



LANCASTER
UNIVERSITY



Queen's University
Belfast

University of
Strathclyde



Economics of Climate Change, Carbon policy and Renewable Energy

Matthew Winning

*Supervisors: Kim Swales and Peter McGregor
Fraser of Allander Institute, University of Strathclyde*

Work stream 9:<Economic analysis of variability and penetration>

Introduction

International and domestic targets for emissions reductions, increased use of renewables and greater energy efficiency are all heavily dependent upon inducing private-sector investment in new technologies. Government has a role in achieving investment through appropriate policy design where there are currently market failures. However there is some doubt about the ability of the government to commit to a long-term carbon policy and therefore the private sector under-invests in these technologies – a so-called “Time Inconsistency” problem.



CGE modelling and a carbon tax

A balanced budget carbon tax could be used as a policy instrument for the CCC to internalize the price of carbon emissions into energy sources and therefore stimulate investment in marine energy and other renewables.

Using Computable General Equilibrium modelling it is possible to assess the impact of such a carbon tax on the economy and environment, and in particular how the marine energy sector could be made more competitive. This may also incorporate interaction with other energy policy instruments.



Climate Change Committee

The Committee on Climate Change is an independent advisory body setup by the government to move the UK towards a low carbon economy. This involves an emissions reduction target of 80% by 2050 and the setting of 5 year carbon budgets from 2008. The theoretical basis is that an independent body, similar to the Monetary Policy Committee, should solve the ‘Time Inconsistency’ problem by adding credibility, commitment and certainty to carbon policy, thereby reducing the risk of investing in renewable energy sources. However there are concerns over the CCC’s effectiveness as it has no obvious policy instrument and there are issues regarding its interaction with other UK energy institutions (e.g. Ofgem) and instruments (e.g. Renewable Obligation Certificates), as well as at EU level with its Emissions Trading Scheme.

References

1. Helm, D et al (2003) “Credible Carbon Policy”, *Oxford Review of Economic Policy*, 19 (3): 438-450
2. Sorrell, S. and J.Sijm (2003) “Carbon trading in the Policy Mix”, *Oxford Review of Economic Policy*, 19 (3): 420-437.