Cambridge Judge Business School

IN SEARCH OF 'GOOD' ENERGY POLICY:

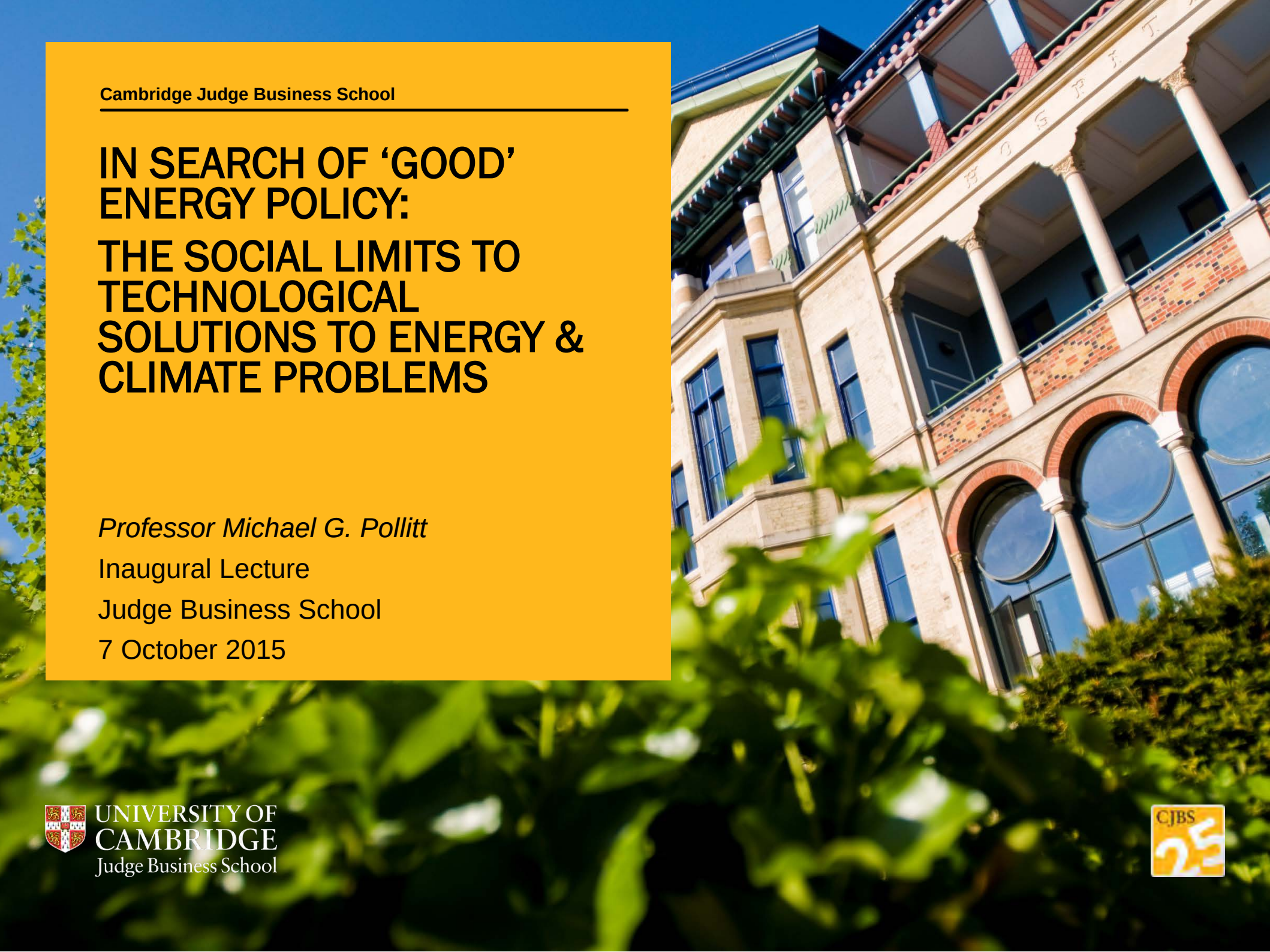
THE SOCIAL LIMITS TO TECHNOLOGICAL SOLUTIONS TO ENERGY & CLIMATE PROBLEMS

Professor Michael G. Pollitt

Inaugural Lecture

Judge Business School

7 October 2015



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Introduction

Welcome and thank yous:

- My close mentors
- My collaborators and the EPRG
- The Judge Business School and my colleagues
- The University and Sidney Sussex College
- Family and friends
- My spiritual inspiration

A parable on the importance of Energy Security

At that time the kingdom of heaven will be like ten virgins who took their lamps and went out to meet the bridegroom. Five of them were foolish and five were wise. The foolish ones took their lamps but did not take any oil with them. The wise ones, however, took oil in jars along with their lamps. The bridegroom was a long time in coming, and they all became drowsy and fell asleep.“At midnight the cry rang out: ‘Here’s the bridegroom! Come out to meet him!’ “Then all the virgins woke up and trimmed their lamps. The foolish ones said to the wise, ‘Give us some of your oil; our lamps are going out.’ “‘No,’ they replied, ‘there may not be enough for both us and you. Instead, go to those who sell oil and buy some for yourselves.’ “But while they were on their way to buy the oil, the bridegroom arrived. The virgins who were ready went in with him to the wedding banquet. And the door was shut.“ Later the others also came. ‘Lord, Lord,’ they said, ‘open the door for us!’ “But he replied, ‘Truly I tell you, I don’t know you.’ “Therefore keep watch, because you do not know the day or the hour.

Matthew 25: 1-13, The Bible (New International Version).

Plan

- Introduction to the ‘In Search of ‘Good’ Energy Policy’ initiative
- Technology, Technologists and Energy
- Themes for ‘Good’ Energy Policy
- An Interdisciplinary approach
- What we aim to do

Energy @Cambridge

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In Search of ‘Good’ Energy Policy partners

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UNIVERSITY OF CAMBRIDGE | Energy Policy Research Group

CRASSH

UNIVERSITY OF CAMBRIDGE
Cambridge Centre for Climate Change Mitigation Research

CSaP
Centre for Science and Policy

The Faraday Institute for Science and Religion

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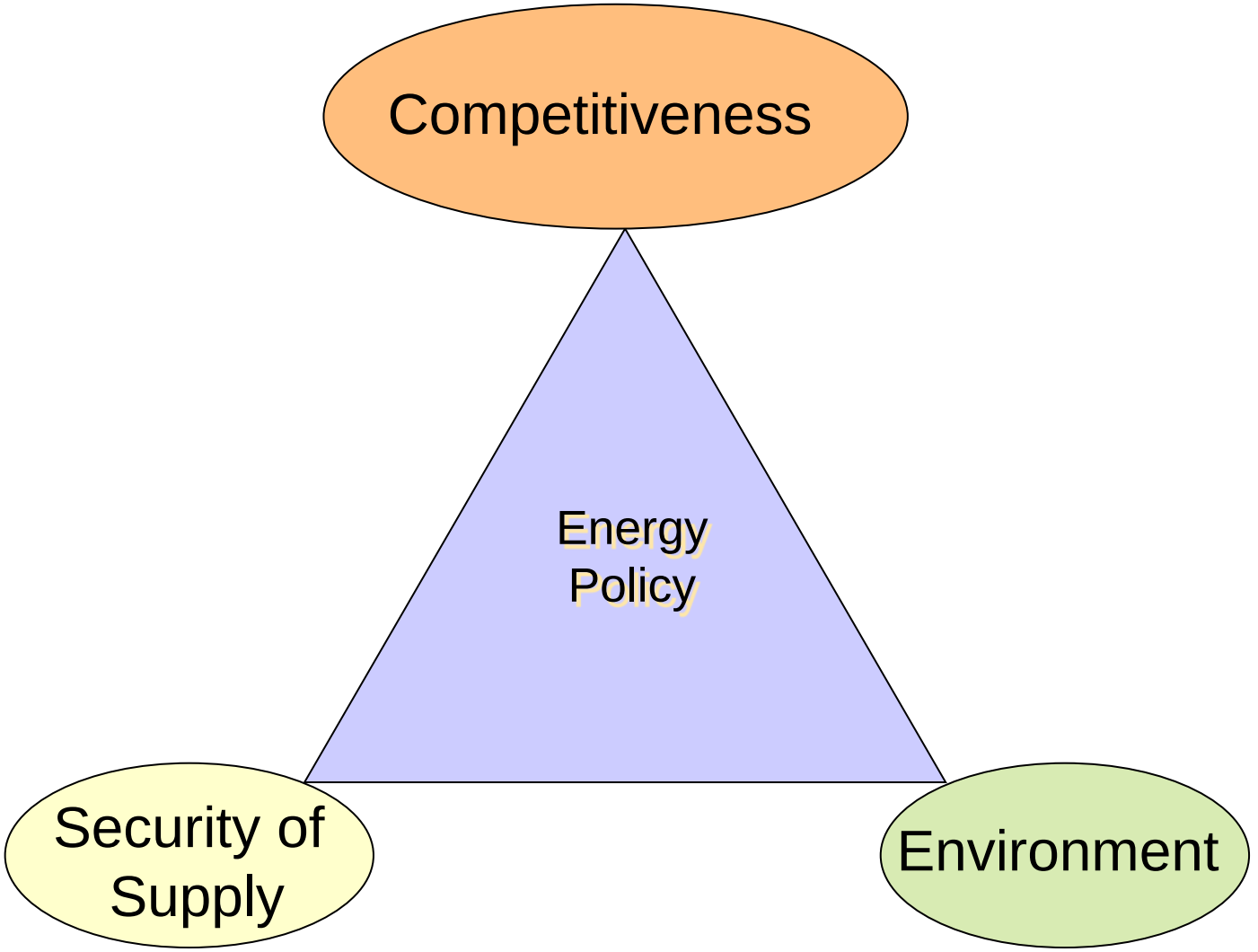
The Kirby Laing Institute For Christian Ethics

Background

- Energy@Cambridge is a UoC strategic initiative (1 of 12) involving >250 academics and £230m of funding.
- This project is now an Energy@Cambridge ‘Grand Challenge’ seeking funding for substantial research and stakeholder engagement activity.
- Completed 16 initial internal interviews with 22 participants, initial discussions with DECC, Shell and Ofgem.
- HEIF funding for initial activity over next 18 months. Looking for more!
- CRASSH seminar series this year.

The Energy Policy ‘Trilemma’



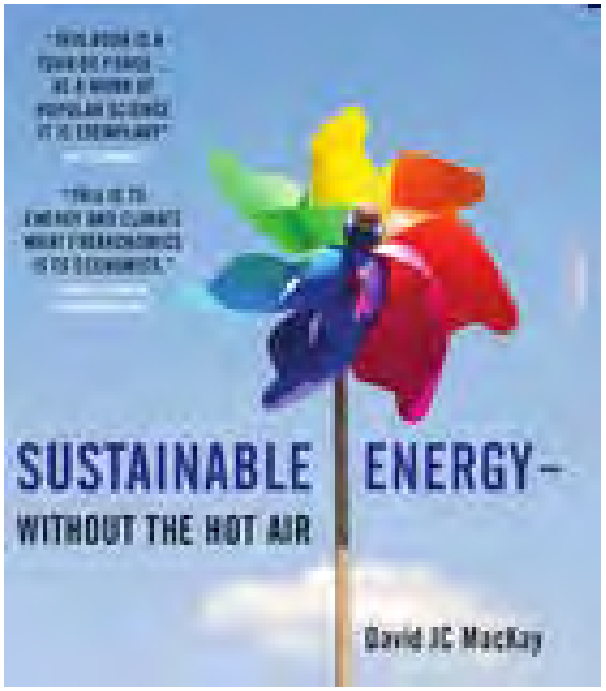
In Search of ‘Good’ Energy Policy

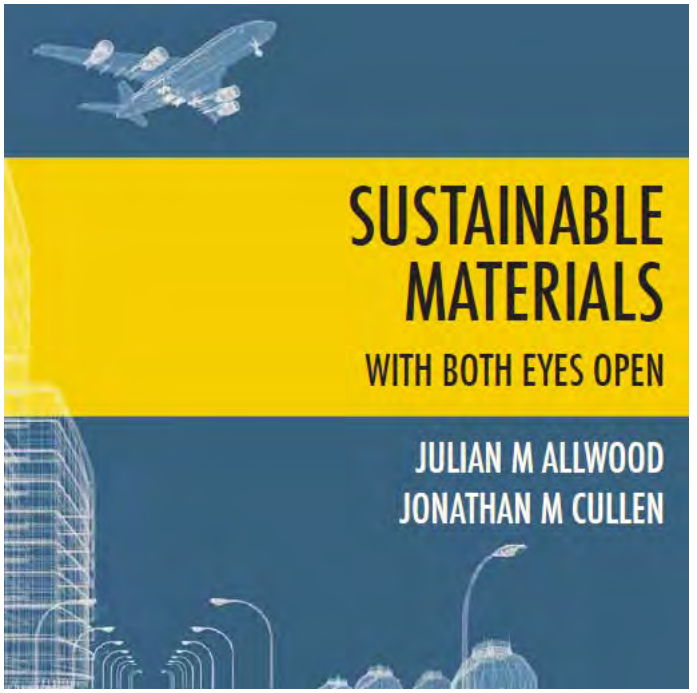
- Affordable, clean, efficient and secure provision of electricity, heating and transport fuel difficult to reconcile.
- Many developing countries have clearly disastrous policies with expensive, dirty, inefficient and insecure energy.
- Many developed countries just have ‘mess’ of policies (f.Rhodes, 1988).
- Difficult to move from current reality to the clearly better, especially given trade-offs with non-energy policies.

What do we mean by ‘policy’?

- ‘Policy’ definition (from Dictionary.com)
- *‘a definite course of action adopted for the sake of expediency, facility etc.’*
- *‘a course of action adopted by a government, ruler, political party etc…’*
- From the middle English *policie* meaning government or civil administration.
- *Examples of (national) energy policies:*
- UK Clean Air Act 1956
- French nuclear power expansion 1975-99
- European Emissions Trading Scheme
- Subsidies to renewable energy
- Taxes on diesel fuel

The ‘right’ technology can ‘save’ us





What technologists often forget…

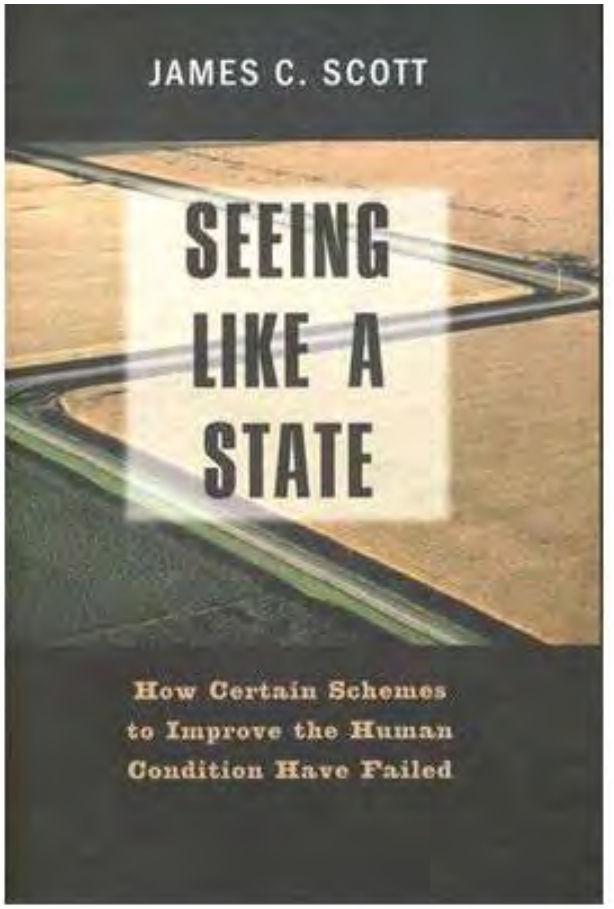
1. Opportunity costs of energy in terms of education, healthcare…

2. Initial distributions of wealth, income, tax revenues, jobs etc. matter…

3. Not everyone is as keen to engage with energy technology as they are…

4. The history of optimism bias and hubris in delivery…

5. Policy development is a process, which has been extensively studied by other disciplines, and they are one lobby group within that process! (As are economists!)



…not just about technology…

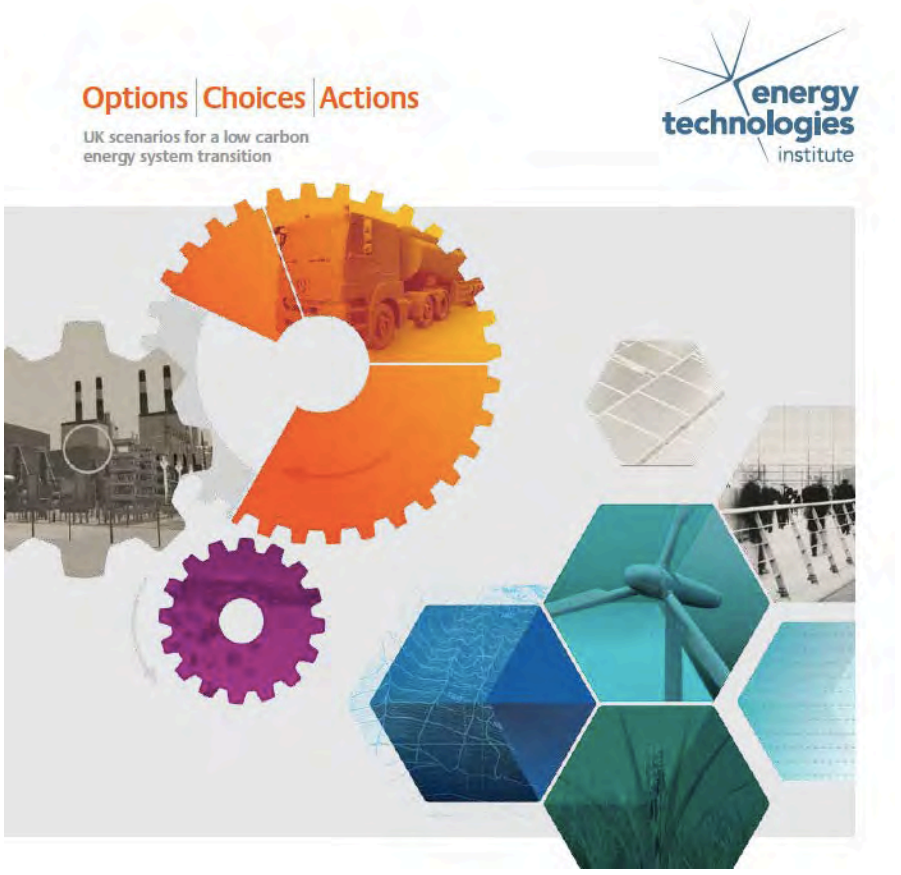
Scientists and Engineers can do anything!

[Cost of Apollo Programme from 1961-72 = $170bn (2005), to put 12 men on the moon]

Policy makers cannot!
Excess Defence expenditure in UK,
c.1% of GDP p.a.

The technology plan to 2050 in the UK

- Decarbonise Power (completely by 2035)
- Decarbonise Heat (completely by 2050)
- Decarbonise Transport (by 50% by 2050)



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Starting point: What is ‘good’ and ‘just’?

‘The Good Life’ for us

Oil spill in Niger Delta

Starting point:
Vested Interests (or legacy investments)

Anti-Fracking protests:

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Starting Point: Failure of Prediction

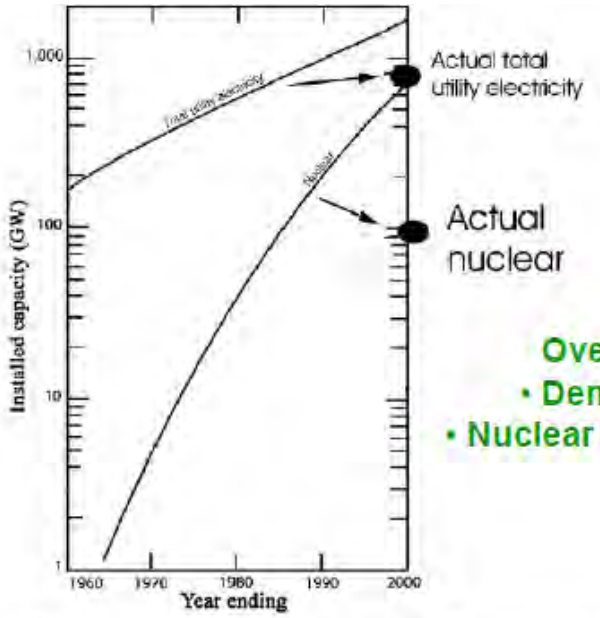
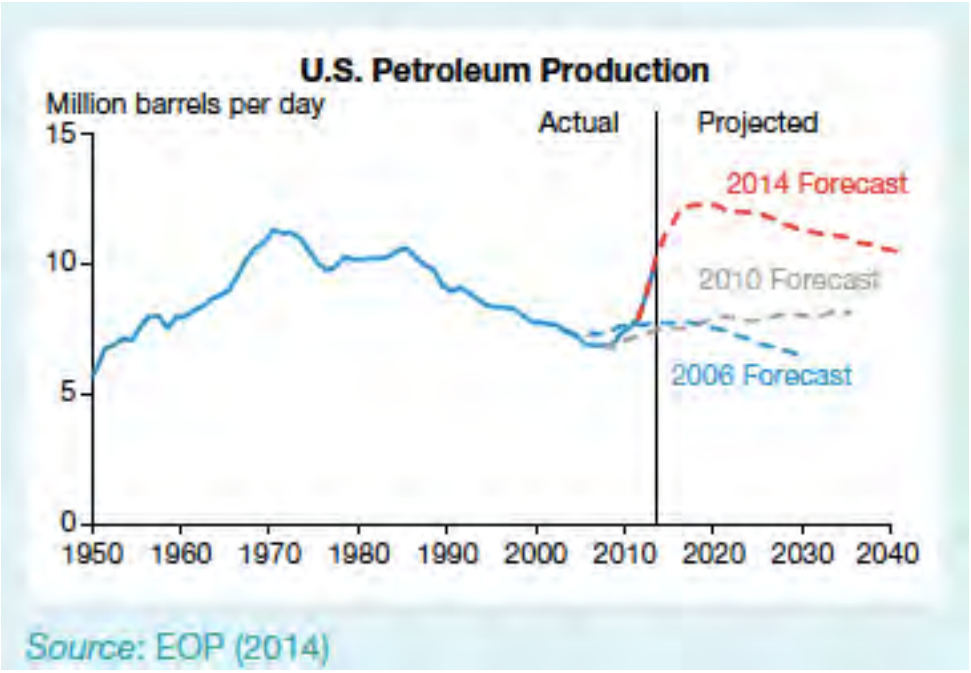


Figure 3 An Atomic Energy Commission forecast from 1962, designed to show demand for nuclear power plants. The curve of interest here shows electricity demand. The authors judgmentally assumed a growing nuclear market share. Actual electricity and nuclear electricity in 2000 is indicated (10).

Overestimation:
- **Demand by 150%**
- **Nuclear capacity by 800%**



Source: P.P. Craig, A. Gadgil, and J.G. Koomey, "What Can History Teach Us? A Retrospective Examination of Long-Term Energy Forecasts for the United States," *Annual Review of Energy and the Environment, 27: 83-118, p.90.*

Floating nuclear power plant

Source: International Risk Governance Council (2015), *CONCEPT NOTE ASSESSMENT OF FUTURE ENERGY DEMAND A methodological review providing guidance to developers and users of energy models and scenarios*, Lausanne: IRGC, p.15.

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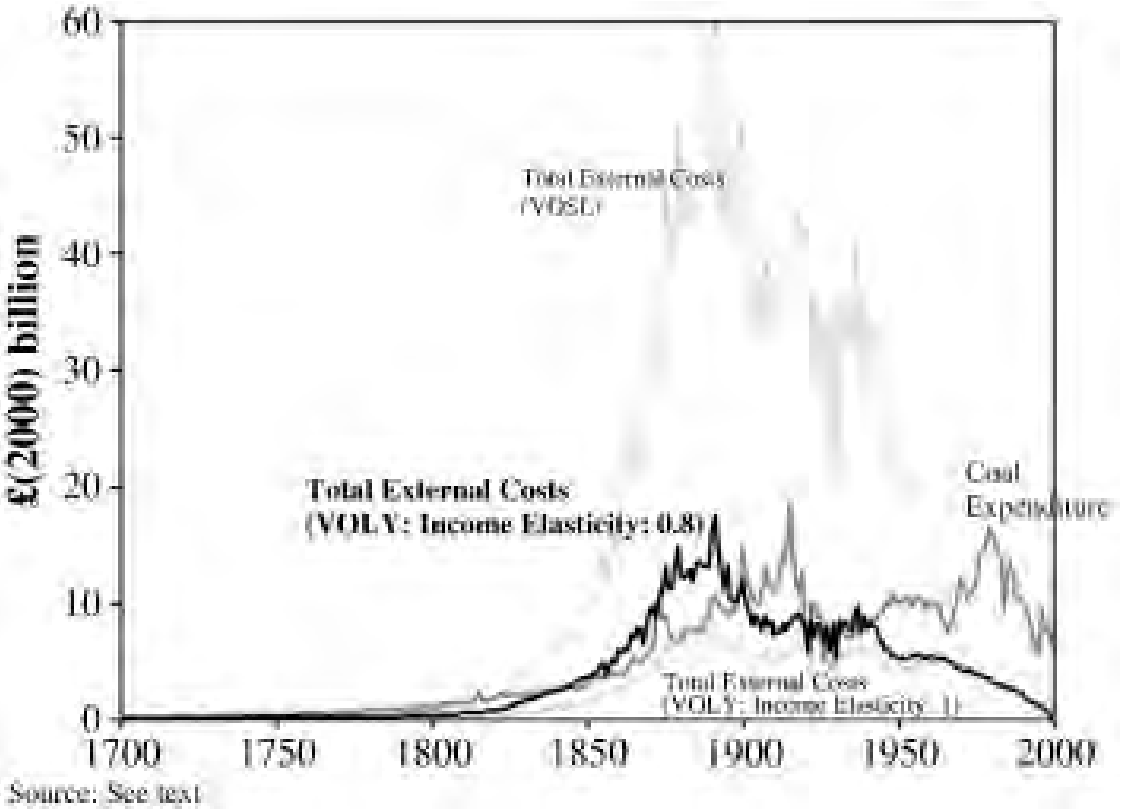
Starting point: Persistence of ‘bad’ and difficulty of ‘good’ policies



Peak (VOLY): 17.3% of GDP in 1891; VOLY = Value of Life Year; VOSL = Value of Statistical Life

Source: Fouquet, 2011, *Ecological Economics*, p.2385. http://dx.doi.org/10.1016/j.ecolecon.2011.07.020

Starting Point: Democracy *is* messy

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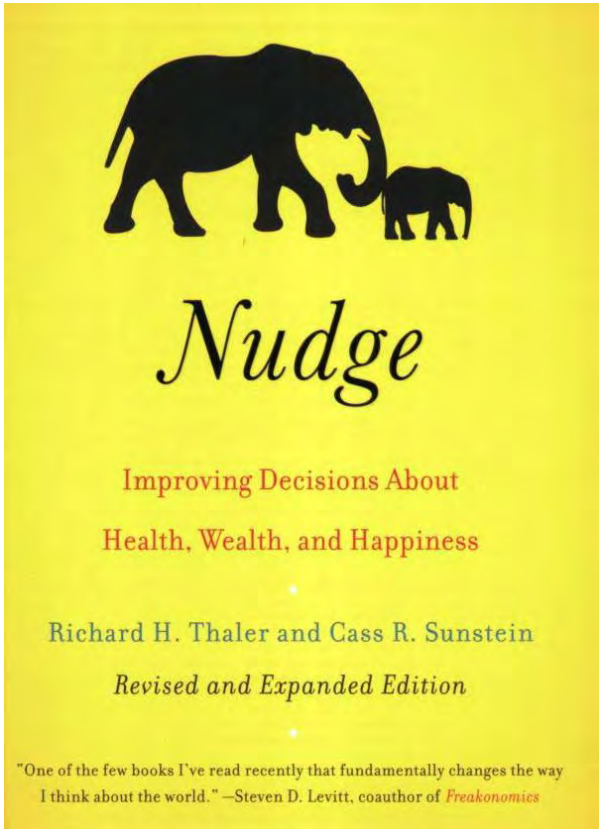
Research theme: Perception

Theory of planned behaviour, nudge and mindset change



Perception of the problem and object

Research theme: Quantification and the use of scientific argument…

- Demand for quantitative evidence and prediction
- Allocation of burden of proof to whom?
- Role of scientists and ‘scientific’ argument
- Why can’t public just be more sensible / better educated about science?

Sir David King: "*Climate change is not….the biggest challenge of our time, it's the biggest challenge of all time*”
29 April 2014

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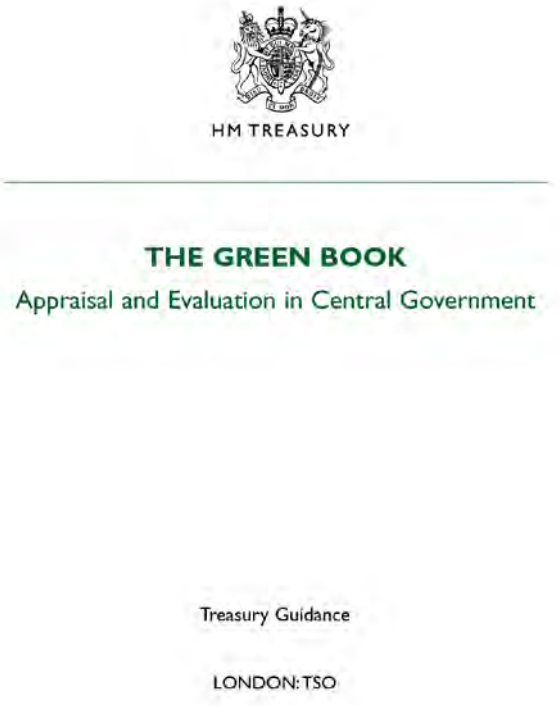
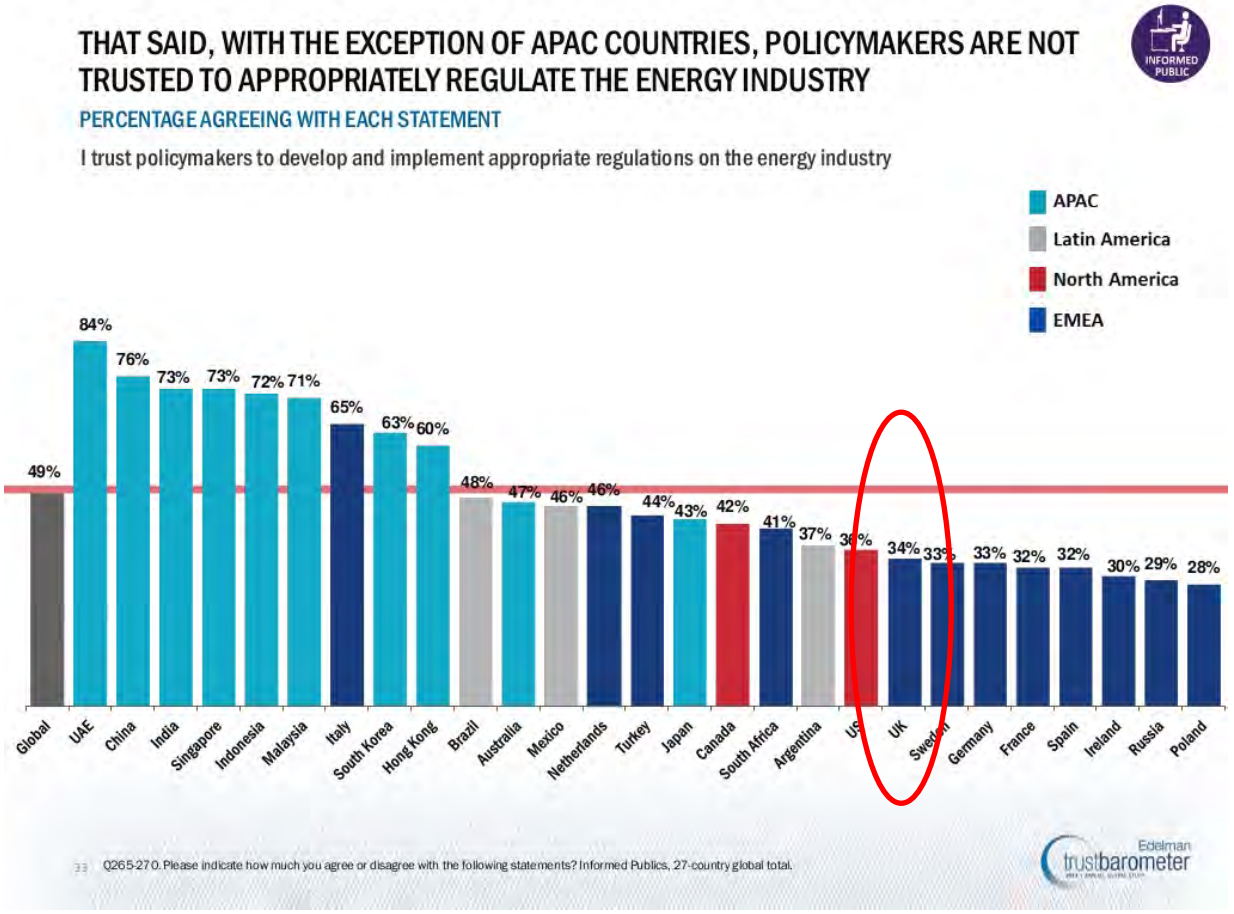
Research theme: Well-being

- Quality of life and energy
- Rational choice, risk and fairness and the future of energy policy

- The Green Book – is there a quantitative basis for assessing well being?



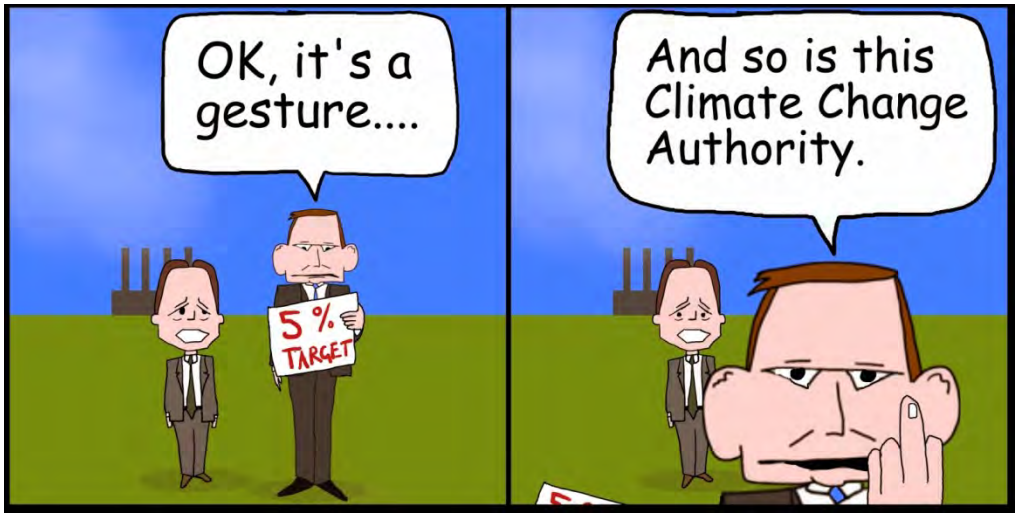
Research theme: Public Trust in Policy

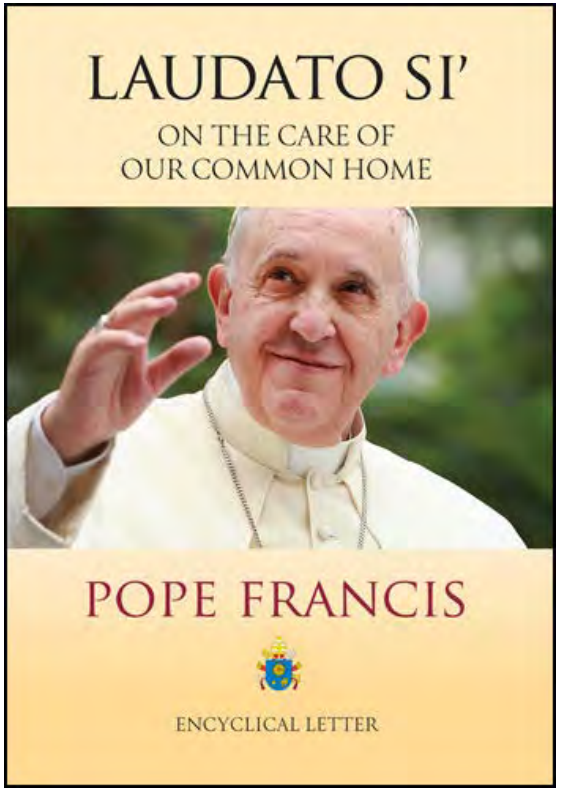


Source: Slide 33, http://www.slideshare.net/fullscreen/EdelmanInsights/2014-edelman-trust-barometer-global-energy-findings/1

Research theme: The Role of the State

- Personal responsibility vs centralised policy
- Stewardship and public theology and role of beliefs and culture
- Appropriate level of governance and process in a liberal democracy
- Necessary policy incoherence and a restrained role?





Research theme:
Competence and hubris in delivery

- Long term commitment to building / exploiting competence is important
- Competence in delivery required for success
- Desire to work on big, exciting projects and over-promise

Flamanville 3 - France

Okiluoto 3 - Finland

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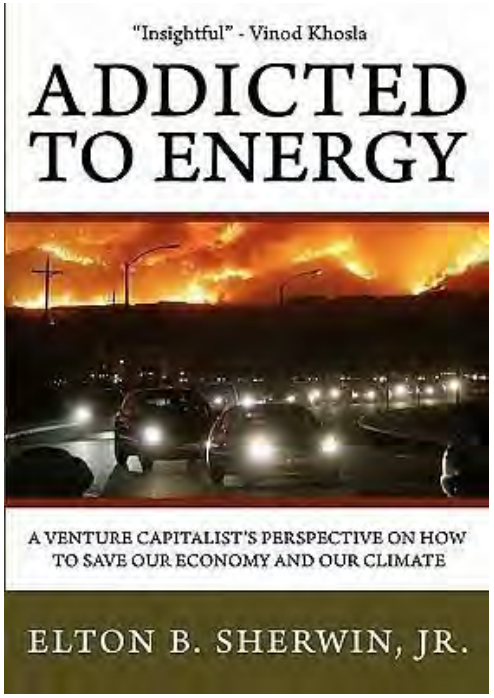
Research theme: Parallels to healthcare

- Parallel between energy and sugar/fat consumption
- Similarly messy policy area
- Good policies can be found, e.g. right to second opinion in Germany



Introductions to our Grand Challenge

Conveners:

Prof Michael Pollitt – Initiative leader, JBS

Dr Isabelle de Wouters – Director of Scientific Dev., Energy@Cambridge

Dr Robert Doubleday – Executive Director, Centre for Science and Policy (CSaP)

Marc Ozawa – Initiative coordinator, Energy@Cambridge

Some key Participants:

Dr Paul Warde - History

Dr Jonathan Chaplin – KLICE (Divinity)

Dr David Reiner – JBS (Political Science)

Dr Richard Fraser – Social Anthropology, MIASU

Prof Jorge Vinuales – Land Economy (Law)

Prof Tim Lewens – HPS, CRASSH

Dr Chi Kong Chyong – JBS (Economics)

Prof David Newbery - Economics

Groups involved in the Grand Challenge

26 named individuals

13 faculties:

Business

Economics

Politics (POLIS)

Land Economy

Law

History

Social Anthropology

Philosophy (HPS)

Divinity

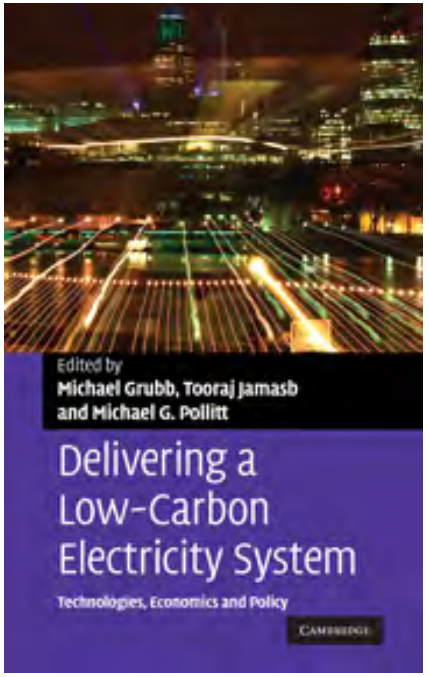
Psychology

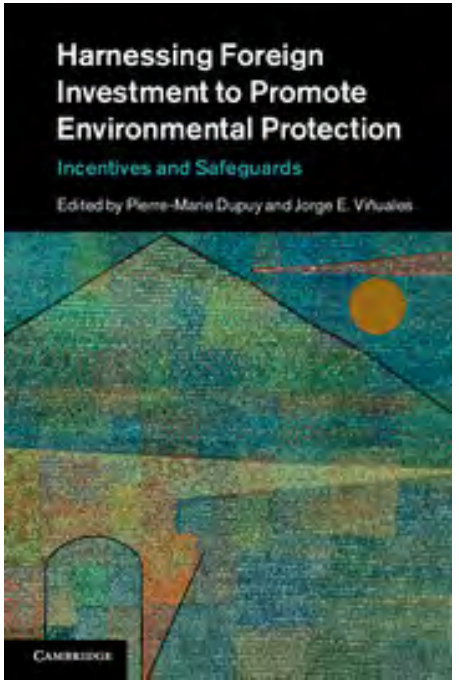
Earth Sciences

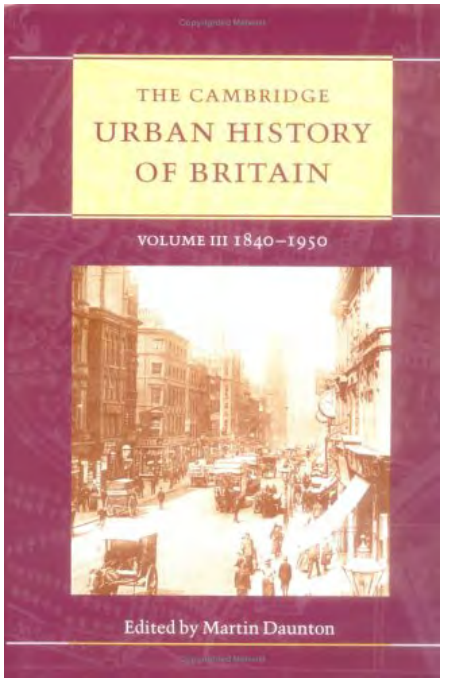
Computer Laboratory

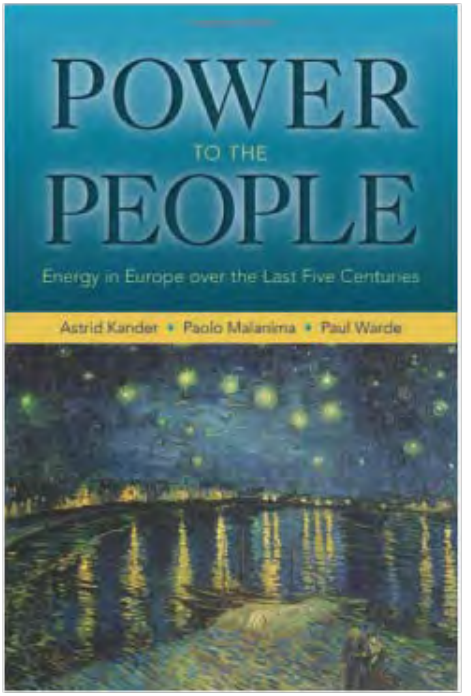
Engineering

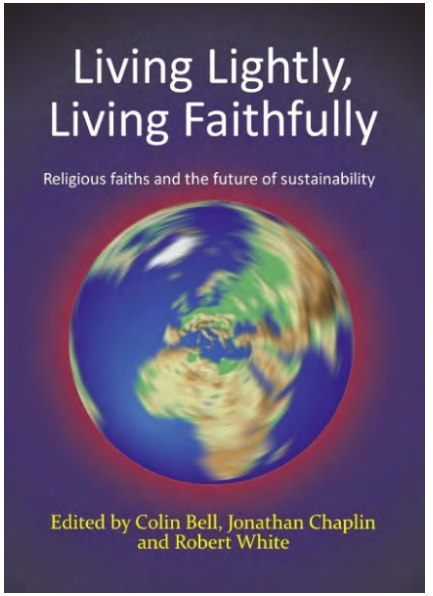
Some starting points…

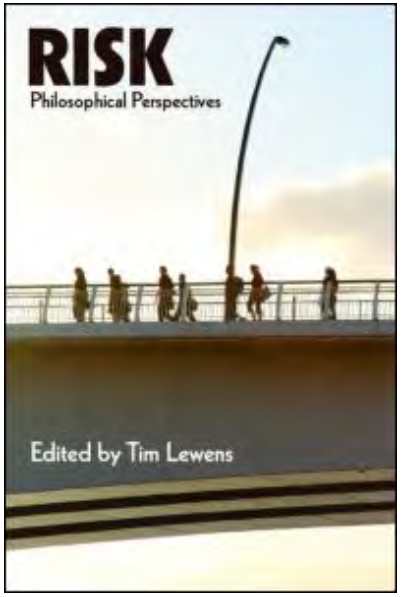












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Policy application: Smart Meter roll out…

Themes:

Perception*

Quantification*

Well-being*

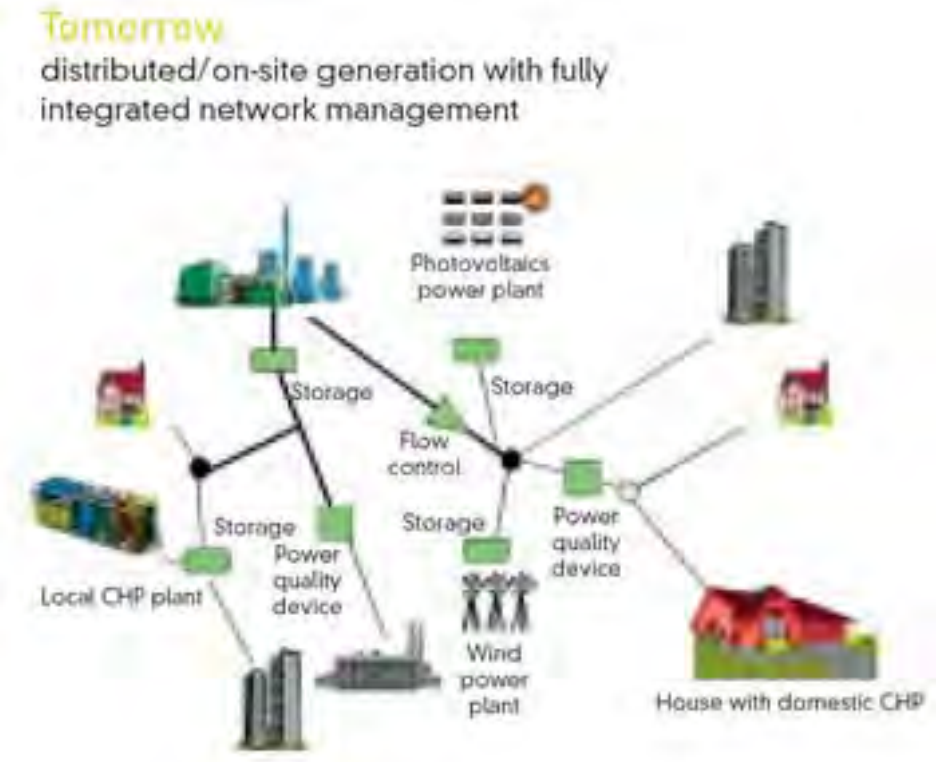
Public Trust*

Role of the State*

Competence

Parallels with Healthcare

Policy application:
Support for Distributed Generation



Themes:

Perception

Quantification

Well-being

Public Trust

Role of the State

Competence*

Parallels with Healthcare*

Policy application:
Tax policy towards diesel

Themes:

Perception

Quantification*

Well-being

Public Trust

Role of the State

Competence

Parallels with Healthcare*

Concluding thoughts on good policy

Examples of good policy:

- Successive raising of pension age
- Improvement in primary school performance
- Drink driving campaign and Smoking bans
- Inheritance taxes in C19th
- Etc…

- *Common characteristics of good policy:*
  - Good use of quantitative evidence
  - High engagement and positive public support
  - Fairness and distributional issues addressed
  - Etc…

How we plan to operate…

1. Research on process of policy and how good and bad decisions get made based on case studies, including a book based on the first year of cases.

2. A series of reports on ‘In Search of Good …… Policy’, e.g. power, heating, Brazilian energy etc..

3. Dissemination of research on methodological (what impacts to include), theoretical (how to make trade-offs), empirical (how much), institutional (how to deliver) aspects.

4. Stakeholder engagement in different forms engaging with industry, policy community, government and public. For example theologians keen to engage on the ‘Common Good’; an art exhibition of energy objects to illustrate social anthropology

5. How to promote technological developments and new business models in energy consistent with ‘good’ policy.

CRASSH Seminar Series

Academic year 2015-16

Seminars examining historical cases to identify aspects of ‘good’ and ‘bad’ energy policy making

Discovery process…researchers from different disciplines will analyse cases

In addition to Cambridge faculty, guest researchers from other universities participating

Policy makers are also participating

Fortnightly Tuesdays from 12:00-14:00 at the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) beginning with lunch

CRASSH Seminar Series – Michaelmas programme

6 October
Topic: **Introduction to the series, In Search of 'Good' Energy Policy**

20 October
Theme: Geopolitics of European natural gas
Topic: **Russian-European natural gas pipelines**

3 November
Theme: Philosophy and ethics of energy
Topic: **French vs. British nuclear power**

17 November
Theme: History of energy
Topic: **UK Clean Air policies**

1 December
Theme: Theology and ethics of energy
Topic: **Oil Sands in Canada**

Potential case studies identified

- **Fracking in the US vs in Europe**
- **Swedish energy security policy following oil crisis**
- **City policies on energy and climate**
- Spanish vs UK wind industry development
- Gothenberg Protocol on Black Carbon
- Comparative political party policies
- Peterhead Power Station – Miller Field CCS
- Nuclear shutdown policy in Japan, Germany etc.
- Innovation policy and Institutional arrangements
- Comparative demand reduction policies in Europe
- Shifts in energy supply from coal to gas and historical energy transition
- National energy security attitude differences
- Regulation and public ownership of gas in UK in C.19th
- National Electricity Grid expansion since 1950 in GB
- Development of Milford Haven gas pipeline
- Enforcement of building codes on energy efficiency
- Building Trust with NGOs on policy
- NGO policy on energy
- Smart meter roll out in Netherlands
- EU vs US Diesel tax policy
- Danish heat policy
- Amazonian hydro electricity
- Comparative CCS Policy in US and EU
- Individual carbon budgets

Key readings

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Bell, C., Chaplin, J., White, R. (eds.) (2013), *Living Lightly, Living Faithfully*, Faraday Institute for Science and Religion.

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Platts, J. (2003), *Meaningful Manufacturing*, William Sessions.

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