Public Attitudes to Whole Energy System Change

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Edinburgh Policy Meeting, December 13th 2013
Multiple long-term national policy goals bring imperatives to transform the energy system

- Climate change, Energy security, Affordability, Environment
Whole Energy System Transformation
WP1 Many Scenarios
A Low Carbon Economic Strategy for Scotland
Scotland – A Low Carbon Society
Project Background

- Publics are deeply implicated in how energy systems are configured

Energy producers & consumers

Citizens with voting powers

Active proponents & protesters
Objectives

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
Work Packages

WP 1: Scenarios
- Scenario Adaptation, Expert Consultation & Material Development

WP 2: Qualitative
- Deliberating Energy System Scenarios & Trade-offs

WP 3: Quantitative
- National (UK) Survey: Attitudes on Whole Energy System Transformations
Work Package 2: Public Deliberations

- 6 one-day workshops in 2011 (Wales, Scotland, England)
  - Capital Cities plus ‘energy locations’

- Diverse sample:
  - Gender
  - Age
  - Ethnicity
  - Educational qualifications
  - SEG
WP3 – Survey Sampling

- Nationally representative for Great Britain (n=2,441) in August 2012
  - Core samples for England, Scotland (n=500) and Wales (n=500)
  - Conducted online 2–12th August by IpsosMORI
  - Weighted by age, gender, geographical region and employment status
The my2050 tool

Can you reduce our CO$_2$ emissions to 20% of 1990 levels and help avoid dangerous climate change?
My Home

My City

My Country

Supply

Demand

Manufacturing Growth
Business Greenness
Home Efficiency
Home Temperature
Heating Fuel
How We Travel
Transport Fuel

Find out more about the sliders

Available from the Reports section at [www.understanding-risk.org](http://www.understanding-risk.org)
Key Finding

The British public wants and expects change with regard to how energy is supplied, used and governed.

They do not prioritise the demand over the supply side, or vice versa, in terms of being a greater priority for change.
Key Finding

88% agree that Britain needs to radically change how it produces and uses energy by 2050.

86% Scotland

"P: I’m sure we would have done something about it in 40 years. It is a depressing thought that we are going to continue with the way we are without doing any changes."
Findings: Energy Supply

Strong commitment to renewable forms of energy production, and a corresponding shift away from fossil fuels.

Moderator: What sort of energy sources would you like us to pursue for the future? So how do we want to generate our energy?

Male P1: Wind turbines
Male P2: Waves
Male P3: Solar
Female P1: Wood
Female P2: Wind
Female P3: I think with the wind and stuff, anything to do with the weather, we get enough of it here.

79% believe the UK should reduce its use of fossil fuels.

73% Scotland

Male: Hydro carbons should not be used – not as a source of energy. Burning stuff to make energy is the wrong thing to do.

Nearly 80% include high levels of renewables including offshore wind in their energy pathways.
Figure 3. Favourability towards energy sources for electricity generation (Q1 in Appendix B).

<table>
<thead>
<tr>
<th>Percentage of respondents</th>
<th>Very/mainly favourable</th>
<th>Neither favourable nor unfavourable</th>
<th>Very/mainly unfavourable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar energy</td>
<td>85%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Marine energy</td>
<td>77%</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>Hydroelectric power</td>
<td>75%</td>
<td>18%</td>
<td>2%</td>
</tr>
<tr>
<td>Wind energy</td>
<td>75%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Biomass</td>
<td>61%</td>
<td>25%</td>
<td>7%</td>
</tr>
<tr>
<td>Nuclear power</td>
<td>33%</td>
<td>27%</td>
<td>39%</td>
</tr>
<tr>
<td>Oil</td>
<td>39%</td>
<td>38%</td>
<td>43%</td>
</tr>
<tr>
<td>Coal</td>
<td>46%</td>
<td>35%</td>
<td>19%</td>
</tr>
<tr>
<td>Gas</td>
<td>41%</td>
<td>35%</td>
<td>24%</td>
</tr>
</tbody>
</table>
Non-transition - Biomass...

Fiona - It’s another oil and you would exploit countries who will allow you to have land and everyone else wants that land so I think you would end up with more wars and water issues.

Cheryl:-- Yeah it feels like a step backwards... it feels like come on guys, we can do something better than that. I don’t know what it is about it, maybe it is because it’s just burning stuff, it doesn’t seem very sophisticated or sustainable and it seems like they have just panicked and said we’ll just burn stuff. (Cumbria)
On Carbon Capture and Storage
Jeff: “See, I worry about that whenever humans try and transport something dangerous, they always make an arse of it somewhere along the line, like oil. The damage we have done with big oil tankers spilling out, we would have to transport this and store it and obviously I don’t know how that gets out, is it like a vapour or liquid or ice I don’t know, but if you leave humans to transport something from a to b at some point of them doing that they will make a balls up and it could end up back in the environment. That is just my opinions on humans, but we always make an arse of it somewhere”. (Edinburgh)

Politics and history...
Olivia: It is not as bad, but I really don’t think we want to be the dustbin of the world for that kind of thing (carbon emissions) (Glasgow)
Overall, to what extent would you support or oppose the continued use of fossil fuels with ‘carbon capture and storage’

<table>
<thead>
<tr>
<th></th>
<th>Wtd. Total</th>
<th>England (a)</th>
<th>Scotland (b)</th>
<th>Wales (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(z)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unweighted Total</td>
<td>2441</td>
<td>1432</td>
<td>502</td>
<td>507</td>
</tr>
<tr>
<td>Weighted Total</td>
<td>2441</td>
<td>2102</td>
<td>215</td>
<td>124</td>
</tr>
<tr>
<td>Strongly support</td>
<td>131</td>
<td>110</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>5%</td>
<td>5%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Tend to support</td>
<td>749</td>
<td>646</td>
<td>67</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>31%</td>
<td>31%</td>
<td>31%</td>
<td>29%</td>
</tr>
<tr>
<td>Neither support nor</td>
<td>752</td>
<td>644</td>
<td>69</td>
<td>39</td>
</tr>
<tr>
<td>oppose</td>
<td>31%</td>
<td>31%</td>
<td>32%</td>
<td>32%</td>
</tr>
<tr>
<td>Tend to oppose</td>
<td>418</td>
<td>365</td>
<td>33</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>17%</td>
<td>17%</td>
<td>15%</td>
<td>16%</td>
</tr>
<tr>
<td>Strongly oppose</td>
<td>100</td>
<td>85</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4%</td>
<td>4%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>291</td>
<td>251</td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>12%</td>
<td>12%</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>Support</td>
<td>880</td>
<td>757</td>
<td>80</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>36%</td>
<td>36%</td>
<td>37%</td>
<td>35%</td>
</tr>
<tr>
<td>Oppose</td>
<td>518</td>
<td>450</td>
<td>44</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>21%</td>
<td>21%</td>
<td>20%</td>
<td>19%</td>
</tr>
</tbody>
</table>
Demand Management

- Intervention v Interference
- Active management and control

Rose:—... I don’t want somebody coming in and saying, “you can’t run that, you’re going to jail for putting that heater on all night”, but I do think something will need to be done because we need to stop, we know this, we know what we’re damaging... (Glasgow)

Active Management...
Ann:— That would force people to be more aware, like I’m terrible for leaving the monitor from the computer running when it could be switching it off. If I knew there was only so much electricity I would go around switching things off, if I wasn’t needing them. So it would probably be better... (Edinburgh)
...in my eyes it may be a silly thing to say, why have a world when you can’t visit it? Why have other counties when you can’t go there. It seems silly that we can’t visit other countries and cultures and actually learn. What is there to learn in life? (Nigel, London)

Jeremy:- And no way in the world will I give up eating meat, I don’t care, may the world come to an end

On flying...
Amy:- ...Tenerife, I go a lot and my family used to live in the states and I went a lot out there, so here there and everywhere, I am a retired lady now and I worked all my life, every day of my life, and now I think, “well I should just enjoy myself” so I do. (Glasgow)

Irene:- Something I wouldn’t change is not eating meat [laughter and agreement from group] (Merthyr)
Public VALUES for Energy System Change

Reducing the use of finite resources

- Avoiding waste
- Efficient
- Capturing opportunities

Reducing overall levels of energy use

- Environmental protection
- Naturalness and Nature

- Availability and Affordability
- Reliability
- Safety

- Long-term trajectories
- Interconnected
- Improvement and quality

- Social Justice
- Fairness, Honesty & Transparency

- Autonomy and Freedom
- Choice and Control
We stipulate that acceptability of any particular aspect of energy system transformations will, in part, be conditional upon how well it fits with the value-system.

Importance of long-term trajectories commensurate with these values
Technological Realism – and Politics of Place

Politics and history...
Olivia:- It is not as bad, but I really don’t think we want to be the dustbin of the world for that kind of thing (carbon emissions) (Glasgow)
<table>
<thead>
<tr>
<th>PRINCIPLE/VALUE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced energy use overall</td>
<td>Reducing overall energy usage while simultaneously reducing the use of finite resources (as compared to the current state) will have positive consequences in terms of attaining the values outlined below.</td>
</tr>
<tr>
<td>Reduced use of finite resources</td>
<td></td>
</tr>
<tr>
<td>EFFICIENT AND NOT WASTEFUL</td>
<td></td>
</tr>
<tr>
<td>Avoiding Waste</td>
<td>A system that does not involve wasting and/or produce waste products and that is efficient.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>A system that does not waste opportunities arising from energy system change, and capitalises on the resources and capacities of the UK.</td>
</tr>
<tr>
<td>Capturing opportunities</td>
<td></td>
</tr>
<tr>
<td>ENVIRONMENT AND NATURE</td>
<td></td>
</tr>
<tr>
<td>Environmental protection</td>
<td>A system that uses and produces energy in an environmentally conscious way and does not unnecessarily interfere with or harm nature.</td>
</tr>
<tr>
<td>Nature and naturalness</td>
<td></td>
</tr>
<tr>
<td>SECURE AND STABLE</td>
<td></td>
</tr>
<tr>
<td>Availability and affordability</td>
<td>A system that ensures access to energy services both in terms of availability and affordability. A system that is reliable and safe both in the production and delivery of energy services.</td>
</tr>
<tr>
<td>Reliability</td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>AUTONOMY AND POWER</td>
<td></td>
</tr>
<tr>
<td>Autonomy and freedom</td>
<td>A system that is developed in ways that do not threaten autonomy, infringe upon freedoms, or significantly compromise abilities to control personal aspects of life.</td>
</tr>
<tr>
<td>Choice and control</td>
<td></td>
</tr>
<tr>
<td>JUST AND FAIR</td>
<td></td>
</tr>
<tr>
<td>Social justice</td>
<td>A system that is developed in ways which are mindful of implications for people's abilities to live healthy lives. A system that is fair and inclusive and where all actors are honest and transparent about their actions.</td>
</tr>
<tr>
<td>Fairness, honesty, and transparency</td>
<td></td>
</tr>
<tr>
<td>PROCESS AND CHANGE</td>
<td></td>
</tr>
<tr>
<td>Long-term trajectories</td>
<td>A system that is developed with a focus on the long-term trajectories being created; that takes into account system interconnections and interdependencies; and represents improvement both in terms of socio-technological advances and quality of life.</td>
</tr>
<tr>
<td>Interconnected</td>
<td></td>
</tr>
<tr>
<td>Improvement and quality</td>
<td></td>
</tr>
</tbody>
</table>
National Government(s) are seen to play a large role in bringing about these changes.

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Government(s)</td>
<td>54%</td>
</tr>
<tr>
<td>Energy companies</td>
<td>16%</td>
</tr>
<tr>
<td>Individuals and their families</td>
<td>13%</td>
</tr>
<tr>
<td>Environmental groups</td>
<td>3%</td>
</tr>
<tr>
<td>The European Union</td>
<td>3%</td>
</tr>
<tr>
<td>Local authorities</td>
<td>2%</td>
</tr>
<tr>
<td>None of these</td>
<td>1%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>8%</td>
</tr>
</tbody>
</table>
Concluding Comments

- Successful Engagement – Rich Set of Public Discourses
- Value of Multiple-Methods and ‘Whole System’
- Public(s) Values – transitions need to address the public(s) Long Term vision
- Use of Interactive Tools (e.g. MY2050)
- Future Priorities
Consortium

Psychology, Cardiff University
- PI: 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
- Co-PI: Prof Nick Jenkins
  - Researcher: Dr Tracy Sweet
  - Researcher: Dr Modassur Chaudry
  - Researcher: Brian Drysdale

Architecture, Cardiff University
- Co-PI: Prof Peter Pearson

Psychology, Nottingham University (attached to Psych, Cardiff)
- Researcher Co-I: Dr Alexa Spence
Deliberative Groups: Day Format

Introducing reasons for whole energy system change

- Presentation
- Short surveys & Discussion

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
WP3: Survey & my2050

- Climate change, energy security and affordability
- Key energy supply options: fossil fuels, nuclear power & wind energy
- Electrification of heating, cooking and driving
- Demand reduction
- Demand side management
- Overall system change

my2050

- About my2050
- Repeated questions
- Environmental values & technol. optimism
- Sample characteristics
Project Reports

Butler, C., Parkhill, K.A. & Pidgeon N.F.

Demski, C., Spence, A. & Pidgeon N.F.

Available from Reports section at www.understanding-risk.org
Before and After the tool

Favourability (-2 to +2)

Before | After
---|---
Coal | 0 | 0
Oil | 0 | 0
Gas | 0 | 0
Nuclear | 0 | 0
Biomass | 1.5 | 1.5
Hydro | 1.5 | 1.5
Solar | 2 | 2
Wind | 1 | 1
Marine | 1.5 | 1.5

UKERC