What is energy for?

Understanding consumption, efficiency and demand

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Energy consumption and energy demand

People do not use energy for its own sake.

Energy demand is an outcome of what people do at home, at work and in moving around.

There are many practices that call for energy: heating, cooling, lighting, cooking etc.

These are changing all the time.

Energy demand reduction depends on the practices which draw energy through society.
Energy is never used in the abstract

Consumption, including consumption of energy, occurs as part of accomplishing specific social practices

Electrifying a traditional kettle

Hughes: Networks of Power, 1983. The need for electricity is made one practice at a time.
Energy use is almost always mediated by some kind of technology.

Such technologies (air conditioning systems, freezers, lights, cookers) are also implicated in making and shaping what people do.

And remember..

Energy demand is an outcome of what people do at home, at work and in moving around.

Technologies make and do not simply meet demand.
Specific combinations of fuels and technologies co-constitute the practices of which society is made, and the material arrangements amidst which they transpire.

Lighting technologies and lighting demand constitute each other: spots to spaces.
Energy demand in the singular makes no sense.
The dynamics of comfort
From person heating to space heating

This is not a behavioural trend.

It represents a new configuration of materials, meanings and skills. It represents a new, global, interpretation of comfort

Average room temperature of 13° Celsius (55°F) in the UK in 1970.

Social conventions of comfort are changing all the time.

22 degrees C is a consequence of DESIGN and ENGINEERING. Behaviour, attitude and choice are outcomes not inputs.

Man in thick woollen jumper

Picture of ole fanger here

Fanger’s equation

There is nothing natural about 22°C.
Freezing ‘behaviour’
From built in larder to electric fridge: 1928 plans and from estate agents: 2014
Issues of responsibility, ownership, normal provision, the cold food chain.

Local politics, international systems of provision, trade, diet
Complexes of social practices
David Nye (2010) *When the lights went out*

**Office working 1950s**

Go home at dusk

**Office working 2014**

Go home immediately

No typing, no filing, no communication, no internet, no email, no lifts, no ventilation systems

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Technologies, politics, systems of provision and energy demand

Shell and core will comprise the structure, its cladding, its base plant, completed common areas and external works. More specifically it will generally include:

High and low voltage switchgear.
Transformers.
Lift systems.
A standby generator.
Boilers.
Chillers.
Cooling towers.
Water and fuel tanks.
Sprinkler plant.
Building control systems.
Air conditioning chambers and fans.
Water and fuel pumps.
Dry risers.
Fire detection, alarm and hose reel systems

- Design to meet all needs.
- Everything else is taken out again when the tenant leaves

Where is the ‘behaviour’

http://www.designingbuildings.co.uk/wiki/Shell_and_core#Normal_shell_and_core_provision_for_a_high-spec_city_office
Energy efficiency
More efficient technology

Attitudes
Behaviours
Choices

Adopt technology
Reduce demand
This agenda fails to engage with the dynamics of energy demand: it has no history
it fails to question the status quo
it obscures big policy opportunities

‘A’ rated freezers

A Clo factor varies by 3.5 times

‘A’ rated heaters, or air conditioning systems
Many people think
The challenge is to maintain present ways of life but make related goods and services more efficient.

However
Strategies to increase efficiency play out in a social world that is constantly on the move.

Future ways of life are unlikely to be the same as they are today.

DEMAND reduction depends on understanding how end-uses of energy are changing and how they can be modified and steered.

DEMAND reduction depends on asking more fundamental questions about what energy is for.
Many people think
Energy demand reduction depends on making technologies more efficient, and persuading people to adopt them.

However
Technologies and infrastructures of supply are implicated in making and reproducing services and practices.

Efficient technologies can sustain social practices that call for high levels of energy demand.

DEMAND reduction depends on reconfiguring services and social practices.

DEMAND reduction depends on recognising that technologies and infrastructures do not simply meet existing needs: they shape future practices and the demands that follow.
Many people think The only policy relevant to energy demand reduction is energy policy.

However
There are many areas of public policy that unknowingly impact on the range of social practices enacted in society, and hence on energy demand.

These include education, employment, business, health, planning and more.

DEMAND reduction
Depends on understanding the unintended consequences that ‘non energy policies’ have on what people do, and hence on energy demand.

DEMAND reduction
Depends on actively fostering new social arrangements and different ways of life.
Policy strategies - Beyond energy efficiency and behaviour
Real and imagined

Should there be a policy of breaking the cold chain?
Or of changing office life?

Are these energy efficient technologies?

Graph of daily energy profile here.

How do employment policies structure energy demand?
<table>
<thead>
<tr>
<th>The really big questions</th>
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<tbody>
<tr>
<td><strong>Which energy demanding practices are changing and how?</strong></td>
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<tr>
<td><strong>How are different energy demanding practices changing in different countries?</strong></td>
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<tr>
<td><strong>How do such changes relate to infrastructures/technologies?</strong></td>
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<tr>
<td><strong>How do interpretations of normality and need evolve?</strong></td>
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<tr>
<td><strong>How is energy demand constituted, how does it change, how can it be steered?</strong></td>
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</tbody>
</table>
How does energy demand change and how it can be steered?
Further reading available on request if you can’t follow these links.

**Articles**

What is energy for? Social practice and energy demand: http://tcs.sagepub.com/content/31/5.toc
Beyond the ABC, climate change policy and theories of social change
http://www.envplan.com/abstract.cgi?id=a42282
Explaining daily showering: http://www.socresonline.org.uk/10/2/hand.html
Putting practice into policy: http://www.tandfonline.com/doi/abs/10.1080/21582041.2012.692484#.VPjaVy7K7Cs

**Books**

The dynamics of social practice: http://www.uk.sagepub.com/books.Book235021
Sustainable practices: social theory and climate change: http://www.routledge.com/books/details/9780415540650/

**Other stuff**

DEMAND: www.demand.ac.uk

The extraordinary lecture: how social science can help climate change policy makers:
http://www.lancaster.ac.uk/staff/shove/lecture/filmedlecture.htm
Transitions in practice: an exhibition of ideas: http://www.lancaster.ac.uk/staff/shove/lecture/lecture.htm

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