

Technology and Policy Assessment: key outputs

Activities with policy impact

- 2017 Dr Gross appointed to the steering group of the National Audit Office's review of the Renewable Heat Incentive
- 2017 Findings from the (Intermittency 2016 update) report presented to BEIS, CCC and Ofgem
- 2017 Dr Gross appointed to the newly-created Ofgem Academic Advisory Panel
- 2017 Working paper from the (Best practice in heat decarbonisation policy project) published on the Committee on Climate Change website as supporting documentation to the Committee's 'Next Steps for UK Heat Policy' report
- 2016 (Innovation timelines from invention to maturity report) cited in the National Infrastructure Commission's report 'The impact of technological change on future infrastructure supply and demand'
- 2016 Briefing on the findings from the (Best practice in heat decarbonisation policy report) for the Aldersgate Group's Executive Director to help prepare him for a roundtable with the Minister of State
- 2016 Findings from the (Best practice in heat decarbonisation policy report) were featured in the Committee on Climate Change 'Next Steps for Heat Policy' report
- 2016 Findings from the (Innovation timelines from invention to maturity report) presented to the Energy and Climate Change Committee secretariat and Parliamentary Library services (the POST team)
- 2016 Findings from the (Innovation timelines from invention to maturity report) presented by DECC at a No 10 workshop exploring the implications for policy
- 2015 (Innovation timelines from invention to maturity report) cited in the CCC 5th Carbon Budget Report and supporting research
- 2015-2016 Jamie Speirs undertook a 9 month secondment to the Department of Energy and Climate Change (DECC) in a role that involved developing the relationship

between DECC policy making and the academic evidence base, including the development of a map of the existing evidence landscape, and a directory of academics relevant to the areas of evidence needs within DECC

- 2015 Dr Gross gives evidence to the House of Lords Science and Technology Committee. The questions addressed included: How effective are the government's policies at ensuring resilient electricity supply?; How much is decarbonisation of electricity generation going to cost?; Is there a need for a so-called Systems Architect to help coordinate transition to a low carbon electricity system? Drawing upon: (Investment Decisions, The costs and impacts of intermittency, Great expectations: the cost of offshore wind in UK waters, Presenting the Future: An assessment of future costs estimation methodologies in the electricity generation sector)
- 2014 Dr Gross appointed Chair of the Committee on Climate Change's two steering groups overseeing work on cost reduction potential in the offshore power and CCS sectors. Drawing upon: (Great expectations: the cost of offshore wind in UK waters, Presenting the Future: An assessment of future costs estimation methodologies in the electricity generation sector)
- 2014 (The costs and impacts of intermittency, Presenting the Future: An assessment of future costs estimation methodologies in the electricity generation sector) cited in the Carbon Connect Future Electricity Series Part 3 - Power from Nuclear report
- 2014 (Presenting the Future An assessment of future costs estimation methodologies in the electricity generation sector) cited in the UK Solar PV Strategy Part 2: Delivering a brighter future
- 2013 Oral evidence to the House of Commons Energy and Climate Change Committee, drawing on findings from the (Biomass Resources report)
- 2012 Environmental Audit Committee consultation report on the Green Economy referenced a TPA submission based on the (Low Carbon Jobs) project work
- 2012 POST notes, one on Bioenergy citing (Energy from biomass: The size of the global resource) and one Energy Efficiency citing (The rebound effect)
- 2012 Rob Gross appointed as Special Advisor to the Energy and Climate Change Committee during its scrutiny of the draft Energy Bill for the Electricity Market Reform process
- 2012 Briefed the House of Commons Energy and Climate Change Committee secretariat on technology costs, drawing on (Great expectations: the cost of offshore wind in UK waters, Cost Methodologies)
- 2011 (Energy from biomass: The size of the global resource) cited in the Committee on Climate Change 'Bioenergy Review'
- 2011 (Great expectations: the cost of offshore wind in UK waters) cited in the Mott MacDonald 'Costs of Low Carbon Generation Technologies' (supporting analysis for the 2011 Committee on Climate Change 'Renewable Energy Review')
- 2010 (Great expectations: the cost of offshore wind in UK waters) cited in the Committee on Climate Change '4th Carbon Budget'

- 2010 (Global Oil Depletion) cited in the Industry Taskforce on Peak Oil & Energy Security report: 'The Oil Crunch: A wake-up call for the UK economy' 2009 Robert Gross appointed Special Advisor to the House of Lords EU Sub-Committee B (Internal Market) during their inquiry into issues relating to the EU's '20 20 by 2020 Package'
- 2009 (What policies are effective at reducing carbon emissions from surface passenger transport?) cited in the Committee on Climate Change '1st Progress Report'
- 2008 (The rebound effect, The costs and impacts of intermittency, Investment in electricity generation) cited in the Committee on Climate Change 'Building a low carbon economy'
- 2008 (The costs and impacts of intermittency) cited in House of Lords Select Committee on Economic Affairs Fourth Report of Session 2007-2008 'The Economics of Renewable Energy'
- 2008 (Investment in electricity generation) cited in the House of Commons Select Committee on Innovation, Universities, Science and Skills Fifth Report of Session 2007-08 'Renewable Electricity – generation technologies'
- 2008 (The costs and impacts of intermittency, The rebound effect) cited in the BERR 'White Paper on Nuclear Power'
- 2007 (The costs and impacts of intermittency) cited in the DTI 'Energy White Paper – Meeting the Energy Challenge'
- 2006 (The costs and impacts of intermittency) cited in the DTI 'Energy Review – The Energy Challenge'

TPA Reports and Working Papers

- Intermittency project main report (2017) : 'The costs and impacts of intermittency – 2016 update: A systematic review of the evidence on the costs and impacts of intermittent electricity generation technologies'
- Heat policy project working paper (2016) : 'Best practice in heat decarbonisation policy: A review of the international experience of policies to promote the uptake of low-carbon heat supply'
- Innovation timelines project working paper (2016) : 'Innovation timelines from invention to maturity: A rapid review of the evidence on the time taken for new technologies to reach widespread commercialisation'
- Energy efficiency project main report (2015) : 'Energy Efficiency Evaluation: The evidence for real energy savings from energy efficiency programmes in the household sector'. *Working papers:* (1) Report on the evidence for net job creation from policy support for energy efficiency and renewable energy: An appraisal of multi-sectoral modelling techniques
- Low carbon jobs project main report (2014) : 'Low carbon jobs: The evidence for net job creation from policy support for energy efficiency and renewable energy'. *Working papers:* (1) Report on the evidence for net job creation from policy support

for energy efficiency and renewable energy: An appraisal of multi-sectoral modelling techniques

- Materials availability project main report (2014) : ‘Materials availability for low carbon technologies: An assessment of the evidence’. *Materials Availability Handbook: An online guide highlighting the availability of materials that are critical components in low-carbon energy technologies. Working papers:* (1) Material availability in the thin film photovoltaic sector, (2) Potential constraints to the future low-carbon economy: Batteries, Magnets and Materials, (3) Comparison of material criticality studies
- Electricity costs methodologies project main report (2013) : ‘Presenting the Future: Electricity Generation Cost Methodologies’. *Working papers:* (1) CCGT case study, (2) CCS case study, (3) Nuclear case study, (4) Onshore wind case study, (5) Offshore wind case study, (6) PV case study
- Unconventional gas resources project main report (2012): ‘A review of regional and global estimates of unconventional gas resources - A report to the Energy Security Unit of the Joint Research Centre of the European commission’
- Biomass resources project main report (2011): ‘Energy from biomass: the size of the global resource – an assessment of the evidence that biomass can make a major contribution to future global energy supply’. *Working papers:* (1) The UK bioenergy resource base to 2050: estimates, assumptions, and uncertainties, (2) Prioritising the best use of biomass resources: conceptualising trade-offs
- Offshore wind project main report (2010): ‘Great Expectations: The cost of offshore wind in UK waters – understanding the past and projecting the future
- Peak Oil project main report (2009): ‘Global Oil Depletion: an assessment of the evidence for a near-term peak in global oil production’. *Working papers:* (1) Data sources and issues, (2) Definition and interpretation of reserve estimates, (3) Nature and importance of reserve growth, (4) Decline rates and depletion rates, (5) Methods of estimating ultimately recoverable resources, (6) Methods of forecasting future oil supply, (7) Comparison of global supply forecasts
- Transport project main report (2009): ‘What Policies are Effective at Reducing Carbon Emissions from Surface Passenger Transport? A review of interventions to behavioural and technological change’. *Working papers:* Evidence Tables (30 reports examining each policy type)
- Rebound project main report (2007) : ‘The Rebound Effect: An Assessment of the evidence for economy-wide energy savings from improved energy efficiency’. *Working papers:* (1) Evaluation Studies, (2) Econometric Studies, (3) Elasticity of Substitution Studies, (4) Computable General Equilibrium Modelling Studies, (5) Energy, Productivity and Economic Growth Studies
- Investment Decisions project main report (2007): ‘Investment in electricity generation: the role of costs, incentives and risks’. *Working papers:* (1) Electricity Generation Cost and Investments: A Review, (2) Factoring Risk Into Investment Decisions, (3) A Review of Electricity Unit Cost Estimates, (4) Investment: Risk, Return and the Role of Policy

- Intermittency project main report (2006): 'The Costs and Impacts of Intermittency: an Assessment of the Evidence on the costs and impacts of intermittent generation on the British electricity network'. *Working papers*: (1) Methods for Reporting Costs Related to the Capacity Credit of Intermittent Generation Relative to Conventional Generators, (2) Power System Reserves and Costs with Intermittent Generation

Journal Papers

- Speirs, J., McGlade, C., Slade, R. (2015) Uncertainty in the availability of natural resources: Fossil fuels, critical metals and biomass, *Energy Policy*, pp 654-664
- Blyth, W., McCarthy, R., Gross, R. (2015) Financing the UK power sector: Is the money available?, *Energy Policy*, pp 607-622
- Slade, R., Bauen, A., Gross, R. (2014) Global bioenergy resources, *Nature Climate Change* (4) pp 99-105.
- Harris G., Heptonstall P., Gross R., Handley D., 2013, Cost estimates for nuclear power in the UK, *Energy Policy*, 62, 431-442
- Sorrell, S. and J. Speirs (2013), 'Using growth curves to forecast resource recovery: Approaches, analytics and consistency tests', *Philosophical Transactions of the Royal Society A: Mathematical Physical and Engineering Sciences*
- Miller, R. and S. Sorrell, S. (2013), 'The Future of Oil', *Philosophical Transactions of the Royal Society A: Mathematical Physical and Engineering Sciences*
- McGlade, C., J. Speirs and S. Sorrell (2013). "Methods of estimating shale gas resources - comparison, evaluation and implications." *Energy* , 59, 116–125
- McGlade, C., Speirs, J., Sorrell, S. (2013) 'Unconventional gas – a review of regional and global estimates' *Energy*, 55, 571–584
- Houari, Y., Speirs, J., Candelise, C. and Gross, R. (2013), A system dynamics model of tellurium availability for CdTe PV. *Progress in Photovoltaics: Research and Applications*, 22, 129–146
- Chitnis, M. S. Sorrell, A. Druckman and T. Jackson (2013), 'Turning lights into flights: estimating direct and indirect rebound effects for UK households', *Energy Policy*, 55, pp 234-250.
- Heptonstall, P; Gross, R; Greenacre, P; and Cockerill, T (2012) 'The cost of offshore wind: Understanding the past and projecting the future', *Energy Policy*, Vol:41, pp 815-821
- Sorrell, S, Speirs, J, Bentley, R, Miller, R and Thompson, E (2012), 'Shaping the global oil peak: a review of the evidence on field sizes, reserve growth, decline rates and depletion rates', *Energy*, Vol: 37, (1), pp 709-724
- Candelise C, Speirs J, Gross R, (2011) Materials availability for thin film (TF) PV technologies development: a real concern?, *Renewable and Sustainable Energy Reviews*, Vol. 15, Issue 9, pp 4972-4981

- Slade, R; Gross, R; Bauen, A, (2011) 'Estimating bio-energy resource potentials to 2050: Lessons from the UK experience' *Energy & Environmental Science*, 4 (8), 2645 - 2657
- Druckman, A. M.Chitnis, S.Sorrell and T. Jackson (2011), 'Missing carbon reductions? Exploring rebound and backfire effects in UK households', *Energy Policy*, Volume 39, Issue 6, June 2011, Pages 3572-3581
- Steggals, W; Gross, R; Heptonstall, P (2011) 'Winds of change: How high wind penetrations will affect investment incentives in the GB electricity sector', *Energy Policy*, Volume 39, Issue 3, March 2011, Pages 1389-1396
- Sorrell, S. and J. Speirs (2010), 'Hubbert's Legacy: a review of curve-fitting methods to estimate ultimately recoverable resources', *Natural Resources Research*, 19(3), 209-230
- Sorrell, S., R. Miller, R. Bentley and J. Speirs (2010), 'Oil Futures: a comparison of global supply forecasts', *Energy Policy*, 38(9), 4990-5003
- Sorrell, S., A. Brandt, J. Speirs, R. Miller, R. Bentley, (2010), 'Global Oil Depletion: A review of the evidence', *Energy Policy*, 38(9), 5290-5295
- Gross, R.; Blyth, W.; Heptonstall, P. (2010) 'Risks, revenues and investment in electricity generation: Why policy needs to look beyond costs', *Energy Economics*, Volume 32, Issue 4, pages 796-804
- Sorrell, S., J. Dimitripoulos and M. Sommerville (2009), 'Empirical estimates of the direct rebound effect: a review', *Energy Policy*, 37(4), pp 1356-1371
- Collins, C.; Gross, R.; Heptonstall, P. (2008) , 'Is there an energy gap?', *Proceedings of ICE (Institution of Civil Engineers)*, *Energy*, Vol. 161, Issue EN4, pp 145-157
- Sorrell, S.(2008), 'Jevons revisited: the evidence for backfire from improved energy efficiency', *Energy Policy*, 37(4), pp 1456-1469
- Gross, R.; Heptonstall, P. (2008), 'The costs and impacts of intermittency: An ongoing debate', *Energy Policy*, Vol. 36 (10), pp 4005-4007
- Skea, J; Anderson, D; Green, T; Gross, R; Heptonstall, P; Leach, M (2008) 'Intermittent renewable generation and the cost of maintaining power system reliability' *IET Generation, Transmission and Distribution*, Vol. 2, Issue 1, pp 82-89.
- Gross, R; Heptonstall, P; Skea, J; Anderson, D; Green, T; Leach, M (2007) 'Renewables and the grid: understanding intermittency' *Proceedings of ICE (Institution of Civil Engineers)*, *Energy*, 2007, Vol:160, Pages:31-41 Authors:Gross, R , Heptonstall, P , Anderson, D , Green, T , Leach, M , Skea, J
- Sorrell, S. (2006) 'Improving the evidence base for energy policy: the role of systematic reviews', *Energy Policy*, 35(3), 1858-1871

