

The Greenhouse Gas Emissions and Feedbacks Programme

Developing the capability to measure and predict sources and sinks of the major anthropogenic greenhouse gases.

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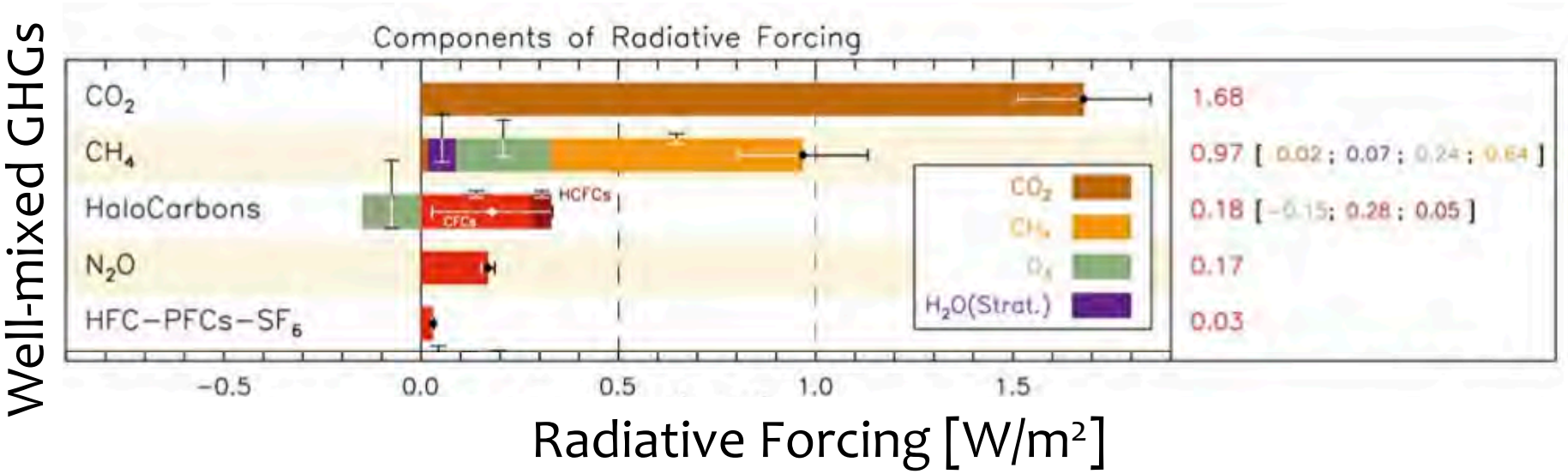
NERC SCIENCE OF THE ENVIRONMENT

http://www.greenhouse-gases.org.uk/

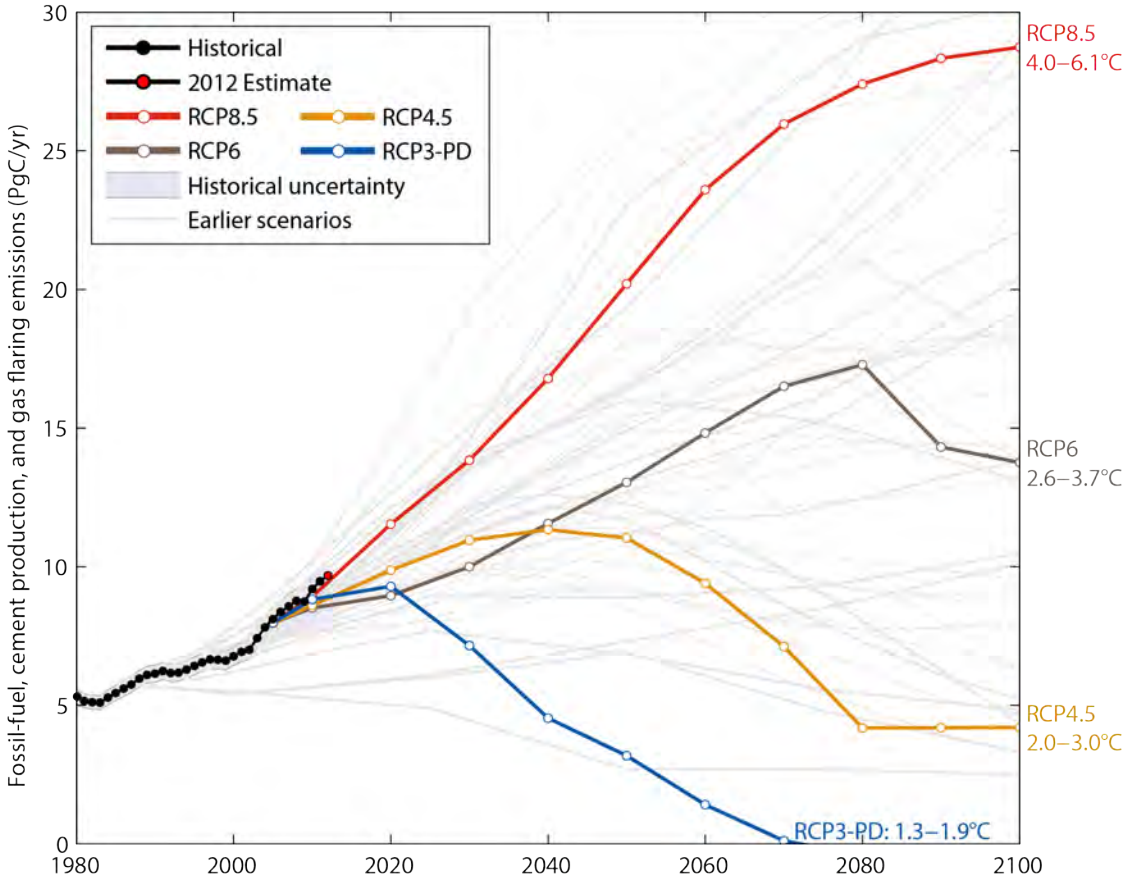
Programme is focused on CO2, CH4, and N2O



Radiative forcing is a measure of the potency to increase surface temperature

IPCC AR5, 2013

Future surface warming depends on GHGs emissions



RCP = Representative concentration pathways

Basically describes trajectory of emissions

- Emissions are heading to a 4.0-6.1°C "likely" increase in temperature
- Large and sustained mitigation is required to keep below 2°C
- Humanitarian and economic implications are largely unknown

Peters et al. 2012a

UK GHG targets*

UK TARGETS			
KYOTO Reduce the basket of six greenhouse gases by 12.5% compared to1990 levels by 2008 – 2012	**2020 CO_2 TARGET** Reduce CO_2 emissions by 34% compared to 1990 levels by 2020	**2050 CO_2 TARGET** Reduce CO_2 emissions by 80% compared to 1990 levels by 2050	**UK CARBON BUDGETS** 2008-2012, 2013-2017, 2018-2022, 2023-2027

(*Devolved administrations have similar targets.)

Numbers expressed as MtCO2 equivalent

	1990	2012
Energy Supply	272.4	202.0
Transport	121.6	118.0
Business	116.0	86.7
Residential	80.8	77.5
Agriculture	71.1	56.6
Waste Management	47.3	21.6
Industrial Process	54.8	9.8
Public	13.1	10.1
LULUCF	1.9	-7.0
Total	778.9	575.4

A robust emission reduction strategy will have to address a wide range of sources

All figures are for the UK and Crown Dependencies only, and exclude Overseas Territories.

2012 Greenhouse Gas Emissions, Final Figures. DECC, Feb 2014.

Combining UK expertise to characterize UK GHG emissions

GAUGE

From the air

Inferring robust regional estimates from atmospheric measurements

Prof Paul Palmer

GREENHOUSE

From the land

Measuring and simulating emissions from the UK landscape

Prof Mat Williams

RAGNARoCC

From the ocean

Measuring air-sea fluxes in the North Atlantic region

Dr Richard Sanders