

# Climate Change – Scotland's Response

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# Outline

- Some background – including political response
- UK Climate Change Bill
- Climate Change (Scotland) Bill
- Challenge of meeting targets
- Strategic Overview
- Adaptation
- Role of planning





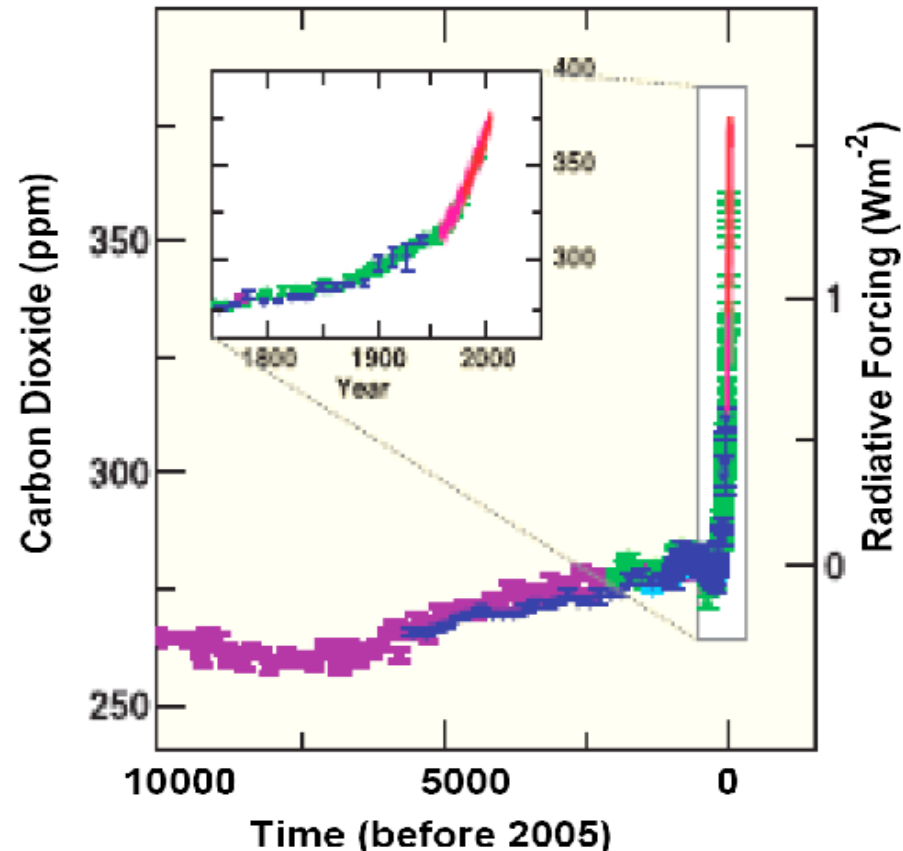
# Why do we need to reduce GHG emissions?

Global atmospheric concentrations of greenhouse gases **increased markedly as result of human activities**

In 2005 concentration of CO<sub>2</sub> **exceeded by far the natural range** over the last 650,000 years

(IPCC Fourth Assessment Report)

Changes in CO<sub>2</sub> from ice core and modern data



# Conclusions from Stern Review



## Cost of Climate Change:

- *5% of global GDP each year*
- *20% of global GDP if wider impacts are taken into account*

## Cost of avoiding Climate Change

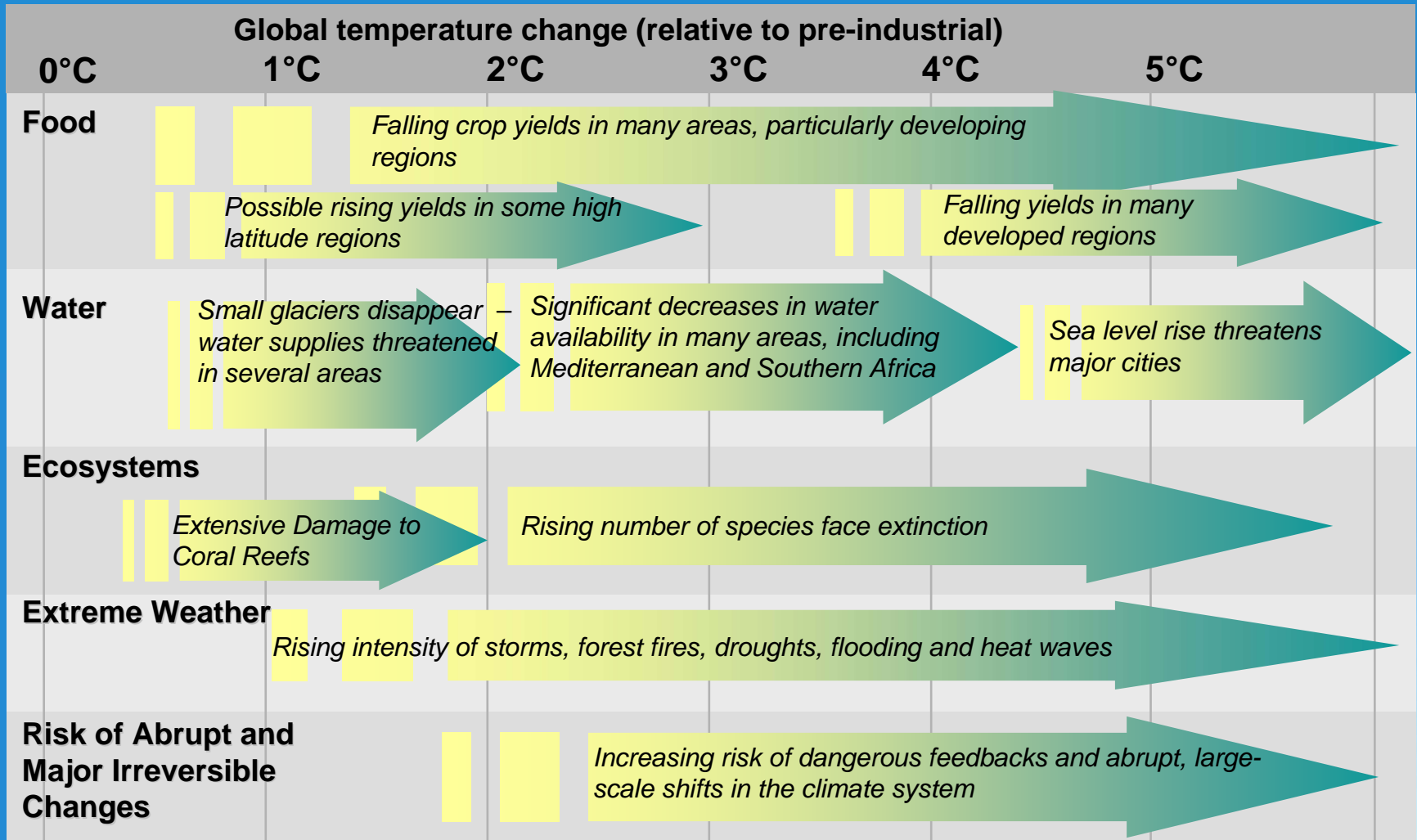
- *1% of global GDP if we act now*

## Conclusion

*"..strong and early action far outweigh the economic costs of not acting." (Stern, 2007)*



# Effects could transform physical and human geography of planet



# What's happening more locally?

## A Handbook of Climate Trends across Scotland

- Average annual **temperatures** in all parts of Scotland are now higher than at any other time since 1914;
- Heavy **rainfall events** have increased significantly in winter, particularly in northern and western regions;
- The **snow season** has shortened across the country since 1961, with the season starting later and finishing earlier in the year. The greatest reductions have occurred in northern and western Scotland.



# What's projected to happen in future? Scottish Impacts (UKCIP 2002 Scenarios)

- **Sea level set to rise** by up to 600mm
- **Increase in total rainfall in 24 hours**, particularly in the east
- **Scotland will become warmer** – perhaps by up to 3.5°C warmer on average during summer
- **Longer growing season** – by between 30 and 80 days
- **Average snowfall amounts will decrease** - perhaps by up to 90% depending on location



# Political response

## UN

- Kyoto Protocol – UK target 12.5% GHG by 2008-2012
- Bali Roadmap – negotiations framework for global deal by 2009

## EU – Energy and Climate Change Package

- 20% GHG reductions by 2020 (30% if developed countries act)
- 10% GHG reductions by 2020 (on 2005 levels) for non-traded sector
- Renewables target for energy use of 20% by 2020
- etc

## UK

- UK Climate Change Bill - 26% reduction by 2020, 80% by 2050

## Scotland

- Scottish Climate Change Bill - 80% emissions reduction by 2050.
- Government Economic Strategy – same 80% target plus emission reduction over period to 2011 to follow same pathway.
- Spending Review – cross-compliance
- Target of 50% renewable electricity by 2020 + proposed target of 20% renewable energy by 2020



# UK Climate Change Bill

## Targets

Long and medium term targets: GHG emission reductions of at least 80% by 2050 and by at least 26% by 2020, through action in the UK and abroad

## Budgets and accountability

Five-year carbon budgets to set out our trajectory, backed by annual progress reporting to Parliament

## Committee on Climate Change

New independent body to advise Government on carbon budgets and where least cost savings could be made

## Measures to reduce emissions

Powers to introduce emissions trading schemes more quickly and easily, including new Carbon Reduction Commitment. Biofuels. Waste.

## Adaptation

Government to report at least every five years on climate change risks, and programme to address them



# Scottish Climate Change Bill



**A  
framework  
for  
achieving  
our goal to  
reduce  
emissions  
by 80% by  
2050**



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# Scottish Climate Change Bill - Objectives

- To drive decisions in government and in business
- To create and enable new means of reducing emissions and adapting to climate change
- To play our part in global action on climate change
- To provide a strong example to other countries showing what can be done



# What's in the Bill?

- Target to reduce basket of six GHGs by 80% by 2050.
- Framework based on annual targets – not budgets.
- Interim target - reduce GHG emissions by 50% by 2030.
- Targets to cover international aviation and shipping.
- Robust / regular reporting to Parliament.
- Power to establish Scottish Committee on Climate Change.
- Power to place duties on public bodies to take action on climate change.
- Duty on Scottish Ministers to produce report on objectives for adapting to climate change, proposals and policies for meeting them and timescales for introduction – climate change risks identified in UK-wide risk assessment.



# What else?

- Energy efficiency action plan
- Waste reduction and recycling
- Power to vary dates on which muirburn can be carried out
- Improving the energy performance of existing non-domestic buildings
- Renewable heat
- Maximising the potential of Scotland's forest estate to support the Scottish Government's climate change objectives



# Climate Change: The Challenge



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# EU 20% target would require some changes on the ground – for example:

## Home energy efficiency



- More smart meters

- More solid wall insulation
- More loft insulation
- Tougher building regulations
- All new homes zero carbon



## Lower emissions vehicles

Manufacturers voluntary agreement, graduated Vehicle Excise Duty and company car tax

## Building regulations (domestic)

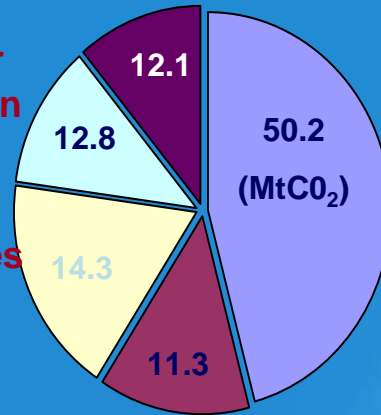
## Supplier Obligation

## Renewables target

## Voluntary Agreement Package (transport)



The top five policies expected to abate the most CO<sub>2</sub> in 2020 all face serious risks to delivery



Tougher EU emissions trading cap incentivises more efficient generation



## Higher energy costs

Costs of EU emissions trading scheme compliance, EU renewables target passed along to consumers



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# EU 30% target would involve significant and visible impacts on daily life – for example:

## Stronger measures on domestic heat

Low carbon district heating infrastructure

Expensive/ disruptive requirements on existing housing stock



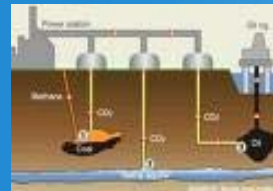
## Higher energy costs

Costs of CCS and heat technologies add further increases to energy bills

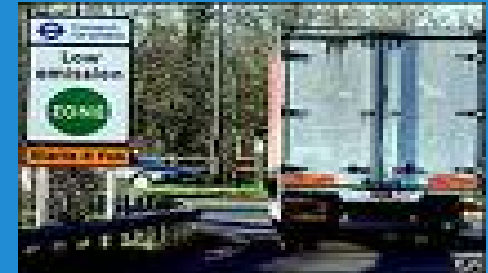


## Faster decarbonisation of electricity sector

Significantly higher build rate for renewables, plus nuclear and CCS.  
More microgen, community energy infrastructure



## Stronger measures on surface transport



More electric vehicles on the roads to meet mandatory targets

Emergence of electric vehicles and recharging stations alongside conventional cars.

Low carbon biofuels (5-10%)

## International deal implications

Increased international technology sharing

High international carbon finance flows



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# Managing the carbon budget

**Emissions trading**  
(inc. EU ETS, CRC)

**Renewables**  
(non-traded sector  
e.g. RTFO)

**Reduction in CO<sub>2</sub>  
from cars**  
(inc. EU requirements  
on grams per km)

**Energy efficiency**  
(inc. CCL,  
CCAs, CERT,  
Energy Services  
Directive)

EMISSIONS ABOVE BUDGET

EMISSIONS WITHIN BUDGET

**Increased  
Road transport**

**Increased  
aviation**

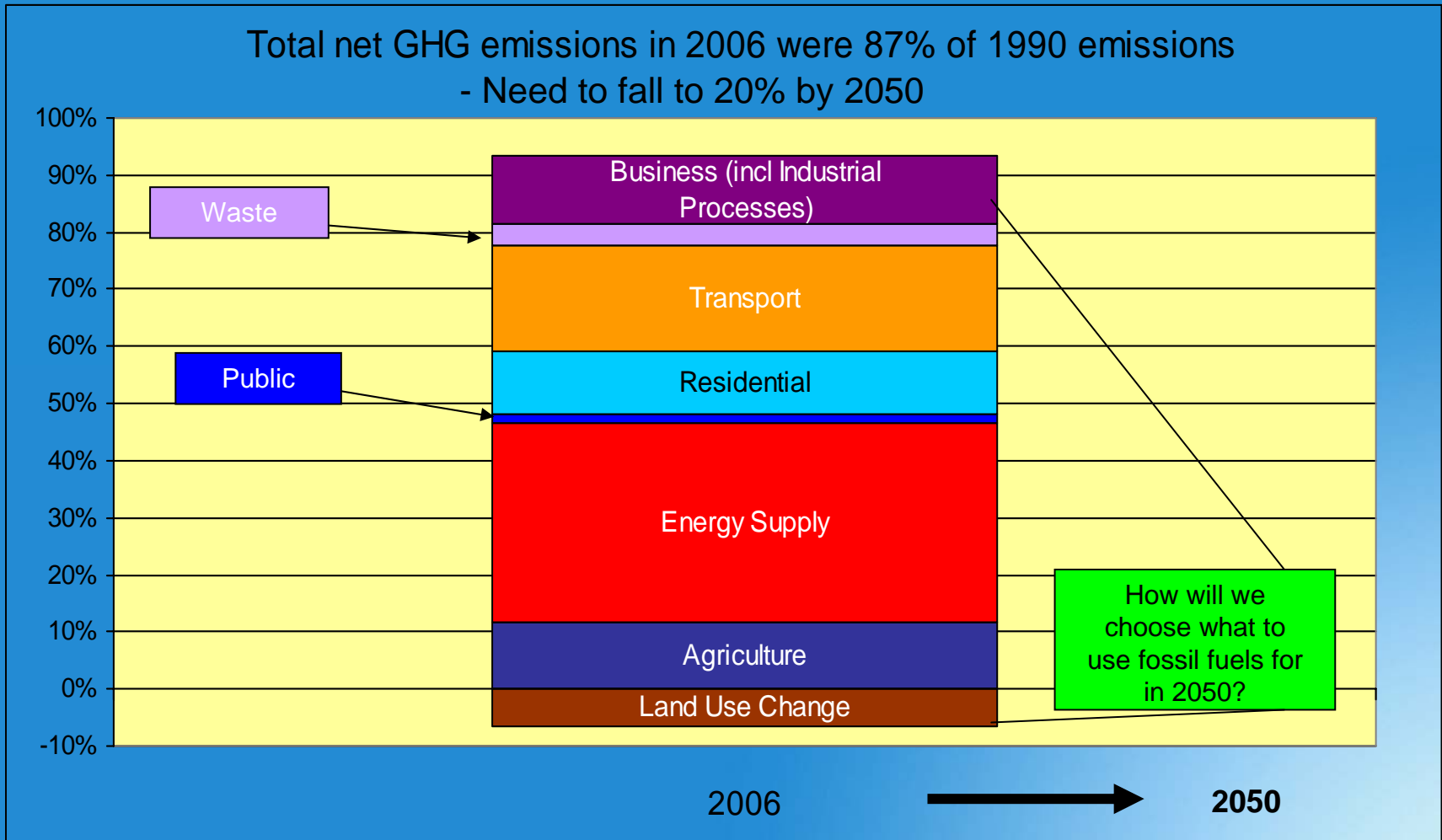
**Population  
growth**

**Housing  
growth**

**Need to assess the impact of Government policies on the  
net UK carbon account**



# The challenge for all parts of Scottish life



**Population growth**

**Economic growth**

**80%**

**20%**

On/off shore wind

Carbon capture and storage

EU ETS

Carbon Reduction Commitment

Marine and tidal energy

Buildings standards

Energy efficiency

Afforestation

Eco-driving



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# Strategic Overview - Objectives

- To deliver a high level discussion document for publication in 2009
  - Identifying key sectors for abatement
  - Identifying high level policy options - short (2012), medium (2020) and long term (2030 and 2050)
  - Highlighting key milestones
  - Identifying barriers to implementation
- To stimulate discussion and analysis within the SG on potential pathways to 80% target



# Adapting to Climate Change



- Risk management
- Restructuring of businesses
- Need for institutional-level planning and hence partnerships
- Scottish Adaptation Strategy – consultation just ended



# An overview of Adapting our Ways: Managing Scotland's Climate Risk



- Defines climate adaptation and a well-adapting Scotland
- Proposes strategic principles for a sustainable approach to climate adaptation
- Proposes strategic priority actions for Government in promoting a sustainable approach to climate adaptation
- The Scottish Government's role in supporting climate adaptation
- Working in partnership to support climate adaptation
- Summary of historic trends and future scenarios for Scotland
- Current activities contributing to climate adaptation in Scotland



# Role of land use planning?



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# Planning etc. (Scotland) Act 2006

2006 asp 17

Explanatory Notes have been produced to assist in the understanding of this Act and are available separately

£15.00



## NATIONAL PLANNING FRAMEWORK FOR SCOTLAND 2 DISCUSSION DRAFT



MAP 19  
STRATEGY

- City
- International gateway
- Deep water opportunity
- Marine energy potential
- Key economic development
- Potential subsea energy network
- Areas of co-ordinated action
- Strategic development plan priority
- Economic diversification and environmental stewardship



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# SPP7 – Planning and Flooding

- Explicit recognition of climate change.
- New development should not take place if it would be at significant risk of flooding from any source or would materially increase the probability of flooding elsewhere.
- The storage capacity of functional floodplains should be safeguarded; and
- Works to elevate the level of a site by landraising should not lead to a loss of flood water storage capacity.



# Conclusion: Need for Immediate Action -

- International cooperation and holistic approach
- Need for national / local initiatives and innovations – and for all parts of society to contribute
- Understanding the challenge
- The Scottish Government and UK Government have set demanding targets
- **We cannot afford to fail – there is no Plan B!**



# Thank you

<http://www.scotland.gov.uk/Topics/Environment/Climate-Change>



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