Energy *and* society: resources and practices

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What would you expect to talk about at a conference on Energy *and* Society?

The call for this conference says that **energy** transitions are strongly linked to wider **societal** change. Vast social changes are attributed to energy transitions. Energy transitions can be seen as outcomes of vast social changes.

Studying these processes depends on studying energy *and*

- **technological innovation** – how it is enabled and blocked
- **the geography, politics and economics** of provision
- **consumer habits/practices, lifestyles, social norms** – a recent concern
- **rights and needs**
- **the evolution of culture**, plus crisis and collapse

This agenda has a long history.

Energy and society: **technological innovation**

Input and output
- Joules
- Horsepower
- Food-muscle conversion

Energy: the ability to do work

http://commons.wikimedia.org/wiki/File:Peter_DeWint_-_Plough_Horses_-_Google_Art_Project.jpg?uselang=en-gb

Energy and society: **enabling and blocking technological innovation**

Technological innovation does not have a momentum of its own, it is a consequence of societal interests and processes, hence this conference asks:

> "questions about the ways that technological or infrastructural transition intersects with economic, cultural, social, and political routines"

"societies are enabling or blocking wider technological or infrastructural transformations. This includes problems of societal acceptance, participation and living cultures, as well as political structures and the nature of contemporary societies (e.g. capitalist, neo-liberal societies). "
Call for papers for this conference, 2014.

'A social system may foster the effective operation of its underlying technology or it may tend to restrain and thwart it.'
(White, 1943: 347).

Energy and society: geography, politics, economics

Cities and energy hinterlands
Transport
Social organisation
Economics of urban development

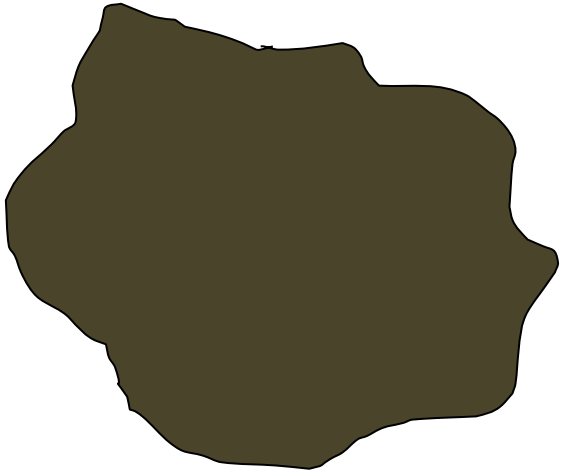
Supplying Paris with wood

http://www.gobarging.com/lockkeeper/lock-keeper-sep06.html

Energy and society: geography, politics and economics

Transitions from wood to coal

USA 1884 coal overtakes wood



Transitions from coal to oil and gas

USA 1946 oil/gas overtakes coal

Transitions to renewables….

http://commons.wikimedia.org/wiki/Coal#mediaviewer/File:Coal_anthracite.jpg

O'Connor, Energy Transitions, 2010.

Energy and society: habits, practices, lifestyles and social norms

From simply meeting need to new concerns:

Social norms
Attitudes, behaviours and choices
Waste and excess – leading to crises
Energy practices

THE ENERGY CONSUMER

Not only about fuel supply – also about demand

Energy and society: **rights and needs**

Have and have not
Social implications of access
The right to energy

Links to consumption, habits, lifestyles, behaviour and social norms

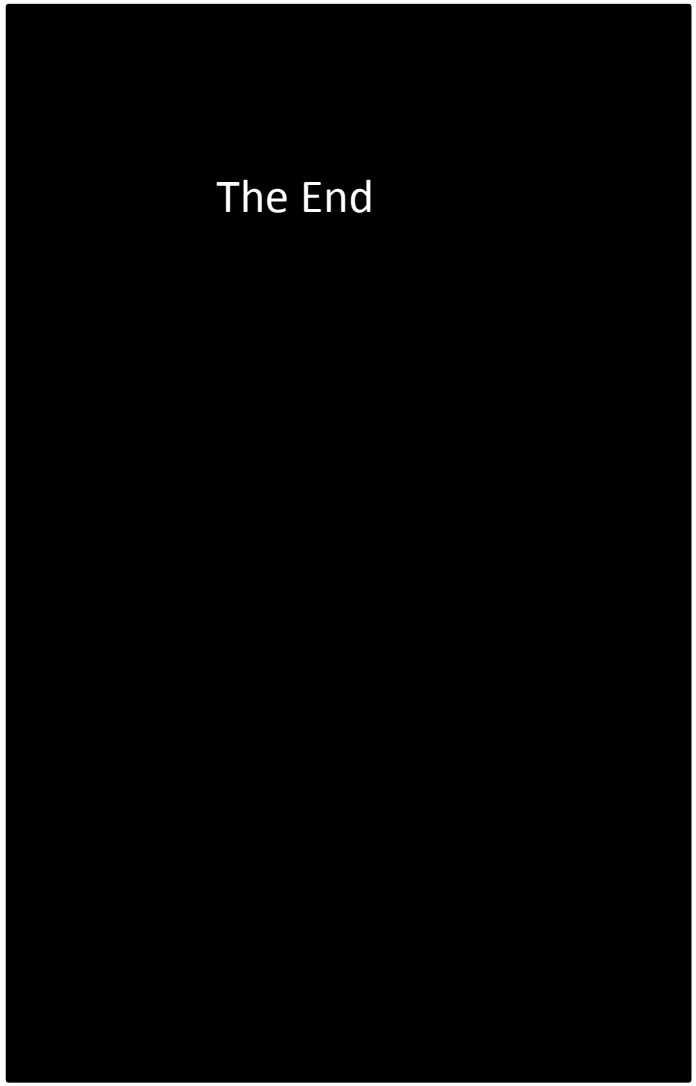
Energy and society: **cultural evolution**

And in contemporary society: the energy demands of growth

Leslie White, 1943, "Energy and the evolution of culture"

> culture develops when the amount of energy harnessed by man per capita per year is increased; or as the efficiency of the technological means of putting this energy to work is increased; or, as both factors are simultaneously increased.' (White, 1943: 338).

Energy and society: crises and collapse



twentieth century capitalism's

"pervasive, mobile and promiscuous commodification involved utterly unprecedented levels of energy production and consumption, a high carbon society whose dark legacy we are beginning to reap. This contradiction could result in a widespread reversal of many of the systems that constitute capitalism as it turns into its own gravedigger. "

(Urry, 2010: 208)

Current variations on these themes:

Energy and Innovation; technological acceptance, responsible innovation, public participation, energy efficiency

Energy and geography, politics/economics: not big transitions in fuel but new questions about the production and coexistence of solar, gas, shale gas, nuclear, coal, geothermal, renewables, wind, oil, hydro

Energy and politics/economics: financial markets, local governance: not so much about cities, regions and major systems. More about niches and communities.

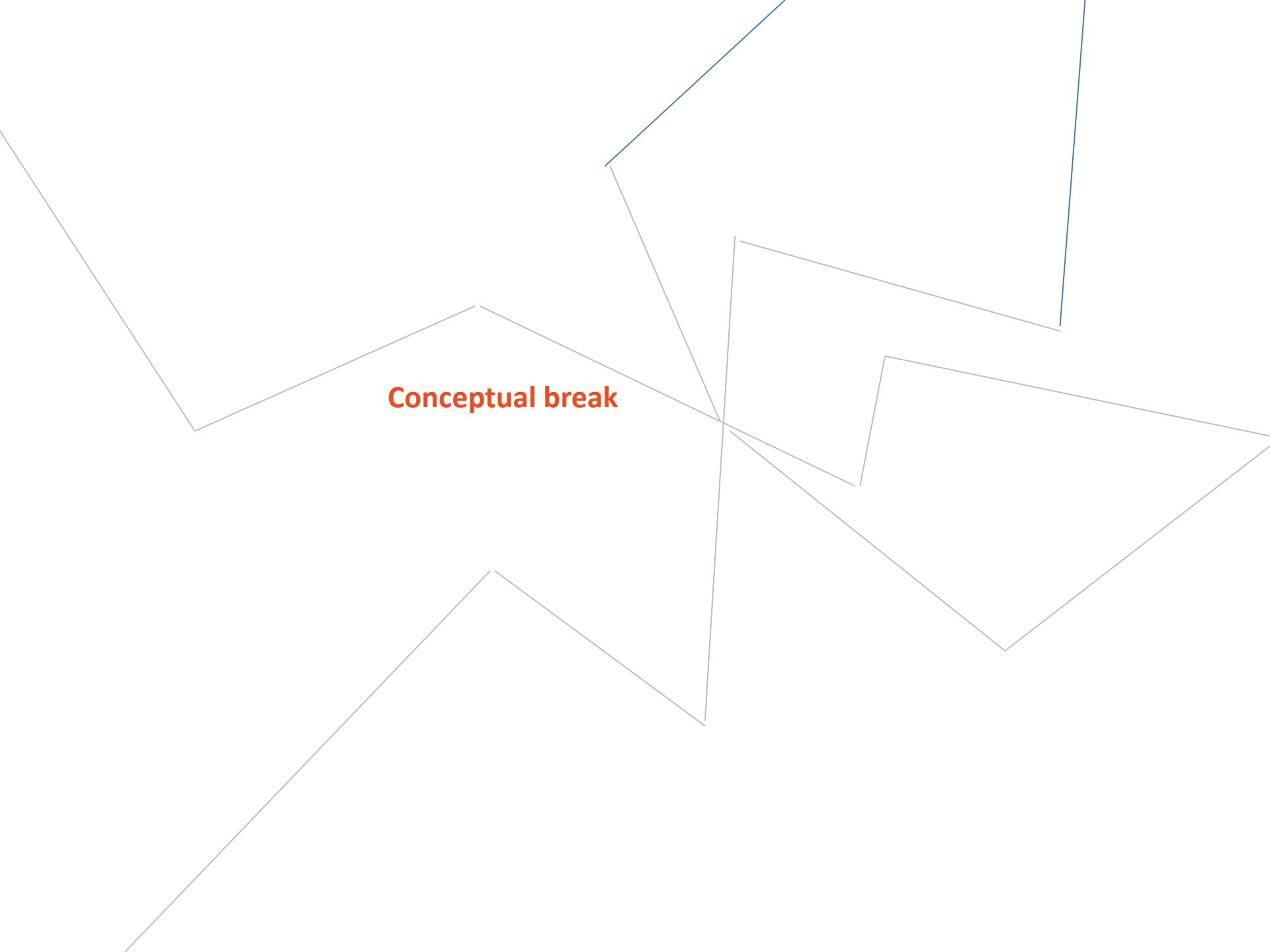
Energy and the consumer: less energy intensive routines, feedback on energy use, 'community' consumption, energy practices, values and beliefs

Energy and Need: energy poverty, the right to energy

Energy crises and the evolution of culture – surprisingly absent

Energy **and** **Society**

TECHNOLOGY
POLITICS and
ECONOMICS
LIFESTYLES
NEEDS
CRISES
CULTURE


Conceptual break

Energy ***is*** **Society**

DYNAMIC
CO-CONSTITUTION

through

SOCIAL PRACTICES

and

MATERIAL
ARRANGEMENTS

Points to a different agenda

1

"the **basic domain of study** of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of social totality, but social practices **ordered across space and time**" (Giddens, 1984: 2)

2

understanding trends and patterns in energy demand **and in provision and supply** is in essence a matter of understanding how social practices develop, change and intersect.

3

The range of social practices enacted in society is **inseparable** from the supply of and the demand for energy.

In this sense energy *is* society

Social practice is not another word for behaviour

Specific combinations of fuels and technologies co-constitute the practices of which society is made, and the material arrangements amidst which they transpire

Society is defined by the practices that occur, and by when and where they take place

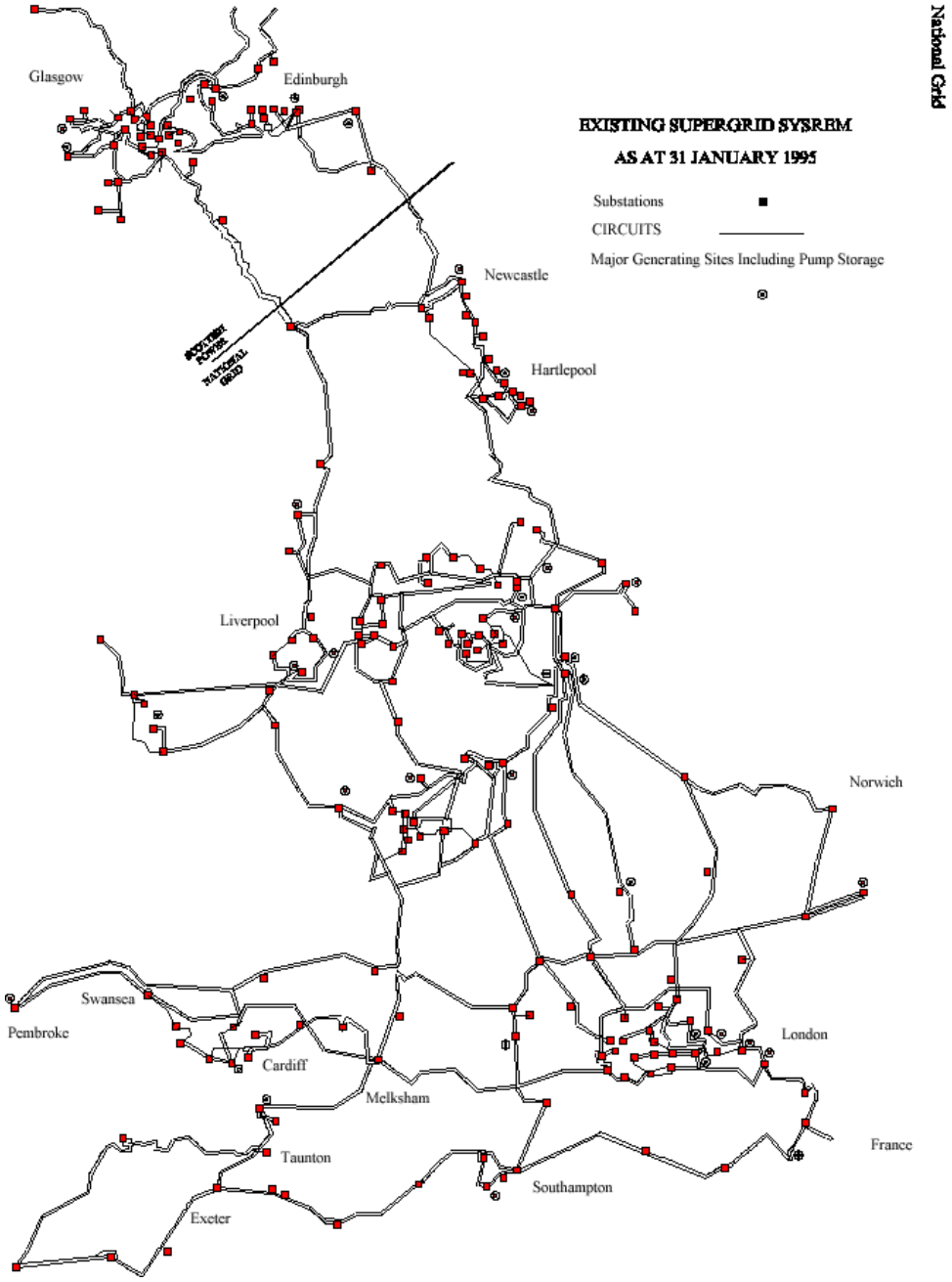
Energy is never used in the abstract

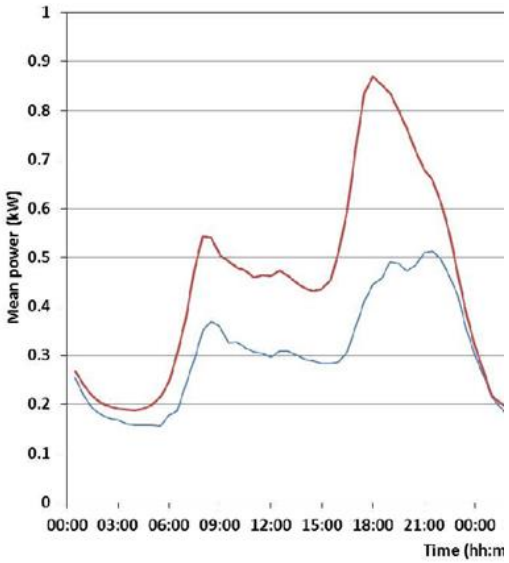
Consumption, including consumption of energy, occurs as part of accomplishing specific social practices

Hughes: Networks of Power – the need for electricity is made one practice at a time.

Energy in the singular makes no sense: there is no energy-practice

Energy is part of accomplishing many social practices each of which have a history and a dynamic of its own.

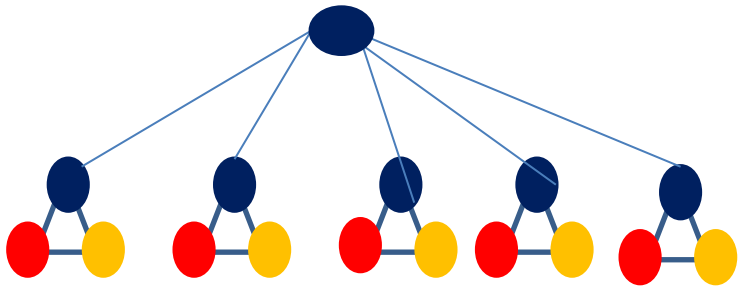




Load profile
Red = january 2013

Blue = september 2012

Infrastructures permit and are also part of the dynamics of many practices at once.



http://www0.cs.ucl.ac.uk/staff/W.Langdon/gif/grid_figure1.gif

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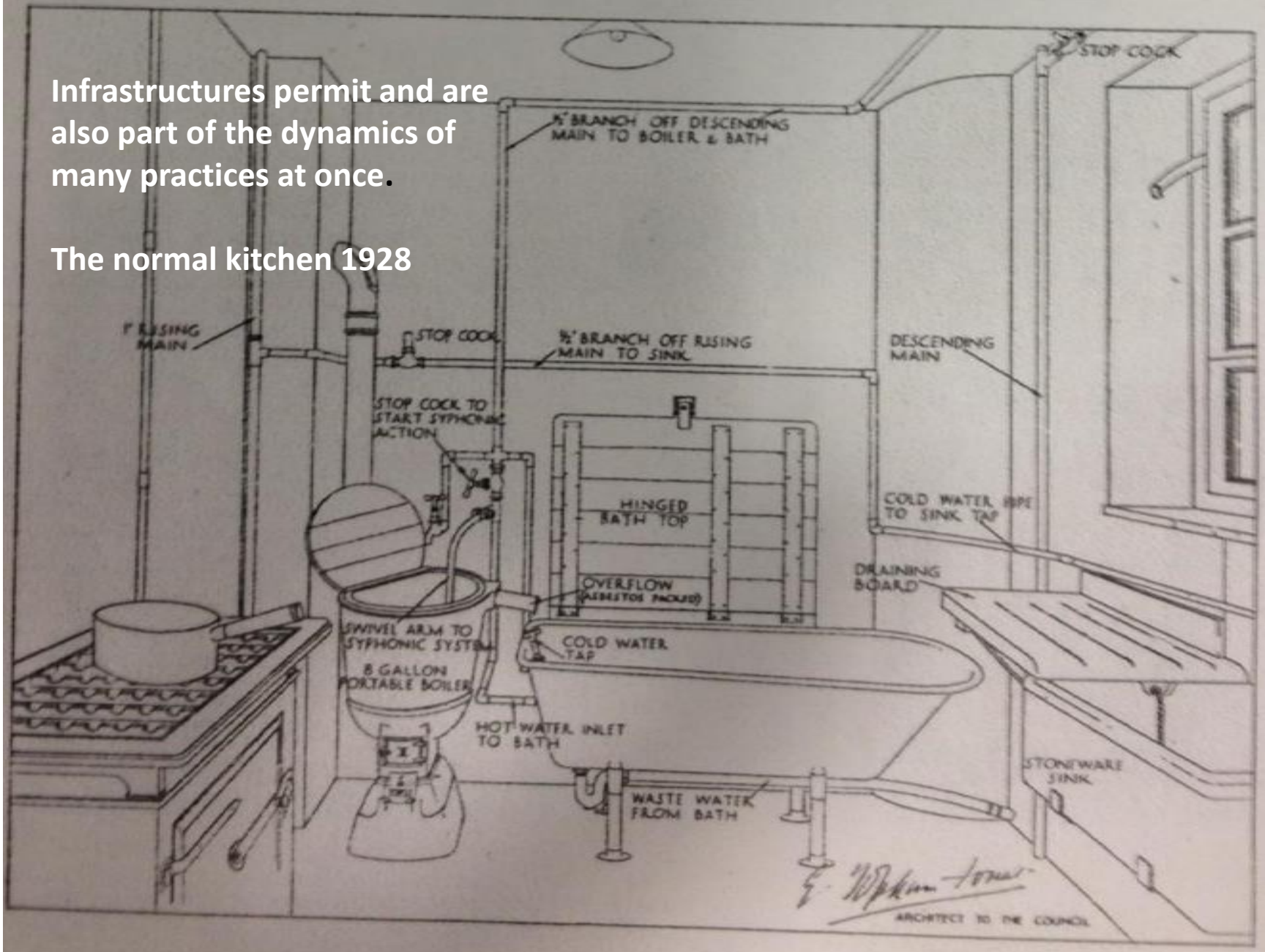
The normal kitchen 1928

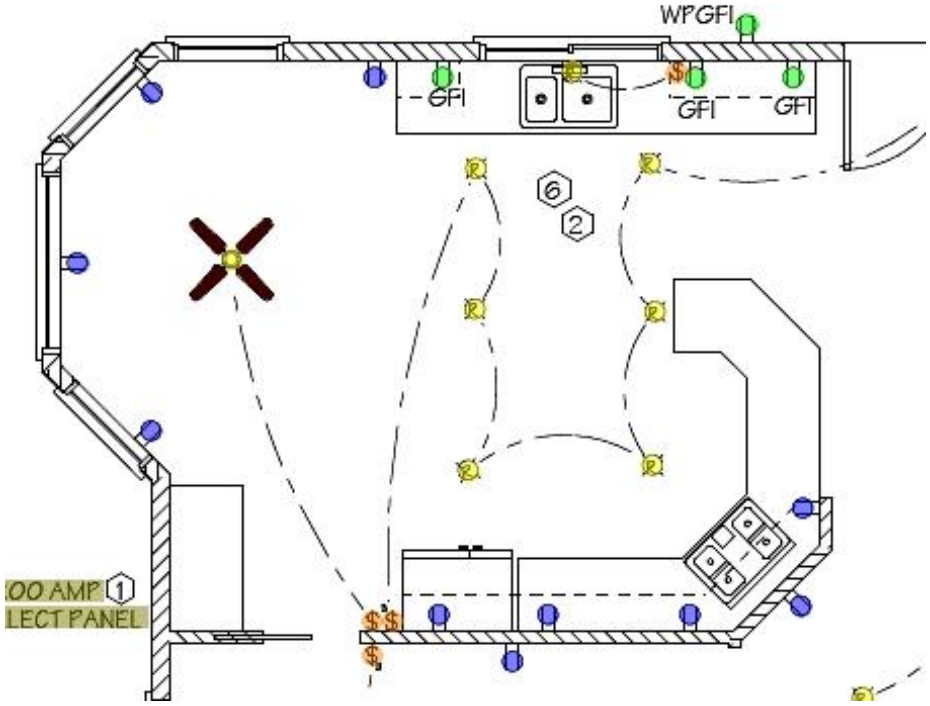


"NORMAL" TYPE OF DWELLING: KITCHEN FITTINGS.

Since 1928

New ways of eating, cooking, bathing, washing and washing up

New meanings of normal, and new patterns of energy consumption.



Contemporary social practices depend on contemporary systems of energy provision

David Nye (2010) *When the lights went out*

Office workers 1950s

Go home at dusk

By Seattle Municipal Archives (Flickr: City Light employees in office, 1954) [CC-BY-2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons

Office workers 2014

Go home immediately

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

MrChrome at en.wikipedia [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC-BY-3.0 (http://creativecommons.org/licenses/by/3.0)], from Wikimedia Commons

Transitions in practice

e.g. office work
e.g. cooking, bathing, eating, lighting, heating

Are not ‘driven’ by external ‘factors’: economy, politics, technology, energy - these are not external but are part of and inseparable from social practices.

Are emergent, arise from the co-constitution of elements, material arrangements and complexes of social practice - including processes of accumulation, obduracy and prefiguring.

Are ongoing: it is wrong to suppose that present ways of life will remain the same

Are different: there is no one dynamic process – different practices have different lives.

Can be shaped but not steered or brought about by act of will.

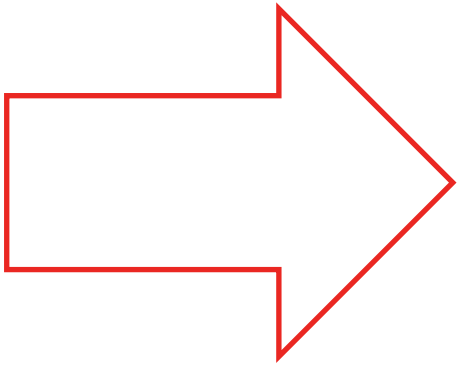
Transitions in practice are transitions in energy

Energy Transitions as Societal Transitions: Challenges for the Present and the Future

It makes no sense to talk of energy *and society*

methods of studying energy in the abstract, for example, by quantifying energy flows in joules or units of horsepower, …depend on splitting 'energy' out of the practices in and of which it is a part.

Questions about the relation between energy transitions and societal structures have the same effect



whether proposed energy transitions (in types of fuel, infrastructures, systems of provision) currently place enough emphasis on …

the implied transformations to societal structures, including habits, lifestyles, social structures and norms.

So what will we talk about for the next few days?

(re)-interpreting the conference programme

Energy Transitions as Societal Transitions: Challenges for the Present and the Future

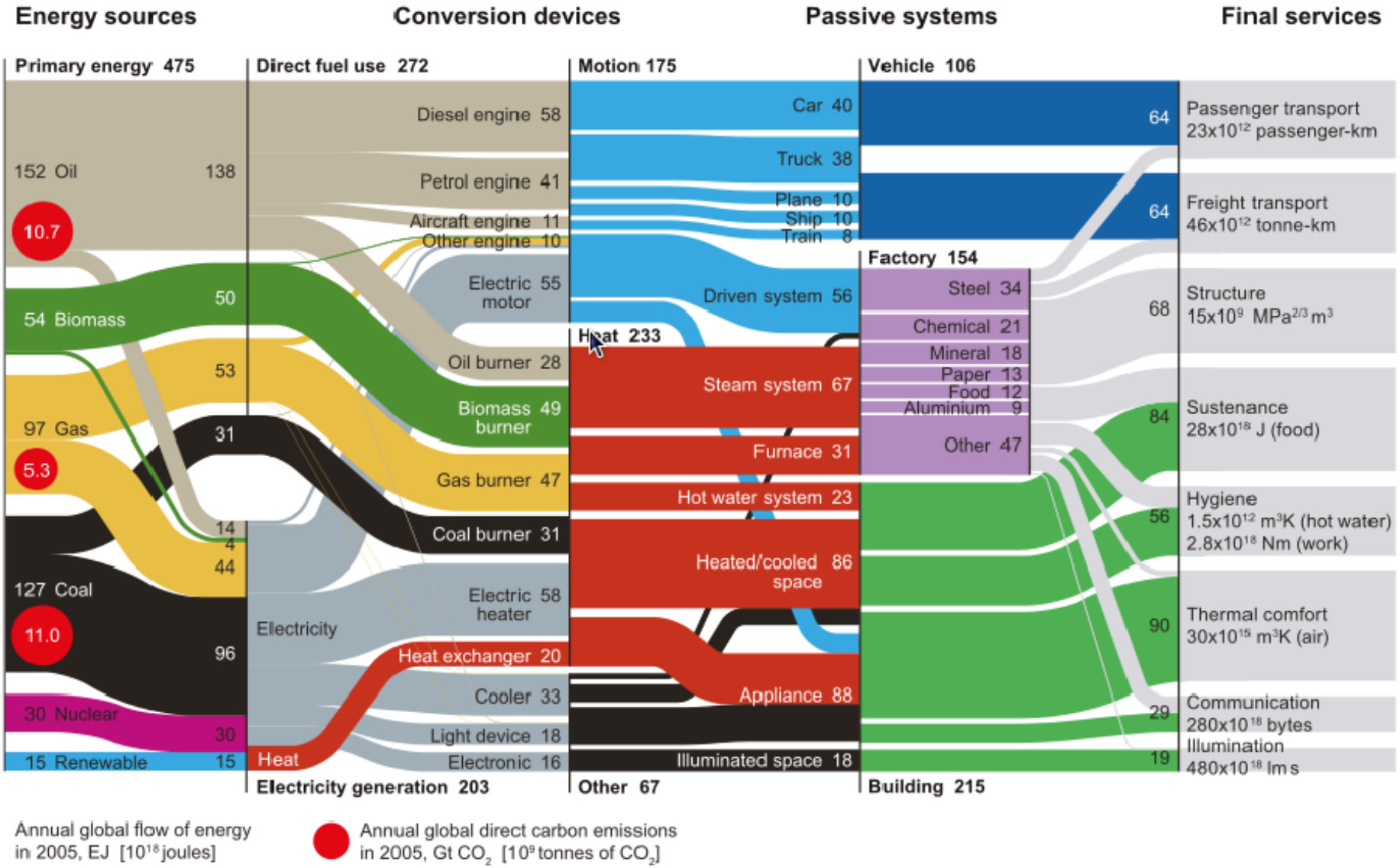
Understanding transitions: Energy *and* society
or
Understanding transitions: Energy *is* society

The latter depends on understanding the range of practices, material arrangements and social orders in which energy is immersed, and on showing how material arrangements and energy flows co-constitute societies and the social practices of which they are made.

If energy is the ability to do work, what is the 'work' that is done in society?

What is energy for?

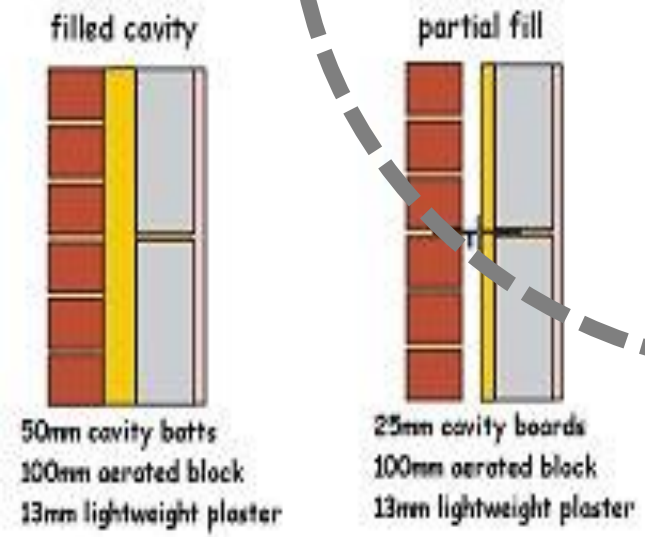
Energy and society: energy transitions

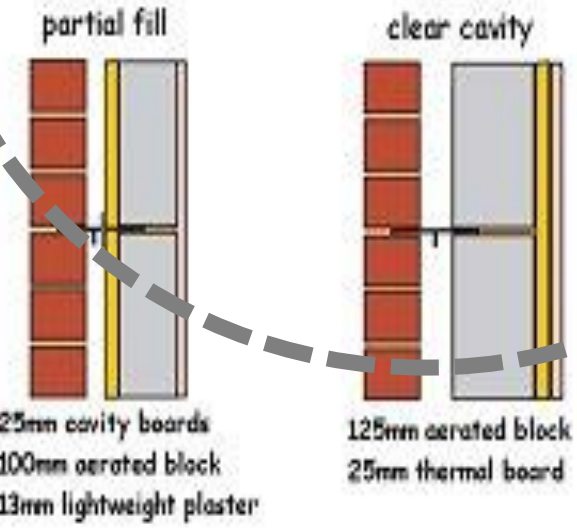


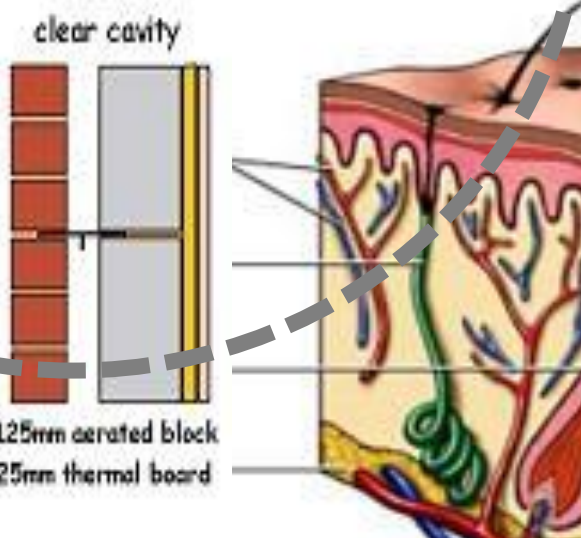
http://www.democraticunderground.com/10024854230

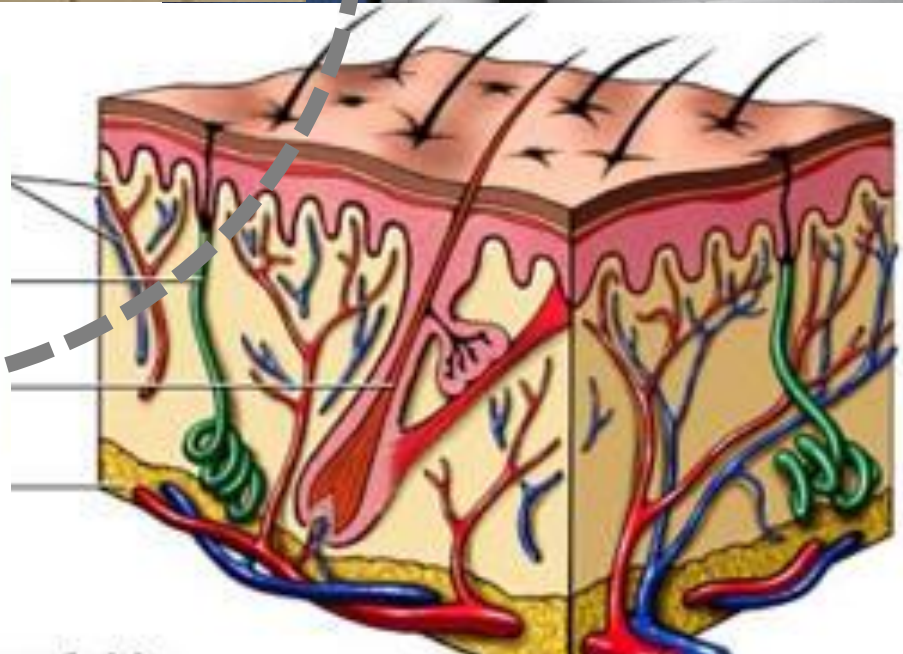
USA 2005

Energy as society: transitions in practice









What would you expect to talk about at a conference where Energy *is* Society?

- **technological innovation –** but not just energy
- **the geography, politics and economics** of provision (not just energy) as outcomes not explanations of practices distributed across space and time
- **Social practices** – and how they change
- **rights and needs** - but not for energy
- **the evolution of culture**, plus crisis and collapse

+

- How social practices emerge, persist and disappear
- Issues of timing and coordination; issues of circulation
- Businesses and industry – assumptions about the future
- Non-energy policy – across all areas
- How infrastructures, material arrangements and social practices constitute each other

Which conference are we at? - we have to wait and see!

DeMand
DYNAMICS OF ENERGY, MOBILITY AND DEMAND

Is based on 3 linked propositions

1 Energy is used in the course of accomplishing social practices.

2 Social practices and energy demand are shaped by infrastructures and institutions.

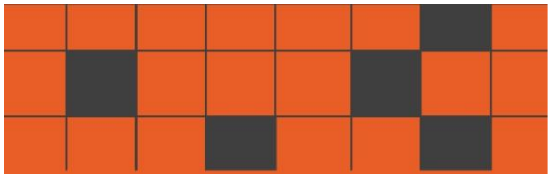
3 These systems reproduce interpretations of need and entitlement, and of normal and acceptable ways of life.

These underpin 5 research themes.

1 How and why do end use practices vary

2 How and why do end use practices change over time

3 How do infrastructures of supply and demand shape end use practices



4 What are the implications for normality, need and entitlement

5 How is energy demand, constituted, transformed and steered?

An agenda which does not split energy from society

www.demand.ac.uk

Energy and society: **cultural evolution**

And in contemporary society: the energy demands of growth

Leslie White, 1943, "Energy and the evolution of culture"

> culture develops when the amount of energy harnessed by man per capita per year is increased; or as the efficiency of the technological means of putting this energy to work is increased; or, as both factors are simultaneously increased.' (White, 1943: 338).

Interpretations of energy demand vary quite a bit

A consequence of technical efficiency and conversion (measured in Joules)

A more or less predictable 'need' which the grid/road/rail infrastructures have to meet

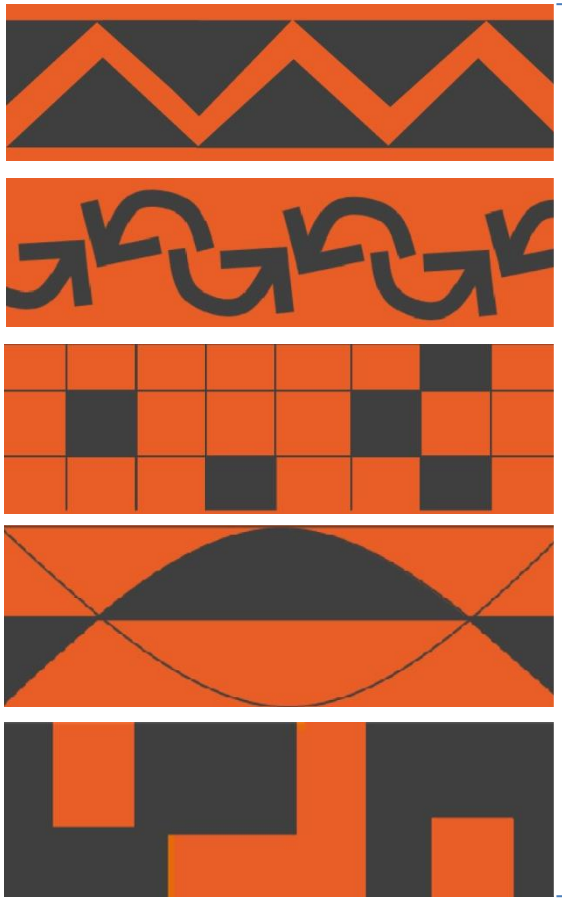
A consequence of population, income and some level of technological development/efficiency.

A 'resource' that energy/mobility providers can manipulate and mobilise , e.g. in managing load profiles through demand response or demand reduction – negawatts and negumption

An outcome of the social, infrastructural and institutional ordering of what people do.

Academic and non-academic contributions

1. How and why do end use practices vary
2. How and why do end use practices change over time
3. How do infrastructures of supply and demand shape end use practices
4. What are the implications for normality, need and entitlement
5. How is energy demand, constituted, transformed and steered?



Research within these themes allows us 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?

DeMand
DYNAMICS OF ENERGY, MOBILITY AND DEMAND

Projects

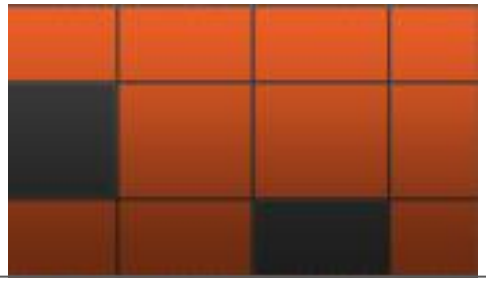
Trends and patterns in energy demand

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

How end use practices change

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

Managing infrastructures of supply and demand



- Adapting infrastructure for a lower carbon society
- Negotiating needs and expectations in commercial buildings
- Infrastructures for online shopping
- Monitoring and controlling energy demand

Normality, need and entitlement

- Energy and Justice
- Beyond elasticities: affording mobility
- Implicit energy governance

Integration and application

- Constituting demand
- Dynamics of demand
- Steering demand