

The DEMAND Centre tackles the fundamental question of what energy is for. Achieving greater energy efficiency is important, but the trend is often towards more resource intensive standards of comfort, convenience and speed.

The problem is that we lack a sophisticated understanding of how these trends take hold and of the underlying dynamics of demand itself. The DEMAND Centre takes this problem as its central challenge.

## DEMAND's approach

The Centre's research is driven by a distinctive theoretical approach informed by three key propositions.

First, that energy is used not for its own sake but as part of accomplishing social practices. Energy demand is consequently dynamic, social, cultural, political and historical: it is bound up with the temporal rhythm of society and with what people do.

Second, energy demand is profoundly shaped by material infrastructures and institutional arrangements. In a very literal sense demand and the means to consume constitute each other. These means of consumption encompass systems of provision and supply – from grids, power stations, road and rail networks through to the multitude of devices with which end-users engage (computers, heating systems, cars etc.).

Third, these systems reproduce interpretations of normal and acceptable ways of life. Concepts of need and entitlement to energy and mobility are consequently embedded in popular and policy discourse, in standards of many forms, in estimates of future energy demand and in related programmes of planning and investment.

## DEMAND's ambitions are to:

**Identify and explore new opportunities for demand management at different scales.**

**Achieve a step change in how energy demand is understood and managed.**

**Confront fundamental issues of demand: what is energy for?**

Establish a vibrant, internationally significant, interdisciplinary, intellectually exciting, policy relevant Centre capable of tackling fundamental questions: how are patterns of energy demand changing; how do they vary, how is demand built and how is it reproduced?

Involve and engage policymakers, businesses, regulators, NGOs and other stakeholders and bring disparate non-academic communities together to explore and develop styles and strategies of intervention and demand management to help meet the UK's greenhouse gas emissions targets.

Make a significant contribution to the theory and practice of energy demand management at different scales and across sectoral boundaries.

Provide a platform for interdisciplinary research training, capacity building and strategic international exchange, collaboration, influence and insight.



## The DEMAND Centre's research: challenges, themes and projects

The Centre's research programme revolves around a number of specific challenges addressed through four research Themes and a fifth explicitly focused on integration and application.

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### Theme 1: Trends and patterns in energy demand

**Challenge:** *Develop new ways of analysing the relation between the dynamics of end use practices and dynamics of energy demand, moving beyond reliance on aggregate patterns and averages.*

**Projects** in Theme 1 make creative use of existing quantitative data sets to identify variations and trends in the social practices that shape energy demand, feeding analysis into the rest of the research programme and into estimates and models of future consumption.

### Theme 1 Projects

- 1.1 The structure and social distribution of end use practices
- 1.2 Time pressures and peak demand
- 1.3 Trends over time



### Theme 2: How end use practices change

**Challenge:** *Provide insightful and useful accounts of how and why end use practices vary over space, time and social context, and of the processes through which they evolve and impact on energy demand and greenhouse gas emissions.*

**Projects** in Theme 2 go into detail, analysing end use practices that are currently changing in ways that matter for energy demand. Research focuses on the use of domestic IT, mobility amongst older people, business travel, and the relation between home, work and leisure.

### Theme 2 Projects

- 2.1 Domestic IT use
- 2.2 Business travel
- 2.3 Older people and mobile lives
- 2.4 The dynamics of energy use in daily life



### Theme 3: Managing infrastructures of supply and demand

**Challenge:** *Increase understanding and knowledge of the spatial and temporal flexibility of end use practices and of how end use practices and related infrastructures might be adapted and managed to reduce demand.*

**Projects** in Theme 3 analyse the development and constant adaptation of end use practices and of the hard and soft infrastructures (gas, electricity, transport, logistics systems, organisational procedures) on which they depend, identifying the potential for future transformation across different sites and time scales – including smart grids; building design and management; control systems; district heating and infrastructures for electric vehicles.

### Theme 3 Projects

- 3.1 Adapting infrastructure for a low carbon society
- 3.2 Negotiating needs and expectations in commercial buildings
- 3.3 Infrastructures for online shopping
- 3.4 Monitoring and controlling energy demand





## Theme 4: Normality, need and entitlement

**Challenge:** Address fundamental questions of need and entitlement, generating new thinking and informing public policy and debate about how much energy consumption and mobility is required to participate effectively in society and how this might change.

**Projects** in Theme 4 deal with topics of energy and justice; with transport stress and the costs of mobility, and with implicit forms of energy demand governance.

## Theme 4 Projects

- 4.1 Energy and justice
- 4.2 Beyond elasticities: affording mobility
- 4.3 Implicit energy governance



## Theme 5: Integration and application

**Challenge:** To synthesise and evaluate the practical and conceptual significance of research undertaken within Themes 1-4.

Projects in this Theme develop and explore the relevance of our work for managing major transitions in demand.

## Theme 5 Projects

- 5.1 Constituting demand
- 5.2 Dynamics of demand
- 5.3 Steering demand



## The DEMAND Centre: impacts and opportunities to get involved

During the course of our research we will interact with stakeholders from the fields of energy, buildings, transport, utilities, local planning and more. For example, we will:

- Work directly with local authorities on issues such as new and evolving infrastructures and data collection and interpretation.
- Produce a project-led series of national policy briefings and a programme of policy seminars, hosted by DECC.
- Work with specialist policy advisors and collaborators within EDF R&D's ECLEER network, and the International Energy Agency to promote the Centre's work to national and international policy communities.
- Engage with a range of private sector organizations responsible for the design and management of energy and mobility systems (e.g. facilities managers, energy and transport network operators, building designers, property developers, the retail sector and employers), and with others involved in making and shaping future trends and patterns in end use practices.

### Opportunities for researchers and academics

We have a total of 13 PhD studentships, funding for 20 visiting researchers, and for a programme of related secondments and projects. There will be 3 DEMAND summer schools. We also welcome visiting PhD students and academics who share our research ambitions and approach. See [www.demand.ac.uk](http://www.demand.ac.uk) for further details.

### Opportunities for people from business and policy

The DEMAND Centre will obtain advice and input from a non-academic Club with members drawn from business, government and NGOs. Club members will have an opportunity to co-shape research agendas, processes and outcomes and will help extend the DEMAND Centre's influence. Get in touch if you would like to know more. Email: [k.wright@lancaster.ac.uk](mailto:k.wright@lancaster.ac.uk).



DYNAMICS OF ENERGY, MOBILITY AND DEMAND

### DEMAND is led by:

**Elizabeth Shove (Director)**, Department of Sociology, **Lancaster University**. Elizabeth's research on energy spans 25 years during which time she has held research awards from BRE, EU, EPSRC, ESF, ESRC, DoE, DETR, TfL, and Unilever. She is author/co-author of 9 books, including *Sustainable Practice* (2013: Routledge), *The Dynamics of Social Practice* (2012: Sage), and *Comfort, Cleanliness and Convenience* (2003: Berg).

**Gordon Walker (Co-Director)**, Lancaster Environment Centre, **Lancaster University** has expertise on sustainable energy technologies, transitions and issues of energy justice and inequality over a 20 year period. He has led over £2 million of research in multi-partner projects funded by research councils and government departments. Current research focuses on air conditioning and zero carbon homes and on energy demand and the ageing society.

**Greg Marsden** is Director of the Institute for Transport Studies (ITS) at the **University of Leeds**. He has led over £1.2M of research for the EPSRC, ESRC and Department for Transport. He specialises in the linkages between transport and environmental policy, leading an ESRC project on the governance of carbon and an RCUK Energy programme project, on 'Disruption'.

**Sylvie Douzou** is Programme Leader on Energy Demand & Dynamics of Consumption at **ECLEER**. She is EDF-R&D Scientific leader of the People, Energy & Buildings Programme (with EPSRC), and a member of the CNRS task force on Societal Acceptability of New Energy Technologies. Her own research focuses on the relationship between technology and social practice and the implications for energy systems and services.

### DEMAND involves:

**Jillian Anable**, Geography and Environment, University of Aberdeen

**Ben Anderson**, Faculty of Engineering and Environment, University of Southampton

**John Connaughton**, Construction Management and Engineering, University of Reading

**Rosemary Day**, School of Geography, Earth and Environmental Sciences, University of Birmingham

**James Faulconbridge**, Lancaster University Management School, Lancaster University

**Mike Hazas**, Computing and Communications, Lancaster University

**Russell Hitchings**, Geography, University College London

**Jan Selby**, School of Global Studies, University of Sussex

**Jacopo Torriti**, Construction Management and Engineering, University of Reading

**Frank Trentmann**, Sustainable Consumption Institute, University of Manchester

**Matt Watson**, Geography, University of Sheffield

**Anthony Whiteing**, Institute for Transport Studies, University of Leeds

15 postdoctoral researchers, researchers from EDF R&D European Centre and Laboratories for Energy Efficiency Research (ECLEER) Paris and 13 PhD students.

An international advisory board, chaired by Simon Guy, University of Manchester, two policy advisors and members of the DEMAND club.

### DEMAND is funded by:

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