

STATEMENT OF PROFESSOR PAUL EKINS OBE

Biographical details

My name is Paul Ekins. I have a Ph.D. in economics from the University of London, an Hon. DSc from the University of Keele, and I am a Professor of Resources and Environmental Policy, and Director of the UCL Institute for Sustainable Resources at University College London. I am also Deputy Director of the UK Energy Research Centre, in charge of its Resources and Vectors theme. From 2002-2008 I was a Member of the Royal Commission on Environmental Pollution. From 1997-2005 I was a specialist adviser to the Environmental Audit Committee of the House of Commons, and in 2007 was a Specialist Adviser to the Joint Parliamentary Committee on the Climate Change Bill. I was a member in 2010-11 of two Ministerial Advisory Panels, and in 2011 I was appointed Vice-Chairman of the DG Environment Commissioner's High-Level Economists Expert Group on Resource Efficiency. In 2013 I was appointed to the International Resource Panel (IRP) of the United Nations Environment Programme (UNEP) and was the lead author of the IRP's report on resource efficiency commissioned by the G7 governments and presented in Japan in 2016. I am one of two Co-Editors of UNEP's sixth Global Environmental Outlook (GEO-6), which is the UN's flagship environmental report, and which will be presented to the UN Environment Assembly in 2019. I am the author of numerous papers, book-chapters and articles in a wide range of journals, and have written or edited twelve books, including *Global Warming and Energy Demand* (Routledge, 1995) and *Economic Growth and Environmental Sustainability: the Prospects for Green Growth* (Routledge, London, 2000). Since 2008 I have edited or co-edited books including *Carbon-Energy Taxation: Lessons from Europe* (Oxford University Press, Oxford, 2009), *Hydrogen Energy: Economic and Social Challenges* (Earthscan, London, 2010), *Energy 2050: the Transition to a Secure, Low-Carbon Energy System for the UK* (Earthscan, London, 2011); and *Global Energy: Issues, Potentials and Policy Implications* (Oxford University Press, Oxford, 2015). In 1994 I received UNEP's Global 500 Award 'for outstanding environmental achievement'. In the UK New Year's Honours List for 2015 I received an OBE (Officer of the Order of the British Empire) for services to environmental policy.

Statement¹

Policy makers have generally agreed that the average global temperature rise caused by greenhouse gas emissions should not exceed 2°C above the average global temperature of pre-industrial times. It has been estimated that to have at least a 50 per cent chance of keeping warming below 2°C throughout the twenty-first century, the cumulative carbon emissions (the 'carbon budget'), between 2011 and 2050 need to be limited to around 1,100 gigatonnes of carbon dioxide (Gt CO₂). However, the greenhouse gas emissions contained in present estimates of global fossil fuel reserves are around three times higher than this, and so the unabated use of all current

¹ The first paragraph of this Statement is the Abstract of the paper McGlade, C. and Ekins, P. 2015 'The geographical distribution of fossil fuels unused when limiting global warming to 2°C', *Nature*, pp.187-190

fossil fuel reserves is incompatible with a warming limit of 2°C. Here we use a single integrated assessment model that contains estimates of the quantities, locations and nature of the world's oil, gas and coal reserves and resources, and which is shown to be consistent with a wide variety of modelling approaches with different assumptions, to explore the implications of this emissions limit for fossil fuel production in different regions. Our results suggest that, globally, a third of oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C. We show that development of resources in the Arctic and any increase in unconventional oil production are incommensurate with efforts to limit average global warming to 2°C. Our results show that policy makers' instincts to exploit rapidly and completely their territorial fossil fuels are, in aggregate, inconsistent with their commitments to this temperature limit. Implementation of this policy commitment would also render unnecessary continued substantial expenditure on fossil fuel exploration, because any new discoveries could not lead to increased aggregate production.

The reported modelling was published in 2015, when the global policy aspiration was to limit average global warming to 2°C. Since then the Paris Agreement has strengthened countries' commitments to go below 2°C, limiting average global warming to 1.5°C if possible. The Intergovernmental Panel on Climate Change (IPCC) has recently published a report showing that this is highly desirable if substantial climate damages, which would occur at 2°C, are to be avoided. A 1.5°C 'carbon budget' is considerably below the 1,100 Gt CO₂ carbon budget used for the 2°C scenario, results for which are described above. This means that keeping average global warming to 1.5°C would require considerably more fossil fuels to remain unburned than has been estimated here.

A handwritten signature in black ink on a light grey background. The signature is stylized and appears to read 'Paul Ekins'. Below the signature is a small, simple drawing of a pen nib pointing downwards and to the left.

PAUL EKINS OBE
University College London
October 26th 2018