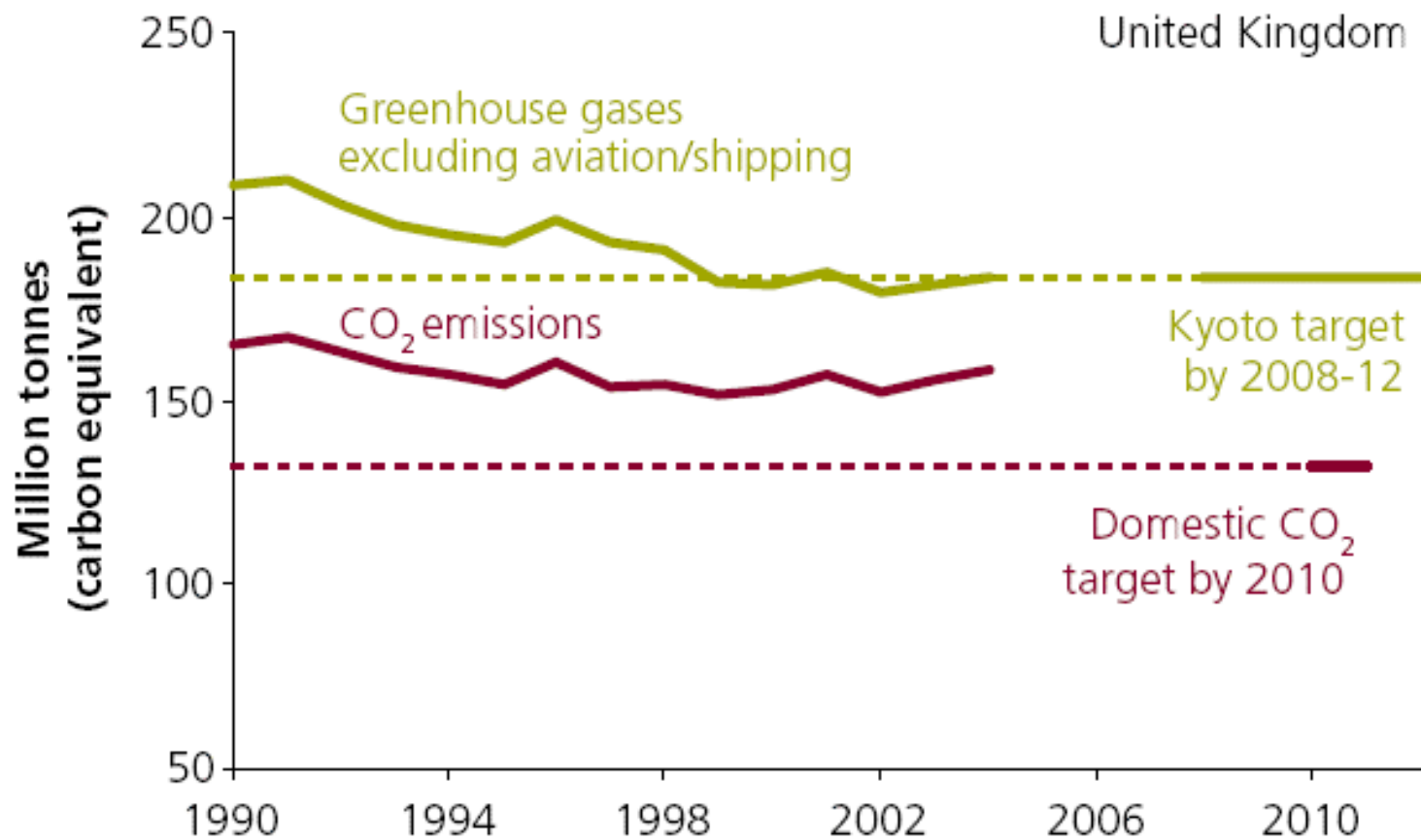
Relative warming effect of current emissions of greenhouse gases over next 100 years.



## Household energy use

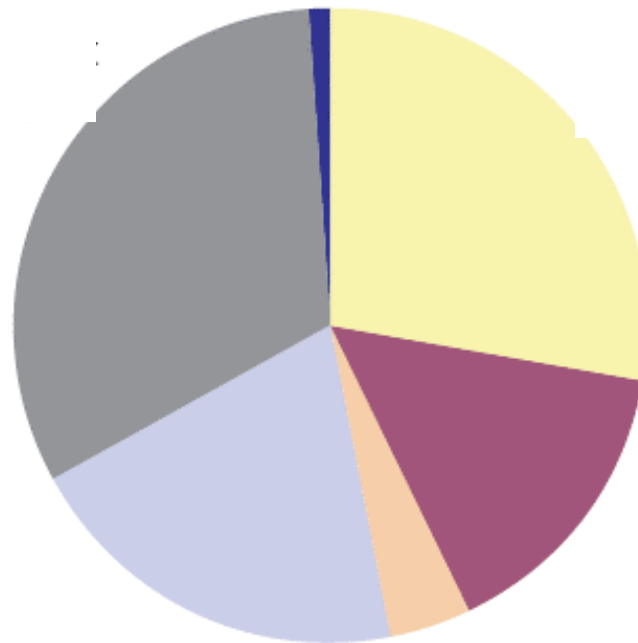


## Kyoto target and CO<sub>2</sub> emissions, 1990 to 2012

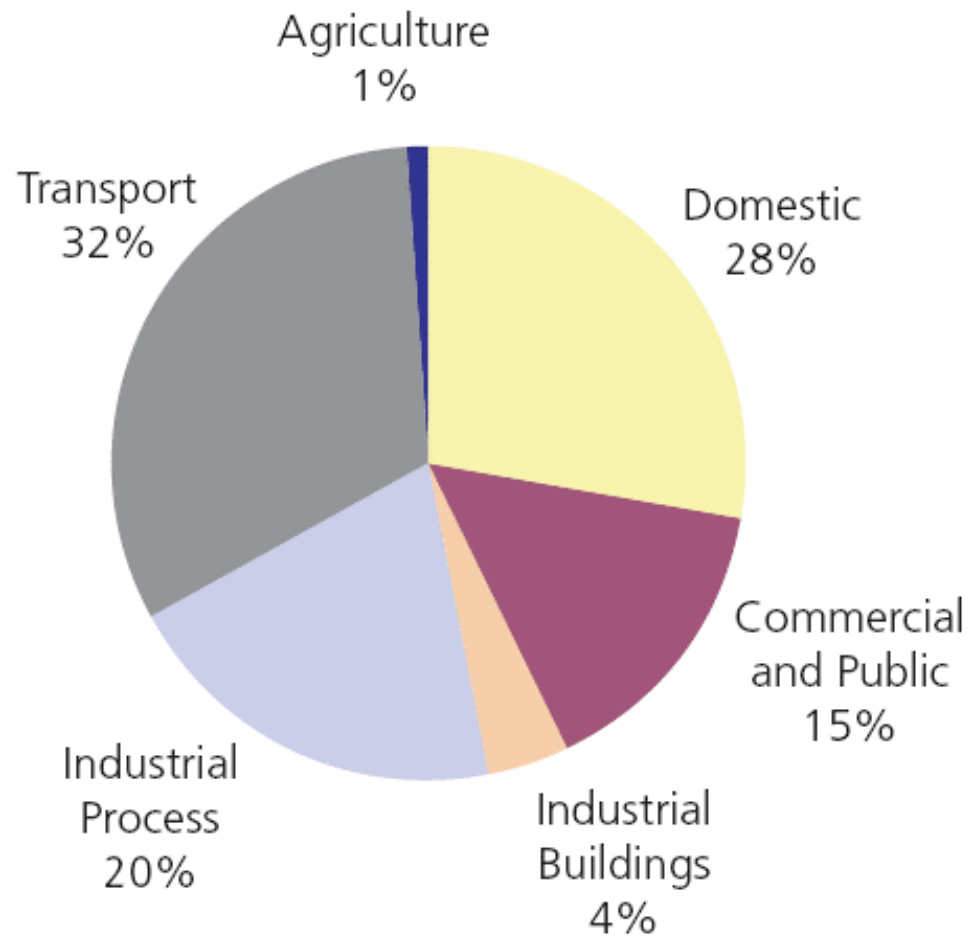


Source: Defra, DTI, netcen

# UK Carbon Emissions



# UK Carbon Emissions



Breakdown of annual UK carbon emissions (2000)<sup>17</sup>

## The Kyoto agreement

- In 1997 165 countries signed up to the Kyoto Protocol
- This set legally binding targets for the reduction of greenhouse gases
- All industrial countries are required to reduce their collective greenhouse gas emissions by just over 5.5% from 1990 levels by 2012
- The EU has set itself targets of 8% reduction
- The UK has set targets of 12.5% for greenhouse gases and 20% CO<sup>2</sup> by 2010

## How will the UK achieve these figures?

- The 2003 [Energy White Paper](#), *'Our energy future – creating a low carbon economy'*,
- The UK Climate Change Programme
- UK offshore policy Energy Act 2004
- The Renewables Innovation Review
- Renewable Heat Report
- Improvements to Document L of the Building Regs.

## Doc L 2006 – changes for renewable energy

- Conservation of fuel and power
  - L1 Domestic - existing and new
  - L2 Commercial - existing and new
- There will be a reduction of 10% of overall Carbon Emission Target if renewable energy is used

## What types of renewable energy are available?

- Wind Energy
- Hydroelectricity
- Wave Power
- Tidal Power
- Geothermal Energy
- Wood fuel
- Biodiesel
- Vegetable oil vehicles
- Solar Electricity
- Solar Water Heating.

## A survey said.....

- Over 60,000 Active Solar Heating systems are estimated to be currently in use in houses in the UK and its growing
- Active Solar Heating systems can meet around half the users' annual household hot water needs
- On average, Active Solar Heating systems provide 20 years' or more useful service
- Systems are generally considered to be very reliable
- The majority of users say they are "very satisfied" with their systems.

## Solar energy – the UK's largest resource

- Solar energy in the UK is far greater than most people imagine
- UK can get very hot in the summer
- Also in spring, autumn and on clear winter days we also receive useful amounts of solar energy
- By tilting a surface from the horizontal it will receive more solar energy
- Active solar heating can convert 40 to 50% of the solar energy falling into useful heated hot water.

Any questions?

