

# Social Approach to Energy Issues

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2012 Annual EURO-CASE Conference Energy Independence for Europe 13 November 2012, Paris

# The questions

- What contribution can social changes make to delivering energy system transitions?
- What are public attitudes to engaging with such changes?
- All in a UK context



#### Potential for energy demand reduction

- How does energy demand relate to decarbonisation pathways?
- How much difference can it make to delivering carbon targets?



#### Decarbonisation: How is the UK doing?

#### UK Carbon, Energy and GDP ratios





#### Decarbonisation: What do we expect?

UK Carbon, Energy and GDP: Committee on Climate Change 80% reduction projection





# What does this tell us?

- Decarbonisation plans are very ambitious, especially for the carbon/energy ratio
- Improving the future energy/GDP ratio faster than currently projected may be possible, as we have a better track record at doing this.
- The 'demand side' will play a key role even in reducing the carbon ratio because of the need to decarbonise heat and transport demand



#### Energy demand for a low carbon future

- "Energy efficiency" technical change
  - e.g. cars with higher mpg
- "Demand reduction" social/behavioural change to reduce the need for energy services
  - e.g. alternatives to car travel
- "Low carbon vectors" especially electricity
  - e.g. electric vehicle use
- "Demand response" moving demand in time
  - (e.g. battery re-charging strategies)



Quantifying demand reduction: The "Energy Lifestyles" project

The context

- UK Energy Research Centre project "Energy 2050"
- One of several scenarios looking at low carbon, resilient energy futures for the UK.
- Published by Earthscan 2010.

The "lifestyle" team:

- Nick Eyre, Christian Brand, Russell Layberry (Oxford)
- Jillian Anable (Aberdeen)
- Neil Strachan (UCL)



# What are lifestyles?

Definition is difficult, but "lifestyle" implies issues to do with:

- Consumption patterns
- Culture
- Social values and norms
- Acceptable behaviour
- Personal preferences
- Use of time and space





# The lifestyle scenario

#### Storyline:

- Socially led change in energy use
- Reduced emphasis on 'consumption', 'green housing', 'community living', 'accessibility'
- New green technologies
- Supportive policies and infrastructure

#### Which behaviours:

- Household energy and personal transport
- Based on observable change (somewhere) in technology choice and use



## Lifestyle scenario – methodology



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# Household sector: driving forces

Drivers of demand:	<ul> <li>Internal temperature</li> <li>Hot water</li> <li>Lights and appliances</li> </ul>	Return to mid-1990s levels Typical EU levels Stabilises
	<ul> <li>Retrofit insulation</li> </ul>	Universal
Choice of technology:	<ul> <li>Replacement heating</li> </ul>	Wood, CHP and heat pumps
	Appliance efficiency	Advanced technologies
	<ul> <li>Energy generation</li> </ul>	Widespread



# Transport sector: driving forces



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## Household sector: energy demand



Energy demand 50% below BAU levels by 2050.



### Household sector: impacts on heating



#### Transport sector: impacts on fuel demand



![](_page_15_Picture_2.jpeg)

#### Impacts on the UK energy system

![](_page_16_Figure_1.jpeg)

Lifestyle reduces energy demand by ~30% by 2050

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# Will anyone actually do it?

- What are public attitudes to potential changes in energy systems?
- How can we develop acquire reliable understanding of public perspectives?

![](_page_17_Picture_3.jpeg)

# **UKERC Public Attitudes Studies**

- 1) To identify key trade-offs in system change & stakeholder & public responses to these
- 2) To build knowledge and understanding of public attitudes, values and acceptability of energy system change
- 3) To create qualitative and quantitative data sets for examination of the perspectives of varied publics across the UK on whole energy system
- 4) To develop and utilise innovative methodological approaches for examining public values, attitudes and acceptability
- 5) To develop a range of generic materials that can be utilised as a basis for working with varied publics

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![](_page_18_Picture_7.jpeg)

# **UKERC Research Group**

- Psychology, Cardiff University
- Prof Nick Pidgeon
  - Researcher Co-I: Dr Catherine Butler
  - Researcher Co-I: Dr Karen Parkhill
  - Researcher: Dr Christina Demski
  - Co-I: Dr Lorraine Whitmarsh
- Engineering, Cardiff University
- Prof Nick Jenkins
  - Researcher: Dr Tracy Sweet
  - Researcher: Dr Modassur Chaudry
  - Researcher: Brian Drysdale
- Architecture, Cardiff University
- Prof Peter Pearson
- Psychology, Nottingham University (attached to Psych, Cardiff)
  - Researcher Co-I: Dr Alexa Spence

Source: Prof Nick Pidgeon, UKERC and Cardiff University

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![](_page_19_Picture_18.jpeg)

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ENERGY

School of Psychology

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# **Many Scenarios**

![](_page_20_Picture_1.jpeg)

![](_page_20_Picture_2.jpeg)

to 2050

2000

Mahora wind

Out and

Distributed solar Ph

![](_page_20_Picture_4.jpeg)

![](_page_20_Picture_5.jpeg)

Source: Prof Nick Pidgeon, UKERC and Cardiff University

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UK demand for energy

![](_page_20_Picture_8.jpeg)

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WWF

REPORT 1 2011 ECOFYS OMA

**100% RENEWABLE ENERG** 

# Energy System Transformation

![](_page_21_Picture_1.jpeg)

![](_page_21_Picture_2.jpeg)

![](_page_21_Picture_3.jpeg)

![](_page_21_Picture_4.jpeg)

![](_page_21_Picture_5.jpeg)

![](_page_21_Picture_6.jpeg)

![](_page_21_Picture_7.jpeg)

![](_page_21_Picture_8.jpeg)

![](_page_21_Picture_9.jpeg)

# People remain more favourable towards renewables than fossil fuels and nuclear

How favourable or unfavourable are your current overall opinions c impressions of the following sources for producing electricity...?

![](_page_22_Figure_2.jpeg)

2010 2005

Base: 1,822 British adults, aged 15 and over, 6th January-26th March 2010;

1,491 British adults, aged 15 and over, 1st October - 6th November 2005

![](_page_22_Picture_8.jpeg)

# **Public Deliberations**

- 3 Pilot Workshops
  - Cardiff
- 6 Main Deliberative Workshops
  - Different UK locations
- 12 Participants per W/S
- Diverse sample:
  - E.g. mix of Gender, Age, Ethnicity, Educational qualifications, SEG, Household tenure

Source: Prof Nick Pidgeon, UKERC and Cardiff University

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## Format

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#### Introducing reasons for whole energy system change

- Presentation
- Short surveys & Discussion

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#### Creating a scenario in small groups

- DECC My2050 web tool & extra components omitted from tool
- Guided discussion to prompt conditions, trade-offs, agreements, disagreements to form basis of social contracts.

#### Reflecting on scenarios: Scenario narratives - "BAU", "Mixing it up" & "Low carbon living"

- Small group discussions of each
- Reflections on My2050 discussions to amend social contracts

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## **Emerging Findings**

- Whole system framing essential
- Climate change, Energy Security & Affordability
  - Public interpretive frames differ to policy (e.g. not p/kWh)
  - No straightforward relationship between views on meta issues and views on energy system change
- General positivity/enthusiasm toward change (sustainable)
  - Where negative conceptions of things appear it about not being seen as involving change i.e. non-transitions (e.g. biofuels, CCS, consumption)
- Interventions leaving people feel quite vulnerable
  - Prosumer/investment risks for early adopters
  - Stigma being seen to be 'not normal' (need neighbourhood/community interventions)
- Some trade-offs 'false' not representing a real either/or situation (more like 'and').

Source: Prof Nick Pidgeon, UKERC and Cardiff University

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## **Emerging Findings**

- Transitions need to be sensitive to place
  - Siting appropriate siting & importance of process
  - Socio-cultural histories of place taken into account
  - Passive demand management is draconian/intrusive homes as sites of contestation
- Cost & affordability
  - Concern about cost is multi-dimensional not just about higher bills (e.g. profits, investment, who pays)
  - Some acceptability of bills increases to pay for certain types of transitions (i.e. sustainable) this is in the context that people expect costs to go up anyway.

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# In Summary

Lifestyle change can produce a combination of energy service demand change and efficiency improvements that:

- reduce energy demand in homes and transport by more than 50% below baseline levels by 2050
- reduce national energy use and carbon emissions by ~30% below baseline
- increase the share of electricity in final demand, but by less than in other low carbon scenarios
- reduce the cost of delivering a low carbon energy system by up to £70 billion/year
- reduce energy system vulnerability to shocks

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# Role of the public

- People are imaginaries around renewable energy, efficiency, new technologies and cleaner (sustainable) sources
- Large tech-fix (biomass, carbon capture, nuclear), and remote demand intervention, all regarded with suspicion (conditional acceptance at best)
- Transitions must work with people's values, or where they do not extensive societal dialogue about why
- Existing social contracts under threat?

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