N: Climate change and energy supply

The average global surface temperature has risen by more than 0.6 °C since the late 19th Century. The ten hottest years on record have all occurred since 1990.

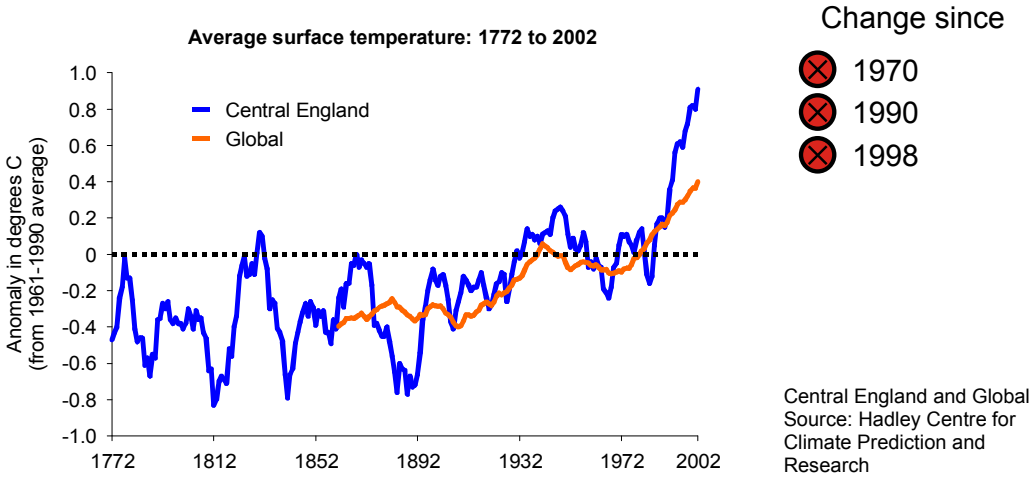
Overall carbon dioxide emissions have decreased by 18 per cent since 1970, but there has been little change since 1998.

Transport emissions have doubled since 1970, but have remained relatively static since 1998 - due mainly to improved fuel efficiency. Non-transport emissions fell by a third since 1970, owing to reductions by industry and power generators, but have changed little since 1998.

In 2002, around 3.0 per cent of the electricity available in the UK was generated from renewable sources, compared with 2.5 per cent in 1998. Estimated oil and gas reserves have both dropped by about one quarter since 1998.

Ref. no.	Indicator		QOLC 1999		QOLC Updated Assessment		
			Change since		Change since		
			1970	1990	1970	1990	Strategy
N1	Rise in global temperature		✗	✗	✗	✗	✗
N2	Sea level rise		✗	✗	✗	✗	✗
H9	Climate change: Emissions of greenhouse gases (headline)		✓	✓	✓	✓	✓
N3	Carbon dioxide emissions by end user	Transport	✗	✗	✗	✗	≈
		Non-transport	✓	✓	✓	✓	≈
N4	Electricity from renewable sources		•••	✓	•••	✓	✓
N5	Depletion of fossil fuels		•••	≈	•••	✗	✗

Indicator: Rise in global temperature N1

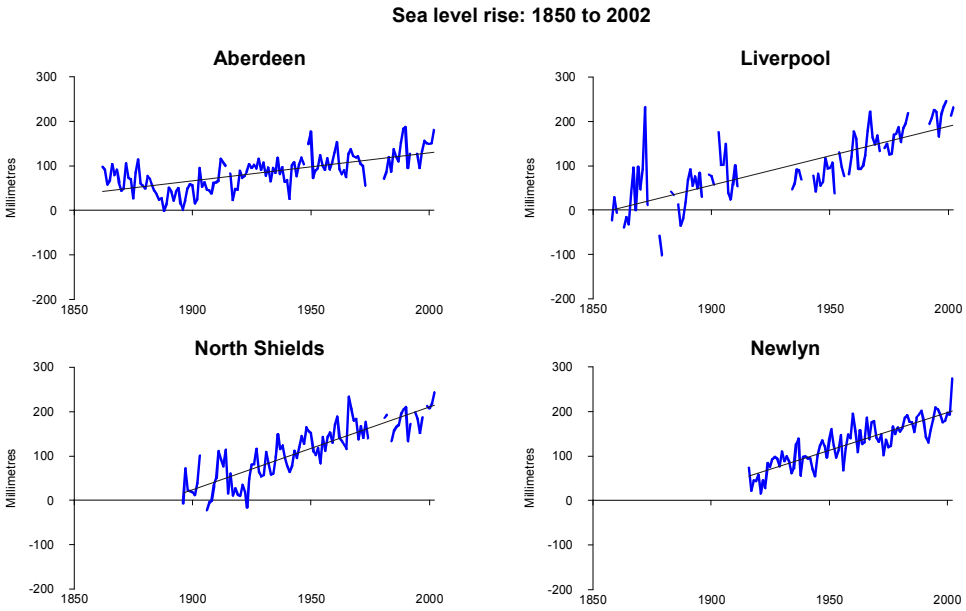


Central England and Global
Source: Hadley Centre for Climate Prediction and Research

Objective: Climate change must be kept within limits to which global society can accommodate

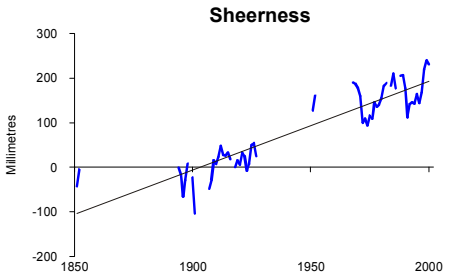
- The average global surface temperature has risen by more than 0.6 °C since the late 19th Century. The ten hottest years on record have all occurred since 1990.
- It is expected that global temperatures will rise by between 1.5 and 6 °C by the end of the 21st Century.
- Since the late 19th century, the annual mean central England temperature has risen by about 1.3 °C. Six of the seven warmest years since 1772 have occurred since 1990.

Indicator: Sea level rise N2



Indicator: Sea level rise (*continued*) N2

Sea level rise: 1850 to 2002



Change since
- 1970
- 1990
- 1997

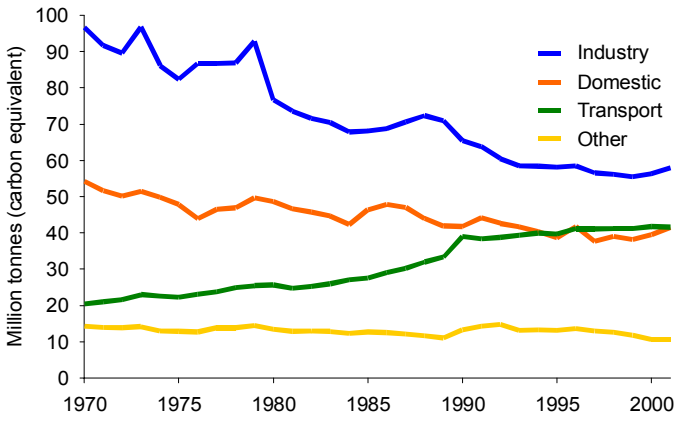
Great Britain
Source: NERC Proudman Oceanographic Laboratory

Objective: Assess vulnerability to changed weather patterns and higher sea levels and develop adaptation strategies

- All the sites shown indicate a rise in historic mean sea level, ranging from 0.6 mm per year at Aberdeen to 2.0 mm per year at Sheerness.
- This reflects a real sea level rise of approximately 1 mm per year combined with geographical differences due to long-term geological movements (these are causing the south and east to sink and the north to rise).

Indicator: Carbon dioxide emissions by end user N3

Carbon dioxide emissions by end user: 1970 to 2001



Transport

Change since
- 1970
- 1990
- 1997

Non-transport

Change since
- 1970
- 1990
- 1997

United Kingdom
Source: NETCEN

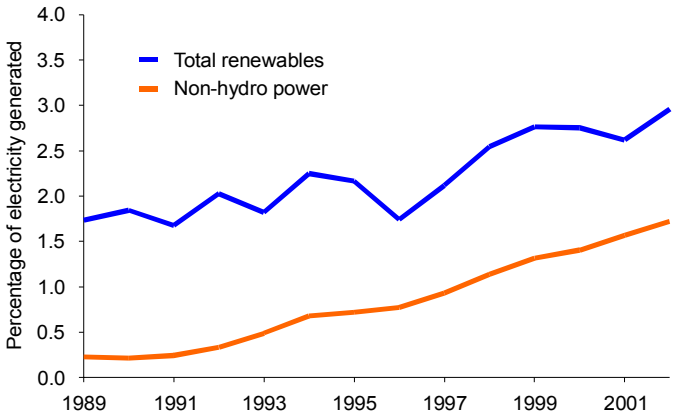
Objective: Continue to reduce our emissions of greenhouse gases now, and plan for greater reductions in longer term

- Overall carbon dioxide emissions have decreased by 18 per cent since 1970, but there has been little change since 1998.
- Transport emissions have doubled since 1970, but have remained relatively static since 1998 - due mainly to improved fuel efficiency.
- Non-transport emissions fell by a third since 1970, owing to reductions by industry and power generators, but have changed little since 1998.

Indicator: Electricity from renewable resources N4

Change since
1970
1990
1998

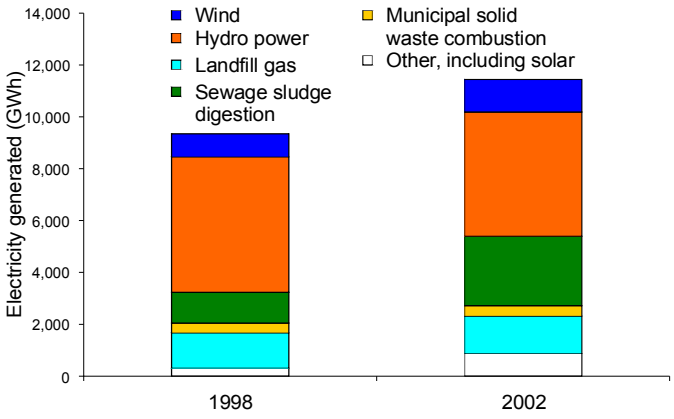
Percentage of electricity generated by renewable sources[1]: 1989 to 2002



United Kingdom
Source: DTI

Note: 1. The falls in generation in 1993, 1996 and 2001 were due to periods of drier than average weather which resulted in less power from hydro sources.

Renewable sources: 1998, 2002



United Kingdom
Source: DTI

Objective: In the longer term more energy will have to come from new and renewable sources

- Total electricity generated from renewable resources increased by about 60 per cent between 1990 and 2002, while that generated from non-hydro renewables increased eight-fold.
- In 2002, around 3.0 per cent of the electricity available in the UK was generated from renewable sources, compared with 2.5 per cent in 1998, and a UK target of 5 per cent in 2003.

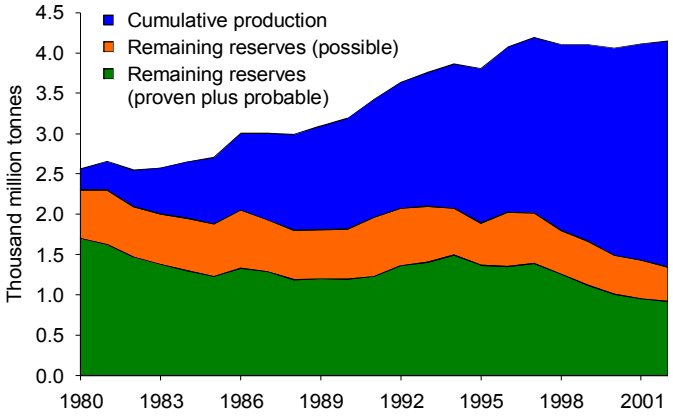
Indicator: Depletion of fossil fuels N5

Change since

1970
1990
1998

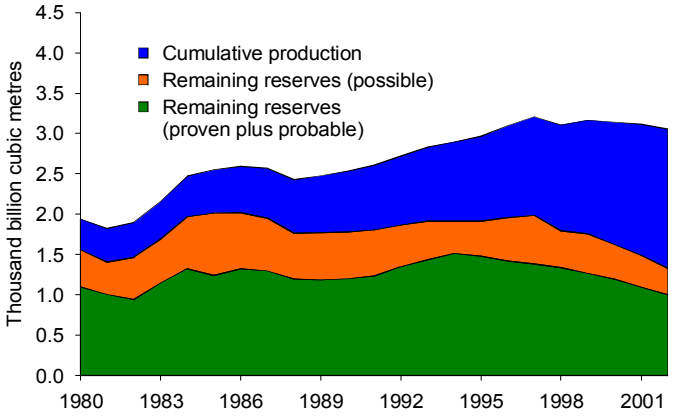
Discovered recoverable reserves and cumulative production

a) Oil: 1980 to 2002



United Kingdom
Source: DTI

b) Gas: 1980 to 2002



United Kingdom
Source: DTI

Objective: Fossil fuel resources managed in an environmentally acceptable way

- Estimated oil and gas reserves have both dropped by about one quarter since 1998.
- In earlier years, estimates of remaining reserves had stayed at broadly similar levels despite the large increase in oil and gas extracted, due to new discoveries being made and new technology allowing exploitation of discoveries previously regarded as not viable.