In Search of ‘Good’ Energy Policy: why multi-disciplinary approaches to Energy and Climate problems are so important

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Plan

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• Why is ‘Good’ Energy Policy so difficult?

• Technology, Technologists and Energy

• Themes for ‘Good’ Energy Policy

• Some examples

• An Interdisciplinary approach
The Energy Policy ‘Trilemma’

- Competitiveness
- Security of Supply
- Environment
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 2005
  • 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)
Starting point:
What is ‘good’ and ‘just’?

‘The Good Life’ for us

Oil spill in Niger Delta
Starting point:
Legacy investments

Anti-Fracking protests
Support for miners strike

bp

GE
SIEMENS
ABB
SSE
EDF
NPower
ScottishPower
British Gas
e.on
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 2009 is indicated (40).

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


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.

Floating nuclear power plant
Starting point:
Persistence of ‘bad’ policies

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

Starting Point: Public consultation is messy
Research theme: Perception

• Theory of planned behaviour, nudge and mindset change

• Perception of the problem and object
Research theme: Quantification and 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
Research theme: Well-being

- Quality of life and energy
- Rational choice, risk and fairness and the future of energy policy
- Is there a quantitative basis for assessing well-being? (e.g. government assessment tools)
Research theme: Public Trust in Policy

THAT SAID, WITH THE EXCEPTION OF APAC COUNTRIES, POLICYMAKERS ARE NOT TRUSTED TO APPROPRIATELY REGULATE THE ENERGY INDUSTRY

PERCENTAGE AGREEING WITH EACH STATEMENT

I trust policymakers to develop and implement appropriate regulations on the energy industry.
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
- 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
Est. 6 years late; Cost E10.5bn vs E3.3bn

Okiluoto 3 – Finland
Est. 8 years late; Cost E8.5bn+ vs E3bn
Research theme: Parallels to other ‘messy’ policy areas

- Parallel between energy and sugar/fat consumption
- Similarly messy policy area
- Good policies can be found, e.g. right to second opinion in Netherlands
Some starting points...
Policy application: Smart Meter roll outs.

Themes:

• Perception
• Quantification
• Well-being
• Public Trust
• Role of the State
• Competence
• Parallels with Healthcare
Policy application:
Promotion of Distributed Generation

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Policy application:
Taxation of diesel fuel in Europe vs USA

Themes:
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- Role of the State
- Competence
- Parallels with Healthcare
A multi-disciplinary perspective on policy:

- **Politics** and windows of opportunity for action
- **Economics** and the proper valuation of the pollution externality
- **Philosophy** and energy justice, emotions and the non-neutrality of expert advice
- **Public Theology** and the need for resource stewardship and sustainable living
- **History** and the importance of ‘the long view’ of energy transitions
- **Law** and the importance of legal form
Concluding thoughts on good policy

• **Examples of good policy in UK:**
  • 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
  • Takes time…
  • Etc…
Key readings


• MacKay, D.J.C. (2008), *Sustainable Energy - Without the Hot Air*, UIT.
