

<b>Institution: University of Exeter</b>
<b>Unit of Assessment: 17a (Geography &amp; Environmental Studies)</b>
<b>Title of case study: Driving innovation and transformation in global energy policy within and beyond government</b>
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Research undertaken on energy policy and sustainability by Prof. Mitchell and the Energy Policy Group (EPG) within Geography at Exeter, has had a major influence on the development and reform of UK, EU and global energy policy. This research has informed policy advice to the UK government on the fundamental re-setting of electricity market reforms and underpinned a number of major policy reports e.g., the 2008 'EU's Target for Renewable Energy' report; the 2010 'Future of Britain's Electricity Networks' report; the 2011 'Electricity Market Reform' report; the 2012 'Draft Energy Bill'; and the 2012 DECC Energy Security Strategy Report. Research by the EPG has also led to numerous engagements with key stakeholders in the energy industry that have <b>influenced policies, procedures and practices</b>, and been used to <b>inform public debate</b> on energy policy.</p>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>Energy policy in the UK and internationally is a high profile issue, in part linked to national and international agendas to reduce CO<sub>2</sub> emissions, but also because of: (i) rising fossil fuel prices and the attendant affordability issues, and (ii) a national/EU need to ensure energy security. Since 2007, research undertaken within the Energy Policy Group in Geography at Exeter (led by Prof. Mitchell) has focused on energy policy development and regulatory and market reform, both in the UK and Europe, to improve energy system sustainability, security, and affordability. A major research focus since 2007 has been around the mechanisms and processes necessary to create a sustainable UK energy economy. This has included work on future technology pathways and the effectiveness of UK Government policy with respect to energy sector design and regulation. Mitchell (2010) outlined the barriers to development of a sustainable energy economy, criticising the existing political paradigm and governance processes that rely on narrow market and economic analyses for policy development, and exclusive incentives encouraging incumbent companies rather than transparent decision-making processes and inclusive incentives which would encourage innovation. On-going research on this topic is now being supported through the major EPSRC-funded IGov Project (2012-2016).</p> <p>Research has also emphasised the need for government to recognise the complexity of the UK energy system and to develop policies which consider a broader range of economic, political, technological, institutional, and social factors. The group have argued that transition to a more sustainable energy system is hindered by the governance system, which derives from the incentives put in place by the dominant political paradigm (Mitchell &amp; Woodman, 2010; Kern et al., 2013). Examination of the potential role of a smart, decentralised energy system demonstrated the need for evolution of institutions, market design, and infrastructure to avoid decentralised approaches being 'locked out' (Woodman &amp; Baker, 2008; Baker et al., 2010). Mitchell has also been PI on the RCUK research cluster for energy security in a multipolar world (ESMW, 2009-13), which works closely with the Foreign and Commonwealth Office, and the Department of Energy and Climate Change. The cluster now numbers 736 members, with around 1000 attendees at 27 meetings that link the British geopolitical, supply chain, and low carbon academic and practitioner worlds (Mitchell et al, 2013).</p> <p>The group have also examined the effects of long-term policies affecting renewable energy deployment within the UK (Woodman &amp; Mitchell, 2011), within Europe more broadly (Kitzing et al., 2012); and globally (Mitchell et al., 2011). Research into the Renewables Obligation demonstrated the underachievement of this policy between 2002 and 2010 and has highlighted the significant emphasis placed on 'competition' as the key reason for limited sector development. Research has also identified the implications of poor performance on the UK's ability to meet EU-wide renewable energy targets for 2020 and stressed that recent changes to UK policy do not adequately address 'risk', relative to the 'standard' Feed-In Tariff (Woodman &amp; Mitchell, 2011). The reach of work in this</p>

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area has extended well beyond UK policy, to include on-going research on EU renewable energy policy, starting from a proposal for growth in renewable energy generation across Europe in 2000 through to current plans for post 2020 EU policy through the Smart Energy for Europe Platform (SEFEP; Jacobsson et al., 2009). The group have also engaged with Carbon Capture and Storage (CCS) technology research in China. Recognising the immense growth of the Chinese energy sector, along with its heavy reliance on coal, research has demonstrated the opportunities for installation of CCS-ready technology to capture CO<sub>2</sub> at a regional level (Li et al., 2011).

### Key researchers:

Prof. Catherine Mitchell, currently Professor of Energy Policy (2007-present).

Dr Bridget Woodman, currently Lecturer in Energy Policy (2007-present).

### 3. References to the research (indicative maximum of six references)

Evidence of the quality of the research that underpins this case study is provided through the following IPCC reports, peer-reviewed publications and related grant funding.

Mitchell, C. et al., 2011, Policy, Financing and Implementation. In: *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* (O. Edenhofer et al., Eds.), Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Mitchell, C. 2010. *The Political Economy of Sustainable Energy*, 2nd Edition. Palgrave Macmillan, Basingstoke.

Mitchell, C. & Woodman, B. 2010. Towards trust in regulation – moving to a Public Value Regulation. *Energy Policy* 38, 2644-2651.

Woodman, B. & Baker, P. 2008. Regulatory frameworks for decentralized energy. *Energy Policy* 36, 4527-4531.

Mitchell C, Watson J, & Whiting J. 2013 (Eds) *New Challenges in Energy Security: the UK in a Multipolar World*. Basingstoke: Palgrave MacMillan.

Kitzing, L., Morthorst, E., Mitchell, C., 2012, Renewable Energy Policies in Europe: converging or diverging? *Energy Policy* 51, 192–201

Woodman, B. & Mitchell, C. 2011. Learning from experience? The development of the Renewables Obligation in England and Wales 2002-2010. *Energy Policy* 39, 14-21.

Jacobsson, S., Bergek, A., Finon, D., Lauber, V., Mitchell, C., Toke, D., Verbruggen, A. 2009. EU renewable energy support policy: faith or facts? *Energy Policy* 37 (6), 2143-2146.

### Key supporting grants

- 2012-2016 Established Career Fellowship for Catherine Mitchell, EPSRC, Innovation and Governance for a Sustainable Economy (IGov), £1.3 million.
- 2011, Ofgem, Expert Report on Connection and Charging Arrangements for Transmission Networks to input to Project TransmiT, £16K.
- 2011-2013, UKERC Research Fund, Scenarios for the Development of Smart Grids, £32K.
- 2010-2012, Scottish and Southern Energy (SSE), £100K.
- 2009-2013, Energy Security in a Multipolar World, ESRC/EPSRC Research Cluster, £442K.
- 2009-2013, UK Energy Research Centre, Policy and of Energy Supply Theme £204K.

### 4. Details of the impact (indicative maximum 750 words)

The research outlined above has: (1) had major impacts relating to the UK energy sector through the provision of **policy advice** to the UK government e.g., through the committees of the House of Commons and the House of Lords; (2) had global reach as evidenced by the group's involvement in the Intergovernmental Panel on Climate Change (IPCC) (see Mitchell et al. 2011), the Global Energy Assessment, and the Smart Energy for Europe Platform; (3) has engaged with **key stakeholders in the energy industry** e.g., the Office of the Gas and Electricity Markets (OFGEM) and The Consumer Association - Which?; and (4) has **informed public debate**.

Evidence of a major impact on **UK energy policy** is evident through the following:

(1) Mitchell was one of only two academics to give evidence to the House of Lords European

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Union Committee (April 21<sup>st</sup> 2008) as part of its 'The EU's Target for Renewable Energy' report. The Committee's remit was to critically examine the 2008 European Commission commitment by 2020, to a 20% reduction in greenhouse gas emissions and to deriving 20% of final energy consumption from renewables. The evidence provided was influential with Mitchell cited on p. 24, 25, 31 and 34 of the final report (House of Lords, 2008, **Item #1**).

(2) Evidence was provided to the House of Commons Energy and Climate Change Committee (April 2009) as part of its 'The Future of Britain's Electricity Networks' report. The report's remit was to help develop new approaches to managing Britain's future energy needs. Again, the evidence provided was influential and is cited on p. 9, 24, 27, 34, 37, 43, 45, 46, 47, 52 and 53 of the final report (House of Commons, 2010, **Item #2**).

(3) Mitchell et al. (2011) submitted a response to DECC on their consultation on Electricity Market Reform (**Item #3**), as well as contributing to a UKERC submission (**Item #4**).

(4) In 2011 evidence submitted by the EPG was used by Scottish and Southern Energy (SSE) to shape policy and then as a basis for SSE's 'Energy White Paper' submission (**Item #5**).

(5) Mitchell was one of only three UK academics to give oral evidence to the House of Commons Energy and Climate Change Committee (June 19<sup>th</sup> 2012) as part of the pre-legislative scrutiny of the 'Draft Energy Bill' report (**Item #6**). Subsequent supporting written evidence (Ev.221) was provided on July 20<sup>th</sup> 2012, with the oral and written evidence provided again influential and cited on p. 9, 17, 21, 39 and 60 of the final report (House of Commons, 2012) (**Item #7**). Mitchell was also one of only two academics who gave oral evidence to the Scrutiny Committee for the Energy Bill in January 2013 (House of Commons 2013) (**Item #8**).

(6) The Energy Policy Group were one of three UK academic groups commissioned by OFGEM to review UK transmission charging arrangements (**Item #9**).

In addition to shaping government policy, Mitchell and Woodman have engaged with key stakeholders in the UK energy industries to **influence policies, procedures and practices**. Which? commissioned reports from 2 academics, Mitchell being one of them (Hoggett et al., 2011, to provide background to their ongoing campaign about the affordability of energy to society. Research reports have also been written for Greenpeace (Woodman, 2009) and Chatham House (Froggatt et al. 2012), whilst third sector organisations have used EPG research in their policy briefings (Burke et al., 2012; No2NuclearPower, 2009; see **Items #10**).

Finally, research has been directly used to **inform and affect public debate**. This has occurred through engagement with high-quality UK national media. Most notably, EPG research has been cited by: BBC website (22/05/2012); The Daily Telegraph (12/07/2011) with the latter article generating 249 comments; on Radio 4's 'What the Papers Say'; the New Statesman Centenary Issue (with Mitchell being the only energy academic to critique the last 100 years of energy, and society's fitness for the next 100 years); and in The Daily Telegraph (21/01/2011), generating 70 comments (**Items #11**). Additionally, Mitchell has her own Guardian Online web-page (<http://www.guardian.co.uk/profile/catherine-mitchell>) and has had articles published in The Guardian: 03/05/2012 (22 comments); 28/02/2012 (68 comments); 11/03/2011 (110 comments); 13/12/2010 (57 comments); 08/10/2009 (62 comments); 27/02/2009 (46 comments) (**Items #12**). Both EPG and IGov have blog sites (the hits for IGov in 2013 being: March 934, April 419, May 571, with blogs widely re-blogged).

### 5. Sources to corroborate the impact (indicative maximum of 10 references)

**#1.** House of Lords (2008) The EU's target for renewable energy: 20% by 2020. European Union Committee: 27th Report of 2007-08 Volume 1. [Available at: <http://www.publications.parliament.uk/pa/ld200708/ldselect/ldeucom/175/175.pdf>]

**#2.** House of Commons (2010) The Future of Britain's Electricity Networks. Energy and Climate Change Committee: Second Report of Session 2009-10 Volume 1. [Available at: <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenergy/194/194.pdf>]

**#3.** Mitchell, C. et al (2011) Response to the Department of Energy and Climate Change's Electricity Market Reform Consultation: <https://www.gov.uk/government/consultations/electricity-market-reform>

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- #4.** Skea, J. et al. (2011) UKERC Response to the 2011 DECC Electricity Market Reform: [http://www.ukerc.ac.uk/support/tiki-download\\_file.php?fileId=1520](http://www.ukerc.ac.uk/support/tiki-download_file.php?fileId=1520)
- #5.** SSE (2011) An Energy White Paper. SSE: Perth. [Available at: [http://www.sse.com/uploadedFiles/Controls/Lists/Resources/\\_Sample\\_resources\(1\)/AnEnergyWhitePaper.pdf](http://www.sse.com/uploadedFiles/Controls/Lists/Resources/_Sample_resources(1)/AnEnergyWhitePaper.pdf)]
- #6.** House of Commons (2012) Draft Energy Bill: Pre-legislative Scrutiny. Energy and Climate Change Committee: First Report. [Available at: <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenergy/275/275.pdf>]
- #7.** Written Evidence by Mitchell and Woodman to Pre-Legislative Scrutiny by House of Commons Energy and Climate Change Committee, July 2012, <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenergy/275/275we38.htm>
- #8.** House of Commons (2013) The House of Commons Public Bill Committee on the Energy Bill oral evidence from Tuesday 15 January 2013. <http://www.parliament.uk/business/news/2013/january/energy-bill-committee-announce-evidence-programme/>
- #9.** Baker, P et al (2011) Project TransmiT Academic Review of Transmission Charging Arrangements. A report produced on behalf of the Gas and Electricity Markets Authority (OFGEM). April 2011 <https://www.ofgem.gov.uk/ofgem-publications/54331/pdf-baker-et-al.pdf>
- #10. (a)** Hoggett, R. et al (2011) *The Key Energy Policy Issues for Energy Security in the UK*, report for *Which?*; **(b)** Woodman, B. (2009) *Connecting the future: the UK's renewable energy strategy*. Greenpeace: London; **(c)** Froggatt, A. et al (2012) *Reset or Restart? The Impact of Fukushima on the Japanese and German Energy Sectors*. Chatham House Briefing Paper; **(d)** Burke et al (2012) *Subsidising the Nuclear Industry* [http://www.ionathonporritt.com/sites/default/files/users/BRIEFING%20%20subsidising\\_nuclear\\_26March%202012.pdf](http://www.ionathonporritt.com/sites/default/files/users/BRIEFING%20%20subsidising_nuclear_26March%202012.pdf)
- #11.** Examples of media coverage  
 BBC (2012) <http://www.bbc.co.uk/news/science-environment-18146940>; The Telegraph 2011. <http://www.telegraph.co.uk/earth/energy/8633389/Pay-more-for-fuel-or-face-blackouts-warns-Chris-Huhne.html>; Mitchell, C. (2013) <http://www.newstatesman.com/century>; Daily Telegraph (2011) <http://www.telegraph.co.uk/earth/earthcomment/geoffrey-lean/8274914/Wadebridge-Britains-first-solar-powered-town.html>
- #12.** Examples of Guardian articles generating broad public comment:  
 Japanese energy policy stands at a crossroads. 3 May 2012 <http://www.theguardian.com/environment/2012/may/03/japan-nuclear-power-post-fukushima>; Who is in charge of Britain's energy policy? 28 February 2012 <http://www.theguardian.com/environment/2012/feb/28/britain-energy-politics>; Nuclear power is the reason for the new energy regulations. 11 March 2011. <http://www.theguardian.com/environment/2011/mar/11/nuclear-power-reason-energy-regulations>; UK must shake off the dominance of the energy giants. 13 December 2010. <http://www.theguardian.com/environment/cif-green/2010/dec/13/uk-energy-efficiency-green-deal>; Without Kingsnorth, we have an energy opportunity. 8 October 2009. <http://www.theguardian.com/commentisfree/cif-green/2009/oct/08/kingsnorth-eon-opportunity-miliband>; These fossil fools. 27 February 2009. <http://www.theguardian.com/commentisfree/2009/feb/27/mitchell-fossil-fuels-labour-carbon>