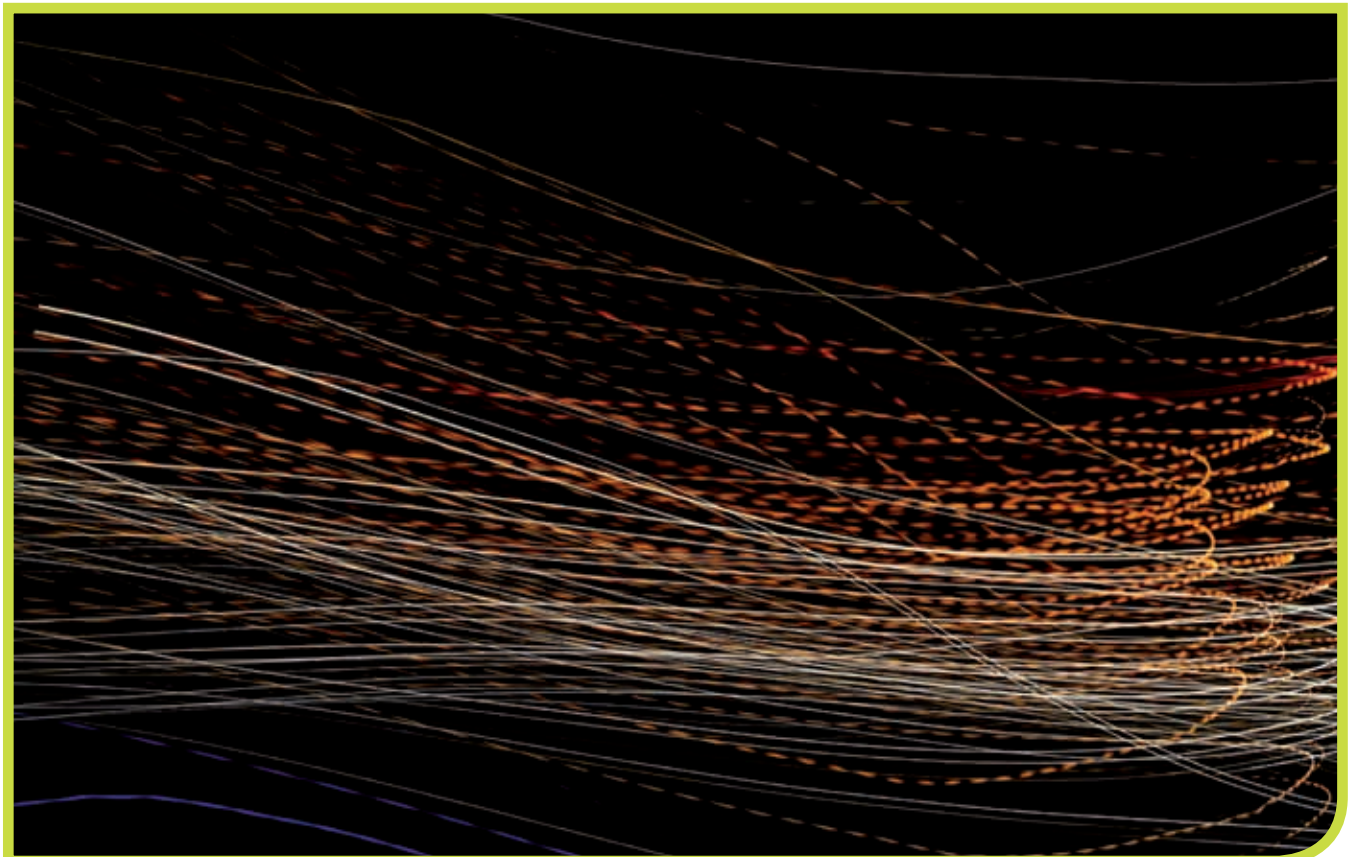




Annual Conference 2016

Energy Modelling Insights for Iterative Decision Making

4th & 5th July 2016





About the Whole Systems Energy Modelling Consortium (wholeSEM)

The whole systems energy modelling consortium (wholeSEM) is a ground breaking, multi-institution initiative to develop, integrate and apply state-of-the-art energy models. Our aim is to employ extensive integration mechanisms to link and apply interdisciplinary models to key energy policy problems, with substantive bilateral engagement with stakeholders in academia, government and industry.

Funded by the Engineering and Physical Sciences Research Council (EPSRC), the consortium is led by University College London and consists of Imperial College London, the University of Cambridge and the University of Surrey. The consortium is led by Professor Neil Strachan and administered by Kate Rice, who are based at UCL Energy Institute.

Energy models provide essential quantitative insights into the 21st Century challenges of decarbonisation, energy security, energy equity, and cost-effectiveness. Models provide the integrating language and framework that assists energy policy makers – focusing at different scales and time periods – to make improved decisions and trade-offs in conditions of pervasive uncertainty. Whole systems energy modelling also has a central role in helping energy supply companies to make technical and economic decisions with regard to future energy technologies and infrastructure, as well as in the assessment of the potential role of societal and behavioural change.



Follow us on Twitter at @wholeSEM. We welcome you to tweet and share your thoughts about our event using the hashtag #wholeSEM16



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wholeSEM is funded by EPSRC from July 2013 through to June 2017 (EP/K039326/1). EPSRC is the main UK government agency for funding research and training in engineering and the physical sciences, investing more than £800 million a year in a broad range of subjects – from mathematics to materials science, and from information technology to structural engineering.

About the Conference

wholeSEM Annual Conference 2016: Energy Modelling Insights for Iterative Decision Making

Our third Annual Conference combines our strands of thinking that try to model the future energy pathways under uncertainty where the demands of policy makers and indeed the framing of the issues are in flux.

The presentations are grouped within three main themes:

1 Integrating society within energy systems modelling

Capturing societal preferences and iterative actions within energy modelling frameworks is a key challenge to understand the evolving energy transition.

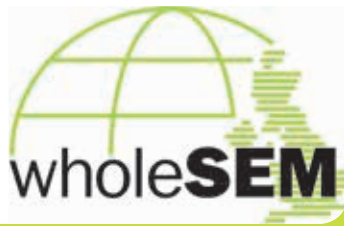
2 Wider drivers, impacts and unintended consequences

Broadening the scope of energy modelling to include wider geographical drivers, to link to other technical, economic and physical systems, and to introduce new disciplinary viewpoints is a key challenge.

3 Strategic vs. incremental investment under policy uncertainty

Assessing the trade-offs between long-term, (likely) high upfront cost, (possibly) irreversible investments with short term priorities and constraints, is a key challenge in an energy transition with incomplete and inconsistent policy framing.





Annual Conference 2016

Energy Modelling Insights for Iterative Decision Making
Date: 4th & 5th July 2016

Venue: The Møller Centre, Cambridge

#wholeSEM16

@wholeSEM

Day 1 | Monday 4 July 10.30 – 17.30

10.30: Tea & coffee, registration

Suite 1

10.45 – 12.30: Plenary session

Welcome to Cambridge, to the wholeSEM consortium, and to our third Annual Conference: **Julian Allwood**, University of Cambridge

Keynote speaker: **Laura Cozzi**, Head of Demand Outlook Division, Directorate of Sustainability, International Energy Agency. 'World Energy Outlook: air pollution and energy use'

Respondents: **Oliver Rix**, Baringa; **Alastair Davies**, EDF; **David Joffe**, CCC

Study Centre 5

PhD Student session 1: Two-minute elevator pitches (eight students), Neil Strachan coordinating

12.30 – 13.30: Lunch

13.30 – 15.00: Concurrent sessions on interdisciplinary energy modelling (see box).

13.30 – 15.00: Concurrent sessions

Suite 1

Session 1a: Integrating society within energy systems modelling

Organiser and Rapporteur: **Tom Roberts**, University of Surrey

Speaker A: **Georg Holtz**, Wuppertal Institute, 'A socio-technical perspective on energy modelling'

Speaker B: **Kalai Ramea**, University of California, Davis, 'Integrating Vehicle Consumer Choice in TIMES and its Implications for Climate Policy Analysis (Skype)'

Speaker C: **Kavin Narasimhan**, University of Surrey, 'An agent-based model to understand the dynamics of domestic energy practices'

Study Centre 2**Session 1b: Wider drivers, impacts and unintended consequences**

Organiser and Rapporteur: **Sandy Skelton**, University of Cambridge

Speaker A: **David McCollum**, IIASA, 'Quantifying uncertainties influencing the long-term impacts of oil prices on energy markets and carbon emissions'

Speaker B: **Sean Beevers**, Kings College London, 'The impacts on air quality of policies to meet the UK Climate Change Act target'

Speaker C: **Zenaida Sobral-Mourao**, University of Cambridge, 'Soft-linking the UKTM and Foreseer models: an iterative process to assembling energy system pathways that respect wider environmental limits'

Trinity Hall, Trinity Lane
Cambridge CB2 1TJ

Study Centre 8**Session 1c: Strategic vs. incremental investment under policy uncertainty**

Organiser and Rapporteur: **Francesco Fuso Nerini**, UCL

Speaker A: **Keigo Akimoto**, RITE, 'Evaluation of 2030 GHG emissions based on the submitted NDCs and their consistency with temperature rise target emission pathways considering scientific and policy uncertainties'

Speaker B: **Chris Bataille**, Simon Fraser University, 'Using backcasting from a low carbon future to inform operations, investment, infrastructure and R&D policy decision making today: The role for modellers'

Speaker C: **Peihao Li**, UCL, 'Characterising and integrating demand response within a long-term energy systems analysis'

15.30 – 16.00: Coffee break (PhD student posters available in Study Centre 5)**Suite 1****16.00 – 17.30: Plenary session**

Chair: **Nilay Shah**, Imperial College London

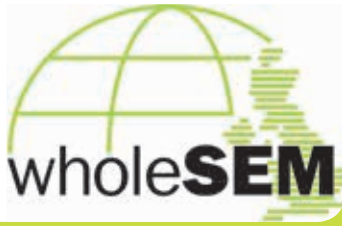
PhD Student session 2: Two-minute elevator pitches (eight students), Neil Strachan coordinating

Discussion session: Encouraging modellers and model users to combine insights from real world markets, societal process and technology policies.

Discussants: **Jim Watson** UKERC; **Evelina Trutnevte**, ETH; **Phil Taylor**, University of Newcastle

18.30: Evening drinks: Trinity Hall, Cambridge**19.30: Conference Dinner: Trinity Hall, Cambridge**

After dinner speaker: **Nick Winsor**; Chair, Energy Systems Catapult



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Date: 4th & 5th July 2016

Venue: The Møller Centre, Cambridge

#wholeSEM16

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Day 2 | Tuesday 5 July 09.00 – 15.00

09.00 – 11:00: Concurrent sessions on interdisciplinary modelling

Suite 1

Session 2a: Integrating society within energy systems modelling

Organiser and Rapporteur: **Nawfal Saadi**, UCL

Speaker A: **Jonathan Kohler**, Fraunhofer ISI, 'Changing energy, changing lifestyles – social simulation of transitions in mobility with an ABM'

Speaker B: **Dimitrios Papadaskalopoulos**, Imperial College London, 'Integrating social practice and economic rationality principles in household energy demand modelling'

Speaker C: **Nici Zimmermann**, UCL, 'Participatory system dynamics modelling for integrated decision-making about housing, energy and wellbeing'

Speaker D: **Zia Wadud**, University of Leeds, 'Help or hindrance? The travel, energy and carbon impacts of highly automated vehicles'

Study Centre 2

Session 2b: Wider drivers, impacts and unintended consequences

Organiser and Rapporteur: **Rick Lupton**, Cambridge

Speaker A: **Kathrin Volkart**, PSI Switzerland, 'Implementation of multi-objective optimization in the MARKAL framework for simultaneously analysing the economic, societal and environmental performance of the global energy system'

Speaker B: **Leonidas Paroussos**, NNTU, 'Fossil fuel subsidies phase out: The role of recycling'

Speaker C: **Pete Smith**, University of Aberdeen, 'Synergies and trade-offs between energy systems and negative emission technologies'

Speaker D: **Sandy Skelton**, University of Cambridge, 'The cost of greenhouse gas emissions abatement through greater material efficiency in the use of steel'

Study Centre 8

Session 2c: Strategic vs. incremental investment under policy uncertainty

Organiser and Rapporteur: **James Price**, UCL

Speaker A: **Laurent Drouet**, FEEM, 'Mitigation policy costs and uncertainty'

Speaker B: **Stefan Pfenninger**, ETH, 'High-resolution modelling of renewable energy and implications for planning under uncertainty'

Speaker C: **Chris Dent**, University of Durham, 'Uncertainty quantification in large scale energy systems models: GB exemplars'

Speaker D: **Sheila Samsatli**, University of Bath, 'Modelling integrated multi-vector energy systems capturing spatial dependencies and hourly operation over a long-term planning horizon'

11.00 – 11.30: Coffee break (PhD student posters available in Study Centre 5)

11.30 – 13.00: Concurrent sessions on interdisciplinary energy modelling

Suite 1

Session 3a: Integrating society within energy systems modelling

Organiser and Rapporteur: **Kavin Narasimhan**, University of Surrey

Speaker A: **Evelina Trutnevyte**, ETH, 'New approach to interactive use of energy system models for policy support'

Speaker B: **Catherine Bale**, University of Leeds, 'Decision theatres, heat networks and the modelling process: engaging local decision-makers'

Speaker C: **Tom Roberts & Sandy Skelton**, University of Surrey, 'Why on earth did I buy that!? A study of regretted consumption practices'

Study Centre 2

Session 3b: Wider drivers, impacts and unintended consequences

Organiser and Rapporteur: **Zenaida Sobral-Mourao**, University of Cambridge

Speaker A: **David Brayshaw**, University of Reading, 'Climate science in Whole Energy System applications – opportunities and challenges'

Speaker B: **Paul Brockway**, University of Leeds, 'More tools in the policy box: Can exergy analysis give new insights on energy use and rebound?'

Speaker C: **Marianne Zeyringer & James Price**, UCL, 'Modelling long-term energy pathways with high shares of variable renewable energy sources'

Study Centre 8

Session 3c: Strategic vs. incremental investment under policy uncertainty

Organiser and Rapporteur: **Sheila Samsatli**, University of Bath

Speaker A: **Jan Imhof**, Aurora Consulting, 'Long-term energy investment, uncertainty, and the role of policy commitment'

Speaker B: **Michael Kenefick**, E4Tech, 'Scottish TIMES – a national energy system perspective'

Speaker C: **Marko Aunedi**, Imperial College London, 'Role and value of flexibility in supporting cost-effective transition to an integrated low-carbon energy system'

13.00 – 14.00: Lunch

14.00 – 15.00: Final discussion session:

How to develop, apply and communicate models when policy objectives are often not explicit?

Chair: **Goran Strbac**, Imperial College London

Discussants: **Steven Becker**, Ofgem; **Andy Boston**, ERP; **Jon Saltmarsh**, DECC

15.00 – 15.20: Conference round up and close

– including prizes for best three posters

Neil Strachan, UCL and **Jo Coleman**, ET

Study Centre 2, Boardroom style

15.30 – 17.00: wholeSEM Advisory Board (By invitation only)

Chair: **Jo Coleman**, ETI

Contact: **Kate Rice**, UCL

Speakers A-Z



Keigo Akimoto, RITE, Japan

Keigo Akimoto was born in 1970. He received a PhD degree from Yokohama National University in 1999. He joined the Research Institute of Innovative Technology for the Earth (RITE) to work with the Systems Analysis Group in 1999, and currently is the Leader of the Group and a chief researcher at RITE. He was a guest

researcher at IIASA in 2006. He was a guest professor, Graduate School of Arts and Sciences, University of Tokyo between April 2010 and March 2015. He was a Lead Author for the Fifth Assessment Report of IPCC WG3. He is an associate member at the Science Council of Japan, and a member for several advisory bodies on energy and environmental policy for the Japanese government including Strategic policy committee, Advisory committee for natural resources and energy; Global environment subcommittee, Industrial structure council; and Climate change impact assessment subcommittee, Central environment council.



Marko Aunedi, Imperial College London

Marko Aunedi received his PhD degree from Imperial College London in 2013, where he is currently a Research Associate. His research interests include electricity system operation with high penetration of renewable and low-carbon generation, and the impact of flexible demand technologies and energy storage

on power system operation and design. He has over 15 years of research experience in energy systems modelling and optimisation, and has been involved in a number of UK and European collaborative research projects. He also frequently consults the UK Department of Energy and Climate Change, Carbon Trust and the Climate Change Committee on issues related to the decarbonisation of the UK energy supply and the integration of renewable energy.



Catherine Bale, University of Leeds

Dr Catherine Bale is a University Academic Fellow jointly appointed by the School of Chemical and Process Engineering and the School of Earth and Environment at the University of Leeds. Her research in energy crosses the disciplines of engineering, economics and social science. She received

a Master's degree and a DPhil from the University of Oxford in the physical sciences and currently holds a fellowship from the Engineering and Physical Sciences Research Council in end-use energy demand. Her research relates to urban energy systems and the application of complexity science to energy policy in support of transition to a low-carbon economy. In particular she is interested in the development of heat networks in the UK and the potential for decentralised energy storage technologies to unlock greater decentralised energy generation in cities.



Chris Bataille, Simon Fraser University, Canada

Chris Bataille started a wholeSEM fellowship in April 2016 with our UCL team. He is reviewing UCL's suite of models from the perspective of behaviourally realistic bottom-up and hybrid modelling, with the aim of suggesting improvements in this area.

Chris has been involved in energy and climate policy analysis for 19 years as a researcher, modeller, analyst, writer, project manager, and executive. Chris is an Associate Researcher at the Institute for Sustainable Development and International Relations (IDDRI) in Paris, and lead editor of a special issue of *Climate Policy* on the Deep Decarbonisation Pathways Project (DDPP), as well helping manage the DDPP and being a co-author of the Canadian chapter of the DDPP. He is an Adjunct Professor at Simon Fraser University in Vancouver, and board member and co-chair of Ecotrust Canada.

From 2011 – 14 Chris was a founding managing partner of Navius Research Inc., a Vancouver based energy policy consulting firm. Prior to helping found Navius in 2011 he was executive director of MK Jaccard & Associates Inc. (another energy policy consulting firm) for five years. He has managed many projects, including several large national climate change and energy policy studies for Natural Resources Canada, the Canadian National Roundtable of the Environment and the Economy, Environment Canada, the Pembina Institute and the David Suzuki Foundation, the Ontario Ministry of the Environment, and the Ontario Power Authority. In addition to his consulting practise, Chris has published peer reviewed articles in *The Energy Journal* and *Climate Policy*, edited a special edition of the *Energy Journal* on hybrid energy economy modelling, and has written a number of public policy publications, including 'Pricing Greenhouse Gas Emissions: The impact on Canada's competitiveness' for the C.D. Howe Institute.



Steven Becker, Ofgem

Steven Becker is the Head of Ofgem's Energy Market Outlook team. The team monitors and reports on short-, medium- and long- term security of supply and price developments in GB's wholesale electricity and gas markets.

Steven has worked in financial markets industry for more than nine years, primarily in energy markets. Prior to joining Ofgem Steven worked as an Energy Derivatives Trader for one of New Zealand's largest vertically integrated energy companies. Steven completed his MBA from Auckland University in 2011 and his Bachelor of Electronic Commerce, majoring in Financial Markets and Economics, from the University of Waikato in 2003.



Sean Beevers, Kings College, London

Sean Beevers is a Senior Lecturer, leading the air quality modelling group at King's College London, and is a member of the MRC-PHE Centre for Environment and Health. His interests include the use of models to assess the impacts of air quality policy and, in collaboration with public health researchers,

has been involved in number of projects to investigate the associations between air pollution and ill health. More recently he has been involved in the development of detailed human exposure models and the impacts of climate change policy on air pollution concentrations in 2050.



Andy Boston, Energy Research Partnership

Andy Boston has headed up the Analysis Team at Energy Research Partnership since 2013. He was lead researcher on the 'Flexibility Project' which highlighted the value of holistic modelling of energy systems.

Prior to his role at ERP he was Technical Head of Energy Systems at E.ON's Technology

Centre, overseeing the low carbon, energy modelling and optimisation fields. His particular areas of interest were renewable intermittency, security of supply, energy system modelling and electricity markets. In total Andy spent 23 years at the Technology Centre in various roles covering the early development of wind power, techno-economic analysis, valuing acquisition targets, modelling the ETS and managing external R&D programmes.

Andy started his career at the Central Electricity Generating Board's Leatherhead labs spending four years working on thermodynamics and steam turbine efficiency. He read Physics at Oxford and is Chartered Engineer.



David Brayshaw, University of Reading

Dr David Brayshaw is a Lecturer in Climate Science in the Department of Meteorology at the University of Reading and a Principal Investigator with the National Centre for Atmospheric Science. He has nine years of post-doctoral research experience in large-scale atmospheric dynamics and its human

and environmental impacts. He initiated and continues to lead a growing 'energy-meteorology' research group (www.met.reading.ac.uk/~energymet) and is involved in wide range of projects on weather and climate risk in the energy sector, covering timescales from days to decades ahead.



Paul Brockway, University of Leeds

Paul Brockway is a Research Fellow at the University of Leeds, working on the UK Energy Research Council (UKERC) Theme 4 'Energy, Economy and Societal Preferences', which runs 2014–2019 <http://www.ukerc.ac.uk/programmes/energy-economy-and-societal-preferences.html>. The project is using

Input-Output and econometric modelling to help to develop our understanding of the relationship between energy and economic growth, and determine the consequences of different energy pathways for economic growth, employment, prices and trade flows.

Prior to the current UKERC project, Paul's PhD was focussed on the study of national-level energy consumption as a thermodynamic measure of energy quality, and its potential role in giving alternative insights to the interactions of energy efficiency with energy use and economic growth. Prior to this, Paul worked for Arup as a structural engineer and then a sustainability consultant, examining consumption based emissions of large organisations.



Laura Cozzi, International Energy Agency, France

Laura Cozzi is in charge of the quantitative analysis and modelling of the IEA flagship publication *World Energy Outlook* and has been co-author of sixteen editions of the *World Energy Outlook* as well as leading the WEO special reports on energy and climate,

investment and Africa.

Ms Cozzi has also been leading the *World Energy Outlook* analysis on climate change and the environment, energy demand and energy efficiency for over a decade.

Prior to joining the IEA in 1999, Ms Cozzi worked for the Italian oil company ENI S.p.A. She has a Master's degree in Environmental Engineering (from Polytechnic Milan) and a Master's degree in Energy and Environmental Economics from Eni Corporate University.



Alastair Davies, EDF

Alastair Davies is Head of Strategic Analysis & Modelling at EDF Energy, the UK's largest electricity generator. He is responsible for developing their long-term scenarios for energy supply and demand, which provide a technical and economic framework for evaluating EDF Energy's investments in new generation assets.



Chris Dent, University of Durham

Dr Chris Dent received his BA degree in Mathematics from the University of Cambridge in 1997, and a PhD in Theoretical Physics from Loughborough University in 2001.

After four years of postdoctoral research in Physics (Heriot-Watt University and Philipps-Universitaet Marburg) he studied for the

MSc in Operational Research at the University of Edinburgh in 2005–6. Since the start of 2007 he has worked in energy systems research, first at the University of Edinburgh, and then from 2009 at Durham University where he was appointed Lecturer in Energy System Modelling in 2011 and promoted to Senior Lecturer in 2014. He is also Co-Director for Impact at Durham Energy Institute, an Engineering Mentor at University College Durham, and a senior Research Associate of Peterhouse, Cambridge. His main interests lie in optimisation, resource adequacy assessment, renewables integration, transmission network planning and power system economics, and uncertainty quantification in energy systems models.



Laurent Drouet, FEEM, Italy

Laurent Drouet is senior researcher at Fondazione Eni Enrico Mattei (FEEM) and research affiliate at Centro Euro-Mediterraneo per i Cambiamenti Climatici (CMCC), Italy. He holds a PhD in Economics and Social Sciences from the University of Geneva, Switzerland and a Master's in Applied Mathematics

from the Institute of Applied Mathematics of Angers, France. In 2006–2009, he was post-doctoral research fellow in the Research Lab of Economics and Environmental Management at the Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland. In 2009–2012, he was a researcher at the Public Research Center Tudor, Luxembourg. His research is related to integrated assessment modelling and energy modelling. He is interested in the design of optimisation framework for integrated models, focusing on long-term climate policies but also on mid-term air quality regulations. He also created and developed the bottom-up techno-economic energy model ETEM to study optimal energy policies at urban or national level.


Georg Holtz, Wuppertal Institute, Germany

Dr Georg Holtz is a research fellow at the Wuppertal Institute for Climate, Environment and Energy. After his studies of applied systems science at the University of Osnabrueck he obtained his PhD from the same university in 2010 for his thesis entitled 'Modelling system innovations in coupled human-technology-environment systems'. He has knowledge of both the natural and the social sciences and worked in several fields ranging from water governance to energy. He has a background in system dynamics modeling and is an expert for agent-based modeling and the development of integrative frameworks. He has investigated the opportunities and challenges of studying transitions with modeling methods and has developed concepts and frameworks for transitions research.


Jan Imhof, Aurora

Jan Imhof is Head of Global Modelling at Aurora Energy Research. Jan has developed Aurora's hybrid computable general equilibrium model since its inception in 2013. He and his team are responsible for developing Aurora's modelling capabilities and for conducting studies on the impacts of various policy and technological assumptions and scenarios on global energy markets. Before his role with Aurora he was a post-doctoral researcher at the ETH Zurich, Switzerland, where he studied economic effects of climate and energy policy and the role of technological change. He obtained his PhD in economics from the ETH Zurich in 2012, writing about the interplay between carbon mitigation and nuclear phase-out policies. Jan's research agenda covers environmental and energy economics by applying computable general and partial equilibrium modelling and the integration of technology-rich bottom-up models with top-down macroeconomic models.


David Joffe, Committee on Climate Change

David has been with the Committee on Climate Change since 2007. His work focuses on how best to meet emissions targets across the economy, especially in the longer term. He is leading the CCC's central analytical team for its fifth carbon budget work, which will recommend the emissions limit for 2028–32 at the end of 2015. Particular areas of interest include path dependencies in meeting the 2050 target, including development of technologies, infrastructure, supply chains and markets, and the implications of these for near-term decarbonisation strategy. David also leads CCC's work on how scarce bioenergy can best contribute to economy-wide decarbonisation, roles for hydrogen and carbon capture and storage in a low-carbon energy system, and how shale gas production can be consistent with decarbonisation pathways.

He has a PhD in Energy Policy and Technology from Imperial College.


Michael Kenefick, E4Tech

Michael is a consultant at E4tech who joined the London office in 2015, following the completion of his Master's at Imperial College. His work at E4tech has included techno-economic and markets assessments and providing strategic advice to governments and industry. He previously worked as a building services design engineer, which involved creating energy models for buildings as well as the techno-economic analysis of on-site renewable generation.

He is currently leading E4tech's ongoing development work of the 'Scottish Whole System Energy Model' for the Scottish Government, working with a consortium of E4SMA, KanORS, Imperial College Consultants and Systra. Today he will be explaining the model's structure and application to the Scottish setting, and its ability to inform policy makers on potential future energy pathways.


Jonathan Köhler, Fraunhofer ISI, Germany

Dr Jonathan Köhler is Senior Scientist at the Fraunhofer ISI (Institute for Systems and Innovation research). He works in transport economics and is an expert on innovation theory and long run technological change, macroeconomics and system dynamics. He is now working on transitions modelling and the modelling of innovation systems and processes in transport.

He has developed the MATISSE-KK agent based model (ABM) of transitions in transport and the CLEANSHIP ABM of technology investment and development in shipbuilding. He has undertaken case studies of sustainability in international transport for the EU GLOBIS and PATHWAYS projects and has led a project for the German transport ministry on Carbon Trading in shipping.

He is member of the managing committee of the Sustainability Transitions Research Network (STRN), responsible for modelling issues. He is chairman of the EU expert group on Foresight Modelling.


Pei-Hao Li, University College, London

Dr Pei-Hao Li is an experienced TIMES modeller and energy model developer. He is a Research Associate at the UCL Energy Institute. Since joining the Institute in 2015, he has been devoted to developing innovative modelling approaches to better represent consumer behaviours and technology diffusion in the UK TIMES model, and has also taken the role of UK TIMES gatekeeper, working closely with DECC to maintain the model.

Before joining the UCL Energy Institute, Dr Li worked at the Industrial Technology Research Institute, Taiwan to facilitate the Taiwanese government to make energy policies on low-carbon energy developments, such as INDC and long-term energy plan, with the Taiwan TIMES model. He developed several national scale energy models including the Taiwan TIMES model and the Taiwan 2050 Calculator (cooperating with DECC) to provide evidence-based insights for low-carbon development in Taiwan.


David McCollum, IIASA, Austria

David McCollum is a Research Scholar with IIASA's Energy (ENE) Program. He also holds an appointment as a Research Fellow in Energy and Environment at the Howard H. Baker Jr. Center for Public Policy at the University of Tennessee (USA). Dr McCollum's main fields of scientific interest include techno-economic

analysis of advanced energy and transport technologies and the development and application of energy-economic and integrated assessment models. His research attempts to inform national, regional and global energy and environmental policies on matters related to climate change, sustainable transport, energy security and air pollution. To this end, Dr McCollum performs long-term scenario analyses and employs multi-criteria analysis techniques, particularly focusing on potential transitions for the energy system over the coming decades and the complex synergies and trade-offs between multiple energy objectives. Dr McCollum received his doctorate from the University of California, Davis (USA) in 2011.


Kavin Narasimhan, University of Surrey

Kavin Narasimhan is a research fellow at the Centre for Research in Social Simulation (CRESS), University of Surrey. Her current work on the wholeSEM project focuses on developing the Households and Practices in Energy consumption Scenarios (HOPES) agent-based model, to explore and understand how energy

demand co-evolves with changes in practices related to energy use, supply and energy policy. Kavin's background is in Computer Science and Engineering. Her expertise is in agent-based modelling of social systems, computational simulation of human interaction and computer-mediated human interaction.


Dimitrios Papadaskalopoulos, Imperial College London

Dr Dimitrios Papadaskalopoulos is a Research Associate at the Control and Power research group at Imperial College London. His research focuses on modelling and analysis of future low carbon power systems, including assessment of the role and value of storage and demand side

technologies, as well as the development of economic and market frameworks facilitating cost-effective integration to the low carbon future. He has co-authored over 30 research papers in peer reviewed international journals and conferences, and he has been involved in numerous UK, European and international projects conducted in close collaboration with the energy industry, governments and regulators. Since 2014, Dr Papadaskalopoulos acts as a Member and Content Expert of the Marketplace of the European Innovation Partnership on Smart Cities and Communities and the Action Cluster on Sustainable Districts and Built Environment.


Leonidas Paroussos, NNTU, Greece

Dr Leonidas Paroussos holds a degree in Economics, an MSc in Finance and a PhD in Energy and Climate Change. He is Managing Director of E3-Modelling and a researcher. His research interests regard energy economics, climate change policy and computable general equilibrium. He has more than 15 years of

experience in CGE modelling, particularly in the development of the GEM-E3 model. He is experienced in transport economics, climate change policy assessment, environmental economics, energy analysis, macroeconomic and regional modelling. He is an expert in collecting and reconciling large datasets.


Stefan Pfenninger, ETH, Zurich

Stefan is a post-doctoral researcher in the Climate Policy Group at ETH Zürich's Department of Environmental Systems Science, having been awarded a PhD in Civil and Environmental Engineering from Imperial College London in January 2016. His current research interests include simulating the output from solar and wind power plants and

modelling their integration into existing and future energy systems from country to continent scales.


James Price, University College London

Dr James Price joined the UCL Energy Institute as a Research Associate in October 2014. Before that he worked at the Met Office Hadley Centre and in environmental consultancy following the completion of a PhD in Physics at the University of Bristol. James' research focus under WholeSEM is modelling the

integration of high shares of variable renewable energy (VRE), principally wind and solar, into the UK power system. For this purpose he co-develops the high spatial and temporal resolution renewable electricity system model (highRES) at UCL. highRES, with its spatially and temporally explicit representation of VRE and the UK high voltage transmission system, is ideally suited to study cost-effective and technically robust power system scenarios that have a high penetration of intermittent renewables. He also works on uncertainty analysis within the TIMES Integrated Assessment Model at UCL (TIAM-UCL) as part of the EU ADVANCE project.


Kalai Ramea, University of California, USA

Kalai Ramea is finishing her PhD in Transportation Technology and Policy at University of California, Davis. Her research interests include mathematical modelling, consumer behaviour, mobility and long term scenario analysis. As part of her dissertation, she improved the behavioural representation

of the transportation sector in existing energy systems models. She has obtained her Master's in Civil Engineering from University of Southern California, Los Angeles, and Bachelors in Civil Engineering from Anna University, India.


Oliver Rix, Baringa

Oliver is a Partner in Baringa's Energy Advisory practice, and has over 20 years' experience in European energy markets. Oliver was a founding Director of Redpoint Energy, which merged with Baringa in 2012, where he helped build clients including the UK's Department of Energy and Climate Change (DECC), Ofgem,

and major European utilities and investors.

Oliver's work has spanned detailed policy and regulatory analysis in electricity and gas markets, commercial and risk management advice for energy wholesale and trading organisations, asset valuation and investment advisory, fundamentals and price modelling of both electricity and gas markets, and trading and risk software development and implementation. Oliver has led Baringa's long-term decarbonisation work, including the design and development of full energy system models, incorporating all sectors of the economy, including transport, buildings, industry and power generation.


Thomas Roberts, University of Surrey

Dr Thomas Roberts has a background in Human Geography and Environmental Sociology with a wide range of research interests focusing on public perceptions and understanding of environmental interventions, ranging from the designation of marine protected areas to the development of new low

carbon energy infrastructure. His current work on the wholeSEM project focuses on advancing our understanding of demand for energy from households by exploring the changing nature of social practices related to energy use, developing agent-based models that explore how demand co-evolves with changes in practice, supply and energy policy. In addition he is the Principle Investigator on a complementary project funded by the British Council, which is exploring the possibility of using the concept of invisibility to frame our understanding of the way in which people construct environmental values.


Nawfal Saadi, University College, London

Nawfal joined the UCL Energy Institute as a Research Associate in Energy Systems in October. Previously he was Junior Professional Associate at the International Renewable Energy Agency (IRENA) within the Energy Planning team and was involved in developing bottom-up cost-optimisation energy models

for African countries using MESSAGE focusing on improving the representation of renewable energy technologies in these. Prior to this he was a researcher at KTH division of Energy Systems Analysis (dESA) and was involved in projects ranging from providing modelling support in a World Bank project analysing the climate vulnerability of energy infrastructure in Africa, developing complex African power sector models for an IRENA commissioned project (SPLAT-E and SPLAT-N models) amongst others. Nawfal is originally from Morocco and holds an MSc degree in Sustainable technology from KTH and a BSc degree in Mechanical Engineering from the Polytechnic University of Valencia, Spain


Jon Saltmarsh, DECC

Jon Saltmarsh is currently Head of Technical Energy Analysis at the Department for Energy and Climate Change (DECC). His role involves gathering evidence to underpin the UK Government's policies on reducing demand for energy, principally through energy efficiency and the use of locally generated, low carbon

sources of energy. One of his particular interests is the use of hydrogen as a low carbon energy vector.

Prior to joining DECC, he ran a number of cutting edge technology development programmes providing low carbon alternatives to traditionally highly energy intensive activities. They included solar powered unmanned aircraft and innovative simulation systems for military training.

He holds a degree in Engineering from St John's College Cambridge and an MBA from Cranfield University.


Sheila Samsatli, University of Bath

Sheila is a Prize Fellow in Process Systems Engineering at the Department of Chemical Engineering at the University of Bath. Prior to this, she worked as a Research Associate at the Department of Chemical Engineering at Imperial College London. She received her PhD in Chemical Engineering from University

College London in 2012. She is a key developer of the Energy Technologies Institute's Biomass Value Chain Model, which is currently being used by the ETI, DECC and ETI's industrial members to help determine bioenergy policy in the UK. She is also a contributing expert to the International Energy Agency's Hydrogen Implementing Agreement, Task 38: Power-to-Hydrogen-to-X and currently a guest associate editor of a special issue in Frontiers in Energy Research journal on 'Integrated Energy Networks and Sustainable Value Chains'.


Nilay Shah, Imperial College London

Nilay Shah's research interests include the application of process modelling and mathematical/systems engineering techniques to analyse and optimise complex, spatially- and temporally-explicit low-carbon energy systems, including hydrogen infrastructures, carbon capture and storage systems, urban energy

systems and bioenergy systems. He is also interested in devising process systems engineering methods for complex systems such as large-scale supply chains and biorenewable processes, and in the application of model-based methods for plant safety assessment and risk analysis. He has published widely in these areas and is particularly interested in the transfer of technology from academia to industry.


Sandy Skelton, University of Cambridge

Sandy is an environmental economist with a particular interest in the motivations and trade-offs associated with greater material efficiency and demand reduction. She is a Research Associate on the Whole System Energy Modelling (wholeSEM) project exploring the welfare implications of reducing demand, and

improving the characterisation of demand in whole system energy models. Sandy holds the Charles and Katherine Darwin Research Fellowship at Darwin College and was awarded a wholeSEM bilateral fellowship to collaborate with the GEM-E3 macroeconomic model.

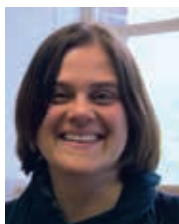
Sandy's PhD focused on the incentives for greater material efficiency in the use of steel. The work was funded by the WellMet2050 project under the supervision of Prof Julian Allwood, University of Cambridge. Sandy has an undergraduate degree in Economics from the University of Cambridge and an MSc in Metals and Energy Finance from the Imperial College Business School. Between degrees, Sandy worked for the policy research consultancy Brook Lyndhurst, advising the public sector on pro-environmental behaviour change policy. During the three years she spent there, she worked on a variety of environmental issues, first as a researcher and later as a project manager.


Pete Smith, University of Aberdeen

Pete Smith is the Professor of Soils and Global Change at the Institute of Biological and Environmental Sciences at the University of Aberdeen (Scotland, UK), Science Director of the Scottish Climate Change Centre of Expertise (ClimateXChange) and Director of Food Systems for the Scottish Food Security Alliance-

Crops. He leads the University of Aberdeen multi-disciplinary theme on Environment & Food Security.

His research interests are in soils, agriculture, bioenergy, food security, greenhouse gases, climate change, mitigation and impacts, and ecosystem modelling. He is a Fellow of the Royal Society of Biology, a Rothamsted Research Fellow, a Research Fellow of the Royal Society (London; 2008–2013), and a Fellow of the Royal Society of Edinburgh. His h-index is 58 and he is a Highly Cited Researcher (<http://hcr.stateofinnovation.thomsonreuters.com/>).


Zenida Sobral-Mourao, University of Cambridge

Zenaida Sobral-Mourao joined the Use Less group at the University of Cambridge in December 2013 to work as a Research Associate on the wholeSEM project. Her research focuses on the analysis of wider environmental impacts of future UK energy

system pathways, such as the use of land, water resources and emissions, and how these can be addressed during the early stages of planning. She is currently working on an extension of this work to include implications for air quality and human health. She holds a PhD in Theoretical Chemistry from the University of Porto. Before moving to Cambridge, she worked as post-doctoral researcher developing local and regional energy system plans at the Engineering Department at the University of Porto, having also completed an Executive Master's in Sustainable Energy Systems from the same institution in 2012


Phil Taylor, University of Newcastle

Professor Phil Taylor is Director of the Institute for Sustainability, Siemens Professor of Energy Systems and leads the EPSRC National Centre for Energy Systems Integration (CESI). He is an internationally leading researcher and industrial expert in energy systems, electrical distribution networks, smart grids and energy storage

integration and control. He is a leading researcher on the Energy Storage for the Low Carbon Grids project funded by the EPSRC which is working with multiple academic and industrial partners. The project aims to develop an integrated, cost-effective approach to deploying energy storage technology.

He works regularly with energy suppliers and distributors in the UK on the use of energy storage for power quality improvement in distribution networks. He is an advisor to the Ministry of Science, Technology and Innovation in Malaysia regarding energy storage, Director of the EPSRC-funded Multidisciplinary Centre for Doctoral Training in Energy and is overseeing the development of Science Central, Newcastle's flagship project in urban sustainability.


Evelina Trutnevyte, ETH, Zurich, Switzerland

Dr Evelina Trutnevyte is a senior researcher, team leader and lecturer at ETH Zurich, Department of Environmental Systems Science, USYS Transdisciplinarity Lab. She is a member of the Swiss Competence Center for Energy Research-Supply of Electricity (SCCER-SoE), ETH Energy Science Center (ETH ESC), and an

associate of the ETH Institute of Science, Technology and Policy (ETH ISTP). She is also an Honorary Senior Research Associate at University College London, Bartlett School of Environment, Energy & Resources. She holds the competitive Swiss National Science Foundation Ambizione Energy career grant for analysis of cross-technology and spatial risk trade-offs in the Swiss electricity generation portfolio (RIGOROUS project). She is an energy systems analyst and modeler, specializing in socio-technical approaches and energy decision making under deep uncertainty and at science-society interface. She is an engineer by training and completed her PhD studies at ETH Zurich, Chair of Natural and Social Science Interface. She brings expertise from universities in Switzerland, United Kingdom, United States of America, Denmark, Norway, and Lithuania.


Kathrin Volkart, PSI, Switzerland

Kathrin Volkart is a PhD student in the Energy Economics group in the Laboratory for Energy Systems Analysis at the Paul Scherrer Institute (PSI) in Switzerland. The topic of her thesis is the integration of energy-economic system modelling and multi-criteria decision analysis.

Prior to this position, Kathrin was a member of the scientific staff of the Technology Assessment group at PSI. Her work was focused on life-cycle assessment and multi-criteria decision analysis of energy technologies and energy systems. Kathrin holds a Bachelor's degree in Environmental Sciences and a Master's degree in Energy Science and Technology, both from the Swiss Federal Institute of Technology (ETH) in Zurich. During her studies, she also worked for a consultancy firm in the energy field.



Zia Wadud, University of Leeds

Dr Zia Wadud is an Associate Professor at the Centre for Integrated Energy Research at the University of Leeds with joint appointments at the Institute for Transport Studies (ITS) and the School of Chemical and Process Engineering. A Civil Engineer by first degree, Zia's current work primarily sits at the juncture of transport, energy and environment in a multidisciplinary setting. Zia is also a competent applied econometrician, with expertise in transport and energy data analysis. His recent works include modelling heterogeneity and asymmetry in transport and energy demand, quantitative impact modelling of energy transitions in transport (e.g. CNG conversion of vehicles), travel and energy implications of self-driving vehicles and innovative carbon mitigation policies. Zia is a member of three different committees of the Transportation Research Board of the US National Academy of Sciences on energy, climate change and aviation. He has published in leading journals in the areas of transport, energy and the environment and currently leads the Sustainable Transport Policy group within ITS.



Jim Watson, UKERC

Professor Jim Watson is Director of the UK Energy Research Centre and Professor of Energy Policy at the University of Sussex. He was Director of the Sussex Energy Group from December 2008 to January 2013. Jim has a degree in engineering from Imperial College London and a PhD in science and technology policy from Sussex. He has 20 years' research experience on climate change, energy and innovation policy. His recent outputs include co-edited books: *New Challenges in Energy Security: The UK in a multipolar world* (Palgrave, 2013; with Catherine Mitchell) and *Global Energy: Issues, Potentials and Policy Implications* (Oxford University Press, 2015; with Paul Ekins and Mike Bradshaw).

Professor Watson frequently advises UK government departments and other organisations. He was an advisor to the Government Office for Science for a Foresight project on energy (2007–08). He has also been a Specialist Adviser with three UK Parliamentary committees. Jim has extensive international experience, including over ten years working on energy scenarios and energy innovation policies in China and India. In 2008, he was a Visiting Scholar at the Kennedy School of Government, Harvard University. Jim is a council member of the British Institute for Energy Economics, and was its chair in 2011. He was a member of DECC and Defra's social science expert panel (2012–16).



Nick Winser Chair, Energy Systems Catapult

Nick Winser's career within the energy sector spans over 30 years, culminating in his appointment as Chairman of Energy Systems Catapult in 2015. Prior to this, Nick served on the Board of the National Grid becoming its UK and European CEO in 2011. His extensive experience of the sector resulted in his election as President of the European Network of Transmission System Operators for Electricity (2013–2015) and his Chairmanship of CIGRE UK, the International Council on Large Electric Systems. In October 2015 Nick assumed the role of Deputy President of the Institution of Engineering and Technology. Previously chair of the IET's Membership and Professional Development Committee, Nick currently chairs the Finance and Investment Committee and the Power Academy. Additionally, Nick has a professional interest in the construction sector, having been a non-executive Director of the Kier Group since 2009. He is also Vice-Chair of the MS Society. Nick was awarded a CBE in 2014.



Marianne Zeyringer, University College London

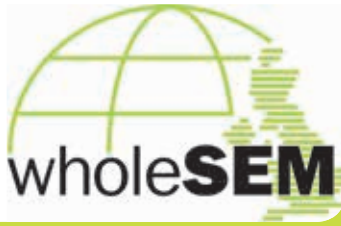
Marianne Zeyringer joined the UCL Energy Institute in 2013 as a Research Associate under wholeSEM. Her research focuses on the integration of variable renewable energy sources into the energy system. Together with James Price she has been developing the high spatial and temporal electricity system model highRES.

Before joining UCL, Marianne was working at the European Commission Joint Research Centre – Institute for Energy and Transport in the Netherlands. She has been pursuing doctoral studies at Utrecht University and BOKU University in Vienna. Her dissertation is on spatially and temporally explicit energy systems modelling.



Nici Zimmermann, University College, London

Dr Nici Zimmermann is Lecturer in System Dynamics at the UCL Institute for Environmental Design and Engineering. She currently works on 'Integrated decision-making about Housing, Energy and Wellbeing (HEW)', 'The 'Total Performance' of Low Carbon Buildings in China and the UK (TOP)' and participatory system dynamics modelling topics. Nici is interested in finding counterintuitive and innovative solutions for important problems and her research areas include housing, system dynamics modelling, the management of change, decision-making and interdisciplinarity. Before joining UCL, she was Junior Professor for Organisation Studies at the University of Siegen, Germany, where she led and co-led interdisciplinary research groups. She received the Gert von Kortzfleisch Prize for her dissertation, and is now a jury member for the prize and a repeat strategy thread chair at the International System Dynamics Conference.



Annual Conference 2016

Energy Modelling Insights for Iterative Decision Making

Date: 4th & 5th July 2016

Venue: The Møller Centre, Cambridge

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PhD Student Poster List

Aisha Al-Sarihi

Assessment of environmental and macroeconomic impacts of renewable energy uptake using a system dynamics approach: The case of Oman.

Elsa Barazza

The low-carbon transition of the European electricity sector: understanding investment costs and actors' strategic investment decisions in renewable energy generation assets through an agent-based approach.

Hannah Bloomfield

The importance of climate variability for a weather-dependent power system in Great Britain.

Seán Collins

Transformation of the European power system out to 2030 – Detailed analysis of IRENA's REmap 2030 project using a European electricity model.

Ana Gonzalez Hernandez, Jonathan Cullen

Unlocking system-wide resource efficiency measures in steelmaking: a unified exergy measure.

Hossein Ameli

Value of gas network infrastructure flexibility for supporting future low carbon power systems

Kaveri Iychettira

Designing the Right RES-E Support Schemes: assessing impacts of design elements using an agent-based model.

Jesus Nieto Martin

Impact of wind topologies on nodal electricity prices

Bruno Osorio

Energy use of urban transport and buildings: a new combined metric.

Dayang Ratnasari Abu Bakar

Electricity decarbonisation pathways in malaysia analysing ghg emission reductions of the mitigation.

Renato Rodrigues

Hybrid modelling for electricity policy assessments.

Oliver Schmidt

Institute of EnFuture costs of energy storage and its value in low-carbon energy systems environmental Design and Engineering (IEDE).

Marit Marsh Stromberg

Do the spatial capacity layout of variable renewable energy sources matter? A conceptual study of its influence on variability characteristics of the EU-aggregated power output.

Giada Venturini

Modelling alternative fuel production technologies for the future Danish energy and transport system.

Juan Vera and Céline Guivarch

Optimization of abatement technology choices under CAFE standards and diffusion speed limits.

Trung Chi Vu

A methodology to integrate distribution grid effects and distributed flexibility technologies into model-based system analysis of electricity markets.

PhD Students A-Z



Aisha Al-Sarihi, Centre for Environmental Policy, Imperial College London

Aisha Al-Sarihi is a doctoral researcher at the Centre for Environmental Policy at Imperial College London. Her PhD research aims to investigate a potential shift to low-carbon economies in the hydrocarbon-rich countries with a particular focus on the role of a wider-scale integration of renewable energy. Her research interests encompass energy policy and governance in the Middle East and North African countries, notably issues of energy subsidies and electricity tariff subsidies; energy system modelling using system thinking approaches; renewable energy policies; and climate change policies in developing countries.



Elsa Barazza University College London

Elsa is a second year PhD student at the UCL Energy Institute. Her research focuses on the low-carbon transition of the European electricity sector, and on investigating private sector actors' strategic investment decisions in clean energy assets by building an agent-based model to create actors-based future pathways of the electricity system.

Prior to starting the PhD Elsa worked for six years in the financial sector in London as a credit analyst in the commodity derivatives sector, focusing on energy clients. Elsa holds an MSc in Economics from the University of Bath and an undergraduate degree in Economics and Business Administration from Bocconi University in Milan.



Hannah Bloomfield, Department of Meteorology, University of Reading

Hannah is a PhD student in the meteorology department at the University of Reading. Her project aims to understand the impact of climate variability and climate change on a weather-dependent GB power system. Her research interests focus around the use of weather data within energy system models, and the meteorological drivers behind energy system behaviour.



Seán Collins, University College Cork, Ireland

Seán is a second year PhD student from University College Cork. His research interests focus on enabling improved scenario analysis for power systems and offshore renewables in Ireland and the EU-28. This is being done through the employment of a soft linking methodology in the analysis of energy system model results, the reconstruction of the Irish TIMES model power sector using localised data thus reducing dependence upon the Pan European TIMES model, and through the development of techno-economic models to quantify the cost reductions required and level of support required for renewable electricity generation in Ireland and the EU-28.



Ana Gonzalez Hernandez, University of Cambridge

Ana graduated with a first class honours MEng in Mechanical Engineering from Imperial College London in 2014. That same year she started her PhD at the University of Cambridge funded by Emerson – a process management and control systems company. The aim of her PhD is to help production firms understand their resource flows, the impact of these on environmental performance and the opportunities available to improve resource efficiency. In order to do this, control data is used to construct maps of resource use at a plant level in the form of Sankey diagrams. Aspects such as the amount of data points, level of detail and time resolution will be explored to ensure the production of meaningful visual results that can reveal improvement opportunities. This research will be applied to two case studies, that of steelmaking and ammonia production.



Hossein Ameli, Imperial College London

Hossein Ameli received his MSc in Electrical Engineering from Technical University of Berlin, Germany. He is currently a PhD student at Imperial College London. His research interests include modelling, optimisation, operation and planning of multi vector energy systems.



Kaveri Iychettira, Delft University of Technology, Netherlands, and Comillas Pontifical University, Spain

Kaveri Iychettira is a PhD Researcher in the Faculty of Technology Policy and Management at Delft University of Technology. Her research interests include the decarbonisation of the energy sector, modelling of socio-technical systems using Agent-Based Modelling and Simulation, policy design and analysis, and rural electrification. More specifically, her work investigates the design of renewable support schemes in Europe, and its long-term, dynamic impacts on the energy system. She studies how different designs of renewable support schemes in different interconnected countries could impact social welfare and cross-border effects. She has an MSc in Engineering and Policy Analysis from Delft University of Technology, Netherlands, and a Bachelors in Electrical Engineering from RVCE, Visveswaraya Technological University, India. In 2013 she won the Best Graduate award for the Faculty of TPM at Delft. She currently holds a fellowship with the Erasmus Mundus Joint Doctorate Programme in Sustainable Energy Technologies and Strategies.



Jesus Nieto Martin, Cranfield University UK and National Renewable Energy Laboratory, US

Jesus Nieto-Martin is a senior PhD candidate at Cranfield University with a research topic about Smart Grid Optimisation and Modelling of Future Power Supply Networks. The UK Low Carbon Network Fund through the Western Power Distribution's FALCON project has funded his research.



Bruno Osório, University of Bath

Bruno Osório is a doctoral student in the Department of Architecture and Civil Engineering at the University of Bath. He studied at the University of Lisbon, Portugal, and received his BA in Geography, specialising in Cartography and Geographic Information Systems (GIS) in 2004. In 2010 he received his MSc in GIS and Spatial Modelling applied to Planning at the same university.

His ongoing PhD research seeks to understand the relationship between energy consumption and urban characteristics. First, a new energy metric at a large scale enables better insight into energy consumption in urban areas. The concept of urban form is used to select physical and socioeconomic attributes that influence the energy consumption of the built environment and commuting transport. The analysis of the correlation between energy consumption and urban features provides meaningful information to policy-makers aiming at reducing carbon-based energy dependency.



Dayang Ratnasari Abu Bakar UCL-Energy

Before joining UCL Energy Institute, Dayang served in the Malaysian Civil Service for eight years. She was part of a team responsible for policy planning for programmes involving renewable energy. Part of her task was also monitoring the impact of international regulations on palm oil trade (including

biofuel) and non-tariff barriers, and participating in regional and multilateral environmental and trade negotiating processes and meetings related to energy, environment and climate change. Dayang holds a BSc and an MSc in Chemistry from the National University of Malaysia. She is currently developing the Malaysia-TIMES (The Integrated MARKAL EFOM System) model with an interest in assessing the role of bioenergy for long term decarbonisation of the Malaysian energy system.



Renato Rodrigues, Universidad Pontificia de Comillas, Madrid, Spain

Renato Rodrigues is a Brazilian economist with a Master's in Industrial Economics from the Universidade Federal do Rio de Janeiro (RJ, Brazil) and a Master's in Electric Power Systems from the Universidad Pontificia de Comillas (Madrid, Spain). He is currently pursuing

a Phd in Electrical Engineering and Operations Research at the Universidad Pontificia de Comillas (Madrid, Spain).

He has been working for the last ten years in Brazil, Spain and the United States of America on regulation design, policy assessment and energy markets consulting.

His main professional expertise lies in designing and building integrated assessment models to assist policy evaluations, assets pricing, investment planning and taxation studies for energy related activities.

Currently he is working on designing a hybrid economic and engineering energy model applied to assess energy-economics-environmental policies and complex economic agent behaviour.



Oliver Schmidt, Grantham Institute – Climate Change and the Environment, Imperial College London

Oliver is a PhD researcher in energy storage at Imperial's Grantham Institute. He analyses the potential for innovation of energy storage technologies to project future costs and models the value of storage in low-carbon energy

systems. Originally a 'Berliner', he was trained as a mechanical engineer at ETH, Zurich. After learning about sustainable energy and urban mobility during spells in the Netherlands, USA and Thailand, he embarked on the MSc in Sustainable Energy Futures at Imperial College. This was followed by a two year period of actual work where he advised the management of a major European utility on issues as diverse as streamlining the gas wholesale business and designing customer journeys. Oliver wants to use his PhD to build extensive knowledge in energy storage and crack the energy challenge by making transparent which role storage could play in the future.



Marit Marsh Stromberg, Birkbeck College, University of London

Marit Marsh Stromberg is a third-year PhD Candidate in Geography at the department of Geography, Environment and Development Studies at Birkbeck College, University of London. She holds a MSc degree in Physics and a teaching degree from Uppsala University,

Sweden, and an MSc degree in Environmental Risk Analysis from Linneaus University, Sweden. In her PhD project, she is examining how the spatial distribution of wind and solar PV capacity impact the variability characteristics of the EU-aggregated power output at different temporal scales. Marit currently resides in Cambridge, and can be contacted at mmarsh04@mail.bbk.ac.uk.



Giada Venturini, System Analysis Division, DTU Management Engineering, Technical University of Denmark

Giada Venturini is currently a PhD student at Technical University of Denmark's Management Engineering department in the System Analysis division. She earned her Master's in Management Engineering from the University

of Padova in 2014 with a thesis focusing on optimisation of container terminal operations and vessels fuel consumption. Her PhD project aims at providing feasible and robust technological pathways for a future low carbon transport and energy system both from an economic and environmental perspective. Her research interests revolve around energy system modelling, transport optimisation, scenario and policy analysis within transport and energy. This is not an exhaustive list since she is every day ineffably inspired by the opportunities and challenges of our world and people.



Juan Vera, CIRED (Centre International de Recherche sur l'Environnement et le Développement), Paris, France

Juan Fernando Vera is a PhD student at the CIRED. He has a multi-disciplinary engineering background particularly focused on the automotive and new mobility fields. He graduated from Paris Institute of Technology

(ParisTech) in Electric Vehicles and Mobility. His main field of research is investment optimisation modelling. His interests are the economic modelling of carbon reduction ambitions, market diffusion of new technologies and energy policies. He is working on an emission abatement model of investment strategies for the automotive industry.



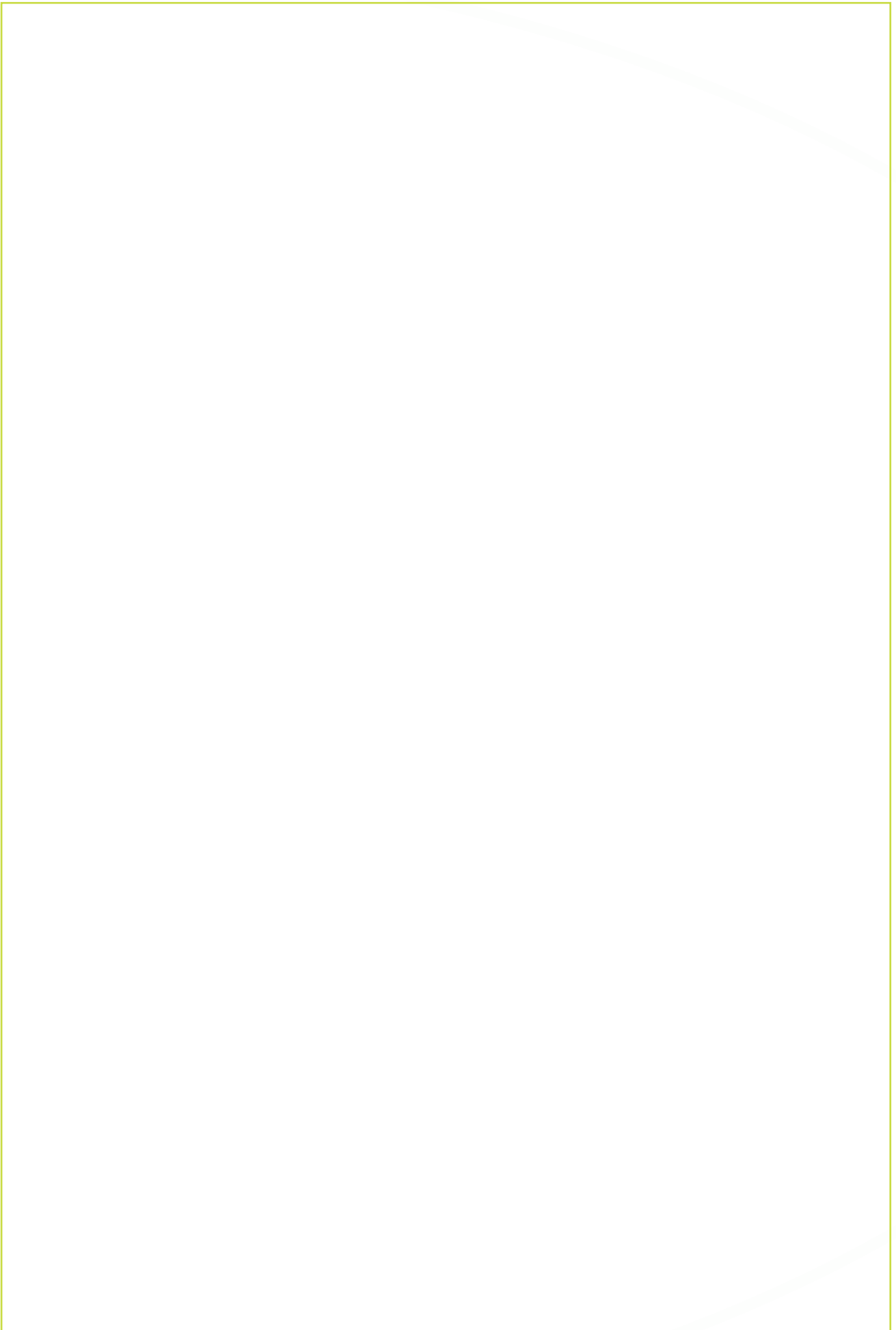
Trung Chi Vu, Institute for Energy Economics and Rational Use of Energy (IER), University of Stuttgart, Germany

Trung Chi Vu is a PhD researcher since September 2014 at the Institute for Energy Economics and Rational Use of Energy (IER) in Stuttgart Germany and scholar of the Helmholtz Research School on Energy Scenarios.

In addition, he participates in the Graduate School for 'Simulation Technology', the cluster of excellence at the University of Stuttgart. Trung's PhD research topic is a model-based analysis of distributed energy concepts and smart energy systems.

Before joining the IER, Trung worked for the RWE Group and participated in an international graduate programme. He studied Electrical Engineering and Business Administration at the Otto-von-Guericke University in Magdeburg and holds an MBA from the Colorado State University.

Notes





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