

British Institute of  
Energy Economics

# OXFORD 2018

RESEARCH CONFERENCE

## Consumers at the Heart of the Energy System?

18- 19 September 2018, Blavatnik School of Government, Oxford, OX2 6AD



BIEE 12<sup>th</sup> RESEARCH CONFERENCE  
**Consumers at the Heart of the Energy System?**

| Tuesday September 18 <sup>th</sup> 2018 |   |
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| 09:45                                   | <b>Conference Registration</b><br>Blavatnik School of Government, 120 Walton Street, Oxford, OX2 6AD  |
| 10.30                                   | <b>Welcome</b> Prof Paul Ekins, Conference Chair  |
| 10:35                                   | <b>Opening Address</b> ‘Transforming our energy system: a once in a lifetime chance to get it right - or wrong?’<br>Charles Hendry, Former Energy Minister, BIEE President  |
| 11.00                                   | <b>First Plenary Session: Consumers at the Heart of the Energy System?</b><br>Chair: Victoria MacGregor, Director of Energy, Citizens Advice  |
| 11:05                                   | Philip New, CEO, Energy Systems Catapult  |
| 11:25                                   | Barbara Hammond, MBE, CEO, Low Carbon Hub   |
| 11:45                                   | ‘Accelerating the transition to a cleaner, more resilient, lower cost energy system for all’<br>Peter Bance, CEO, Origami Energy  |
| 12.05                                   | <b>Questions and Discussion</b>   |
| 13.00                                   | <b>Lunch</b>  |
| 13:40                                   | <b>Poster presentations:</b> Student posters will be on display throughout the conference, the following will be available at their poster during this break:<br>Do green electricity products meet consumers’ preferences? – A comparative study of green electricity products in Germany, the UK, France and Italy (ongoing research), <i>Scott MacDonald</i> ; Transmission and Distribution Losses of Electricity: What do we Lose in Terms of Growth and Poverty Reduction? Evidence from Benin, <i>Arnaud Dakpogan</i> ; Assessing the Needs of Ireland’s First Generation of Sustainable Energy Communities, <i>Anitha Sampath</i> . |

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| 14.00 | <b>First Parallel Session - Dialogue and Paper Sessions</b>   |   |   |   |
|       | <b>Paper Session</b><br><i>Chair: Vivienne Geard</i><br><b>Distributional Aspects of UK Household Energy Consumption</b>                    | Role of household activities in peak electricity demand and distributional effects of Time-of-Use tariffs.<br><i>Dr. Timur Yunusov, University of Reading</i>   | UK Energy Expenditure Shares - A Long Term View.<br><i>Dr. David Deller, Centre for Competition Policy, University of East Anglia</i>   | No one left behind – Consumer empowerment, protection and universal service in the low carbon transition<br><i>Dr Chris Harris, npower</i>            |
|       | <b>Paper Session</b><br><i>Chair: Dr. Karoline Rogge</i><br><b>Demand Response: Barriers and Behaviours in Business and Small Consumers</b> | Demand response as a common pool resource game: Nudges versus prices.<br><i>Ms. Penelope Buckley, Université Grenoble Alpes</i>   | Swarm demand response: virtual storage by small consumers<br><i>Dr. Joachim Geske, Imperial College Business School</i>   | Business participation in demand response: a review of potential barriers.<br><i>Dr. Catarina Araya Cardoso, Westminster Business School</i>          |
|       | <b>Paper Session</b><br><i>Chair: Prof Jim Watson</i><br><b>Energy Efficiency: Policy, Information and Rebound</b>                          | Choosing energy efficiency – consumer response to operating costs at the point of sale.<br><i>Ms Fiona Brocklehurst, Ballarat Consulting</i>  | Energy efficiency policy instruments in the residential sector: Implementing mechanisms for successful low-carbon transitions in households<br><i>Dr. Cristina Penasco, University of Cambridge</i> | Identifying the limits of the rebound effect.<br><i>Dr Tina Fawcett, University of Oxford</i>   |
|       | <b>Paper Session</b><br><i>Chair: Jonathan Thurlwell</i><br><b>Distributed and Local Energy: Markets and Regulation</b>                     | Unlocking Local Energy Markets<br><i>Ms Rachel Bray, University of Exeter</i>   | Retail Electricity Markets in Transition: The Quest for Adequate Design.<br><i>Dr. Luis Boscan, University of Southern Denmark (SDU)</i>  | What do future utilities need: consent and dissent from incumbents and policy makers in decision theatres<br><i>Christoph Mazur, Imperial College</i> |
|       | <b>Dialogue Session</b>   | Do people matter? Can we get to a low carbon, secure and affordable system without their engagement ?<br>Led by <i>Richard Hoggett, University of Exeter</i> . Including: <i>Rebecca Wallis, Independent; Catherine Mitchell, University of Exeter, Simon Roberts, Centre for Sustainable Energy, Ragne Low, University of Strathclyde; Emilia Melville, Carbon Co-op</i> |   |   |
|       | <b>Dialogue Session</b>   | Modelling Energy Demand and Societal Drivers: The Final Frontier?<br>Led by <i>Prof. Neil Strachan, University College London</i> . Including: <i>Dr Stephen Hall, University of Leeds, Amy O'Mahoney, Ofgem, Sophie Heald, Cambridge Econometrics.</i>   |   |   |

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| 15:30       | <b>Tea</b>  |   |  |   |
| 16:00-17.30 | <b>Second Parallel Session - Dialogue and Paper Sessions</b>  |   |  |   |
|             | <p><b>Paper Session</b><br/><i>Chair: Prof. Matthew Leach</i><br/><b>Decentralised Energy: the Role of Pro(Con)sumers in Energy Storage and Smart Grids</b></p> | <p>The role of consumers in the uptake of decentralised energy storage technologies.<br/><i>Prof. Peter Taylor, University of Leeds</i></p>   | <p>Integrating prosumers into the electricity grid: the interplay between technology and people.<br/><i>Dr. Yael Parag, Interdisciplinary Center (IDC), Herzliya</i></p> | <p>Here comes the sun: The evolution of a Prosuming Project within a social housing estate.<br/><i>Dr Nicolette Fox, SPRU, University of Sussex</i></p>                                 |
|             | <p><b>Paper Session</b><br/><i>Chair: Dr Peter Connor</i><br/><b>Solar PV: Take-up and Network Integration Issues</b></p>                                       | <p>Modelling Take-Up of Residential Solar PV in the UK.<br/><i>Mrs Sophie Heald, Cambridge Econometrics</i></p>   | <p>Spatio-temporal analysis of PV diffusion patterns: an integrated neural networks and agent-based model.<br/><i>Mr. Ali Alderete Peralta, Cranfield University</i></p> | <p>Prosumage of solar electricity: batteries, heating and mobility.<br/><i>Dr Wolf-Peter Schill, DIW Berlin</i></p>   |
|             | <p><b>Paper Session</b><br/><i>Chair: Prof. David Shipworth</i><br/><b>Peer to Peer Trading: Prospects, Operation and Regulation</b></p>                        | <p>Attitudes, preferences and intentions to participate in peer-to-peer electricity trading: The case of Southwest German households.<br/><i>Mr. André Hackbarth, Reutlingen University</i></p> | <p>From Airbnb to Solar: Toward a Transaction Cost Model of a Retail Electricity Distribution Platform.<br/><i>Dr. Lynne Kiesling, Purdue University</i></p>             | <p>Energy cooperatives: a missing piece of the peer-to-peer energy regulation puzzle?<br/><i>Ms. Alexandra Schneiders, UCL Energy Institute, University College London</i></p>          |
|             | <p><b>Paper Session</b><br/><i>Chair: Tony Dicicco</i><br/><b>Energy Efficiency: Finance, Investment and Performance</b></p>                                    | <p>Incentivising households to reduce electricity consumption: A meta-analysis of the experimental evidence.<br/><i>Penelope Buckley, Université Grenoble Alpes</i></p>                         | <p>Further bridging the energy efficiency gap: heterogeneity, model error and time-consistency.<br/><i>Dr. Daire McCoy, Grantham Research Institute, LSE</i></p>         | <p>Leveraging private household investment in energy efficient retrofit: a systematic evidence review of the policy options.<br/><i>Mr. Niall Kerr, University of Edinburgh</i></p>     |
|             | <p><b>Paper Session</b><br/><i>Chair: Rebecca Yates</i><br/><b>Demand Response: Smart Meters, Dynamic Pricing and Consumer Engagement</b></p>                   | <p>Causal Tree Estimation of Heterogeneous Household Response to Time-Of-Use Electricity Pricing Schemes. <i>Eoghan O'Neill, University of Cambridge</i></p>                                    | <p>Technological change and innovation in UK energy market - how might it be impacted by the price cap.<br/><i>Phil O'Donnell, Which?</i></p>                            | <p>Motivating energy conservation in organisations: Smart metering and the emergence and diffusion of social norms.<br/><i>Dr. Peter Bradley, University of the West of England</i></p> |

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|       | <b>Dialogue Session</b>   | Mind the Gaps: How will a consumer-centric energy system affect organisational structures, sector skills and careers in energy? Led by <i>Peter Stewart, Interfax</i> . Including <i>Paul Appleby, BP</i> ; <i>Nick Ellins, Energy and Utility Skills Partnership</i> ; <i>Nicola McCheyne, Centrica Innovation</i> ; <i>Deane Somerville, Energy Institute</i> .   |
| 17:40 | <b>Student Pitch presentation session</b><br><i>Chair: Dr Peter Taylor</i>  | <p>The Comfort Tool – Assessing perceived comfort improvements in four deep energy home renovations. <i>Ermal Kapedani, University of Hasselt</i></p> <p>Consumers as investors: proposal for an agent-based model simulating the uptake of energy-saving technologies by UK households. <i>Luciana Miu, Grantham Institute - Imperial College London</i></p> <p>The security of electricity supply to Switzerland – A demand-side analysis. <i>Alessandra Motz, Università della Svizzera italiana</i></p> <p>The implications of new sources of energy flexibility: A new consumer-focussed electricity system? <i>Mai Nguyen, The Open University</i></p> <p>Evaluating the impact of policy decisions on customer adoption of the renewable energy transition. <i>Kelvin Say, Curtin University</i></p> |
| 18.30 | <b>Accommodation Registration</b><br>Main Porters Lodge, St Anne’s College, 56 Woodstock Road, Oxford, OX2 6HS          |   |
| 19.00 | <b>Conference Drinks and Dinner with After Dinner Speaker, St Anne’s College<br/>56 Woodstock Road, Oxford, OX2 6HS</b> |   |
|       | Volker Beckers, Chairman, Cornwall Insight<br><i>‘Imagination and Reality’</i>  |   |

## Wednesday September 19<sup>th</sup> 2018

**Blavatnik School of Government, 120 Walton Street, Oxford, OX2 6GG**

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| 08:00       | <p><b>Women in Energy Breakfast Session</b><br/>           Prof. Catherine Mitchell, Professor of Energy Policy, University of Exeter<br/>           Juliet Davenport, Founder and CEO, Good Energy<br/>           Vivienne Geard, Deputy Director, Head Energy Efficiency &amp; Heat Analysis, BEIS<br/>           Barbara Vest, Director of Generation, Energy UK – <i>Moderator</i><br/>           (open to all)</p> |
| 08:00-08:30 | <p><b>Conference Registration</b><br/>           (Single Day Delegates)</p>   |
| 09.00       | <p><b>Welcome</b> Adrian Gault, Chief Economist, The Committee on Climate Change, BIEE 2018 Chair</p>   |
| 09.05       | <p><b>Keynote Address:</b> Basil Scarsella, CEO, UK Power Networks</p>  |
| 09.25       | <p><b>Second Plenary Session: <i>New Technologies and Services</i></b><br/>           Chair: Mike Keoghan, Chief Economic Advisor, BEIS</p>   |
| 09:25       | <p><i>'Reshaping Regulation: normalising the energy sector'</i><br/>           Dr. Jeff Hardy, Senior Research Fellow, Grantham Institute, Imperial College</p>   |
| 09:45       | <p>Lawrence Orsini, Founder and CEO, LO3 Energy</p>   |
| 10:05       | <p><i>'Financial Markets and the S-Curve- Electric Vehicles'</i><br/>           Kingsmill Bond, New Energy Strategist, Carbon Tracker Initiative</p>  |
| 10:20       | <p>Angie Boakes, General Manager, Electric Mobility, Shell UK</p>   |
| 10.35       | <p><b>Questions and Discussion</b></p>  |
| 11.00       | <p><b>Coffee</b></p>  |

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| 11.30 | <b>Third Parallel Session - Dialogue and Paper Sessions</b>   |  |   |   |
|       | <b>Paper Session</b><br><i>Chair: Dr Peter Taylor</i><br><b>Understanding Energy Demand in Households and Industry</b>                    | Exploring socioeconomic and temporal characteristics of British and German residential energy demand.<br><i>Dr. Russell McKenna, Karlsruhe Institute of Technology</i>   | Diversity behind the meter - machine learning from household activities.<br><i>Dr. Phil Grunewald, University of Oxford, Environmental Change Institute</i>   | Modelling fuel demand of heterogeneous industrial consumers.<br><i>Dr. Paolo Agnolucci, University College London</i>   |
|       | <b>Paper Session</b><br><i>Chair: Dr Matthew Hannon</i><br><b>Business Models: Consumer Demand, Entrepreneurship and Community Energy</b> | Community Energy: A New Democratised Energy System?<br><i>Dr Helen Roby, Coventry University</i>   | Do consumers want the new business models we can offer?<br><i>Dr. Stephen Hall, University of Leeds</i>   | Energy entrepreneurship business model innovation: insights from European emerging firms.<br><i>Mr. Michael Hamwi, ESTIA</i>  |
|       | <b>Paper Session</b><br><i>Chair: Dr Nazmiye Ozkan</i><br><b>Energy Market Transformations and Challenges</b>                             | The role of utilities in enabling prosumers and flexible distributed energy resources.<br><i>Dr. Daniel Quiggin, Chatham House</i>   | Unlocking the benefits to end consumers.<br><i>Mr. Nicholas Rubin, ELEXON Ltd</i>   | Continuity and Disruption in UK Energy System Change: Mapping Expert Differences – and Understanding their Implications.<br><i>Dr. Mike Kattirtz, University of Edinburgh</i> |
|       | <b>Paper Session</b><br><i>Chair: Lynsey Tinios</i><br><b>Heat Systems: Consumer Take-up and Experiences</b>                              | The use of consumer data for optimizing smart grids for electricity and district heating.<br><i>Dr. Carl Dalhammar, Lund University</i>  | Experimenting with Heat Plans to discover how to help businesses and governments harness energy services to build an energy system people will want to pay for.<br><i>Dr. Matthew Lipson, Energy Systems Catapult</i> | BEIS Heat Networks Consumer Survey.<br><i>Mr Philip Cole, BEIS</i>  |
|       | <b>Dialogue Session</b>   | Consumers and Citizens: the Political Economy of Nuclear Power<br>Led by Prof. <i>Gordon MacKerron, SPRU, University of Sussex</i>   |   |   |
|       | <b>Dialogue Session</b>   | Consumers, voters, residents or investors: who will be at the heart of future community energy organisations? Led by <i>Dr Tim Brauholtz-Speight, University of Manchester</i> . Including: <i>Dr Mary Gillie, Energy Local; Dr Emilia Melville, Carbon Co-op, Dr Jeff Hardy, Imperial College; Maria Sharmina, University of Manchester</i> |   |   |

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| 13.00 | <b>Lunch</b>   |
| 13:40 | <p><b>Poster presentations:</b> Student posters will be on display throughout the conference, the following will be available at their poster during this break</p> <p>Political Economy Analysis: Inefficiency of the electricity distribution sector of West Africa, <i>Richard Oduro</i>; Scope of electricity retail supply and the implications for business model innovation on the demand-side, <i>Laura Brinker</i>; Investigating demand-side solutions to addressing barriers in energy transitions: Study of Urban household in India, <i>Anjali Ramakrishnan</i></p> |
| 14.00 | <p><b>Third Plenary Session: <i>Impacts and Implications of a Consumer-Driven Energy System</i></b></p> <p>Chair: Jonathan Thurlwell, Managing Principal IPA Advisory</p>  |
| 14:00 | Dermot Nolan, CEO, OFGEM   |
| 14:20 | Juliet Davenport, CEO, Good Energy   |
| 14:40 | <p><i>'Ensuring positive impacts for ALL customers'</i></p> <p>Jenny Saunders, former CEO, NEA</p>   |
| 15:00 | <p><i>'Implications for Policy'</i></p> <p>Prof Nick Eyre, ECI, University of Oxford and End Use Energy Demand Centre Champion</p>   |
| 15.20 | <b>Questions and Discussion</b>  |
| 15.45 | <b>BIEE AGM</b>  |
| 16:00 | <b>Tea</b>   |
| 16.15 | Close  |