**Award: ESRC Centre for Climate Change Economics and Policy**

**Project: Enabling carbon markets: efficient carbon trading systems and finance (CCCEP Phase 1)**

**Project lead: Pauline Barrieu, Samuel Fankhauser, Umut Cetin**

**Contact:** [gri@lse.ac.uk](mailto:gri@lse.ac.uk)

**Overview of project aims**

This project looks at changes in carbon markets and emissions trading in more detail, and the way that their future evolution might help to promote efficient, effective markets for the post-2012 period. Also, it seeks to improve the prospects for market-based approaches to climate change mitigation.

**Overview of data**

* Practically the entirety of the research in this project has been based on theoretical models and has therefore not produced any data to be archived.
* Paper 4 is a mostly theoretical paper, which includes one table with illustrative simulations. The spreadsheet containing those simulations is included in this submission.
* Paper 5 has used various proprietary data sources covering 15 world regions and 17 sectors POLES for energy emissions, IIASA for forestry emissions and IMAGE for non-CO2 emissions. IIASA data is available at <https://tntcat.iiasa.ac.at/SspDb/dsd?Action=htmlpage&page=about> and IMAGE data can be downloaded at <http://models.pbl.nl/image/index.php/Download>
* Paper 12 has generated data in a laboratory experiment. The Appendix of the paper provides a detailed explanation of how data was generated and used.
* Paper 13 has used data on agricultural profits, labour, fertiliser, fuel costs, and clearance and conversion costs from L'Instituto Brasileiro de Geografia e Estatística IBGE. The data is available to download at <https://ww2.ibge.gov.br/english/> The Appendix of the paper gives the references to the specific data sources. .

**Links to other projects**

This project is related to a broader programme of work at the Grantham Research Institute on Climate Change and the Environment, LSE, on policy design and evaluation, under the *Mitigation* programme.

**CCCEP publications**

1. “Pricing and Hedging in Carbon Emissions Markets”, Umut Cetin and Michael Versuchere. International Journal of Theoretical and Applied Finance – Vol. 12 (7): 949-967 (2009)
2. “Designing Carbon Markets – Part I: Carbon markets in time”, Samuel Fankauser and Cameron Hepburn. *Energy Policy* – Vol 38(8):4363-4370
3. “Designing Carbon Markets – Part II: Carbon markets in space”, Samuel Fankauser and Cameron Hepburn. *Energy Policy* – Vol 38(8):4363-4370
4. “Combining Multiple Climate Policy Instruments: How not to Do It”, Samuel Fankhauser, Cameron Hepburn and Jisung Park. *Climate Change Economics* – Vol. 1 (3):209-225 (2010).
5. “The Economics of the CDM Levy: Revenue Potential, Tax Incidence and Distortionary Effects”, Samuel Fankhauser and Nat Martin (2010). *Energy Policy* - Vol. 38(1):357-363 (2010)
6. “Storage Costs in Commodity Option Pricing” Juri Hinz and Max Fehr. *SIAM Journal of Financial Mathematics* – Vol. 1(1): 729-751 (2010).
7. “Market Design for Emission Trading Schemes” Rene Carmona, Max Fehr, Juri Hinz and Arnaud Porchet. *SIAM Review* – Vol. 52(3): 403:452.
8. “Cap-and-Trade Properties *Under* Different Hybrid Scheme Designs”, Georg Grull and Luca Taschini*, Journal of Environmental Economics and Management -* Vol. 61 (1):107-118 (2011).
9. “The Endogenous Price Dynamics of Emission Allowances and an Application to CO2 Op- tion Pricing”, Luca Taschini and Marc Chesney. *Applied Mathematical Finance* - Vol. 19 (5):447-475 (2012).
10. “Linking Emission Trading Schemes”, Georg Grull and Luca Taschini. *Economics of Energy & Environmental Policy* - Vol. 1 (3):31-38 (2012).
11. “The Role of Stocks & Shocks Concepts in the Debate Over Price vs. Quantity”, John E. Parsons and Luca Taschini. *Environmental and Resource Economics* - Vol. 55 (1):71-86 (2013).
12. “Experimental Comparison between Markets on Dynamic Permit Trading and Investment in Irreversible Abatement with and without Non-Regulated Companies”. Luca Taschini, Marc Chesney and Mey Wang. *Journal of Regulatory Economics* - Vol. 46 (1):24-50 (2014).
13. “Conservation Payments under Uncertainty” Stefanie Engel, Charles Palmer, Luca Taschini and Simon Urech. *Land Economics* - Vol. 91 (1):36-56 (2015).