Key Policy Issues for Decarbonising Energy - Getting Governance Right

GSI
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Boundaries

- This lecture is most relevant to global north countries. Global south countries differ for various reasons – we can discuss that.
- The lecture does not require too much knowledge about energy – I hope it is understandable to everyone but do ask…..
- Energy use (electricity, heat and transport) is the source of around 65-85% of a country’s GHG – agriculture and land use being the key variable
Overview

• Definition of governance
• Brief introduction to energy use
• Issues related to delivering successful policy
Definitions and Implications

• Energy Governance
  – policies, institutions (at all levels), economic regulation, network rules, market design, retail policy etc AND
  – the decision-making processes behind those rules and incentives (which includes the extent to which people (and their preferences) are involved
  – Together, governance sums to
    • encourage, undermine and shape energy system operation and its change including
      – Because it effects the economics of different resources
      – Because it effects the eligibility of doing one thing versus another
  – Is a key enabler / dampener of energy system transformation
Brief Introduction to Energy Use
Figure 1.5. Trends in UK sectoral GHG emissions


Notes: The chart on the right-hand side shows changes in sectoral emissions between 2013 and 2018 for all sectors except for Agriculture, LULUCF, Waste and F-Gases which cover the period 2013-2017; buildings emissions in this chart are temperature-adjusted.
Electricity set to get more important as heat decarbonisation moves away from fossil gas – but all easy hits now used up

https://energysavingtrust.org.uk/blog/decarbonisation-heat-%E2%80%93-crossroads

Estimated UK Emissions Attributable to Heating, 2016
Governance reflects technologies, market design and system operation needs

http://projects.exeter.ac.uk/igov/electricity-market-design-setting-the-scene/
Energy system characteristics are changing, and could change faster if governance enabled it

http://projects.exeter.ac.uk/igov/electricity-market-design-setting-the-scene/

<table>
<thead>
<tr>
<th>Traditional Electricity System Characteristics</th>
<th>Emerging Electricity System Characteristics</th>
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<tbody>
<tr>
<td>Centralised</td>
<td>More Decentralised</td>
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<tr>
<td>Fossil and nuclear based</td>
<td>Decarbonised, multiple scales</td>
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<td>Supply based, load following</td>
<td>Supply and demand</td>
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<tr>
<td>Firm power</td>
<td>Smart and flexible</td>
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<tr>
<td>Linear, top-down system operation</td>
<td>Two way, dynamic, digitalised system operation</td>
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<tr>
<td>Passive consumers</td>
<td>Spectrum of consumer behaviour</td>
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<tr>
<td>Clear lines between power, heat and mobility sectors, supply chain activities and business models</td>
<td>Breaking down of demarcation lines and coalescing at distribution level, and particularly domestic level</td>
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<tr>
<td>Distant from use</td>
<td>Often local</td>
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<tr>
<td>Energy focused stakeholders</td>
<td>Multiple stakeholders – data / IT, car manufacturers etc</td>
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Drivers of change


• Falling prices of decarbonised and flexibility technologies (wind, solar, storage)

• Increasing proportion of energy resources at distribution/local level – so decentralisation happening and increasingly the economic option
  
  • Eg EVs; Smart grid; Decentralised heat – heat pumps, solar thermal; district heating; Renewables of multiple scales (including PV); Demand Side Response; Building energy efficiency; Flexibility; Storage

• Digitalisation allows new system operation, including the demand side, hence new energy economics

• Greater involvement by customers leading to new ownership and business models (democratisation)
Energy economics are changing – but value still not accessed by those which provide it because governance is not keeping up with drivers.
Issues related to successful policy implementation – keep everything focused on meeting outcomes
Having a policy does not lead necessarily to successful implementation

• Example: the Green Deal – a policy intended to increase domestic building energy efficiency
  – A complete failure
  – https://www.theguardian.com/environment/2016/apr/14/green-deal-scheme-did-not-deliver-energy-savings-audit-finds

• Policy has to take note of enabling conditions
  – Where enabling conditions are all the requirements of a successful policy
    • including whether people will do what the policy requires
Decision-making - one aspect of governance – has to be open and transparent and take note of all pertinent issues and actors

• If decision-makers are unduly influenced by a sub-set of factors then policy decisions will be skewed and may not work:
  – See UK capacity market
    http://projects.exeter.ac.uk/igov/primer-the-uk-capacity-market/
  – See Codes and self – regulation
    http://projects.exeter.ac.uk/igov/primer-energy-codes-and-licenses/
  – See network funding for solar energy
    http://projects.exeter.ac.uk/igov/new-thinking-solar-surprise-revisited/
Example of the importance of coordination – NG Scenarios; Ofgem Network Regulation; Government Policy

http://projects.exeter.ac.uk/igov/new-thinking-solar-surprise-revisited/
Understand legal text and process

- The way institutions act, or the way Government interacts with institutions, is related to laws (Acts).

- If you want a change in the way an institution acts, or you want to do something new (i.e., Peer 2 Peer trading) it may be that the law has to change
  - For example, if we want the energy regulator, Ofgem, to care about CO2, then it needs a duty on it to take notice of the impact on CO2 emissions from its decisions (not there at the moment) http://projects.exeter.ac.uk/igov/getting-energy-governance-right-lessons-from-igov/
  - If we want Ofgem to take decisions more in line with Government policy, then there needs to be a legal means to ensure this http://projects.exeter.ac.uk/igov/new-thinking-the-lost-strategy-and-policy-statement/
Understanding the centrality of politics and people

• Successful policy making
  – is often no more than achieving a least worst outcome
  – may be spotting an opportunistic ‘space’ or averting a potential ‘terrible’ outcome
  – is putting in the effort to keeping the drive towards something going
    • Steps forward have to be greater than the steps back

• It would be nice to say:
  – if something makes sense (usually economically but sometimes because of people pressure / public interest) it will happen however much it is not in the interests of a certain group (ie coal)

• The reality is that public interest is deeply contested
  – See Energy Efficiency 2019
    https://www.iea.org/reports/energy-efficiency-2019
Building energy efficiency reduces total energy use, improves fuel poverty, reduces need for infrastructure, increases energy security and can help system operation: why don’t we do focus on it?
If its too good to be true, it probably is

• Energy policy peppered with ‘the’ answer to decarbonisation:
  – Biomass in 1994
  – Nuclear in 2006
  – Now hydrogen
  – Arguably CCS
  – Rumbles of geoengineering

• Keep a focus on what needs to be done (rapid reduction of GHG / acceleration of rate of reduction of GHG with SD / justice) and what each option can do

• Lots of contention, but renewables and energy efficiency clear least regret options
Keep it simple, think of the whole system and remember (unintended) consequences

- Decarbonising energy is not complicated but it does need direction and coordination
- Assess co-benefits / consequences
  - Eg nuclear and its waste
  - Eg energy efficiency and a reduction in fuel poverty
- Don’t think in silos – think in terms of most efficient use of energy resource for whole energy system (including the value of not using it)
- Complicating the issue slows down decarbonisation
  - First rule of energy policy: follow the money
    - who is arguing what, and find out why
Be clear about what policy outcomes are wanted, what that entails (including laws / money etc) and what its implications are (domino effect) – then make it easy for decision makers (ie do all the work for them – even if they don’t accept it)

• IGov 1 and IGov 2
  – IGov1 set out to document how governance undermines innovation in the energy system
    • Became clear the governance system was not fit for purpose
  – IGov2 set out to create a fit for purpose whole energy system to use as basis for arguments for change:
    • A whole system
    • One that fitted together
    • One that delivered all goals in ‘best’ way, realising that the ‘best’ system way may not be the ‘best’ individual decisions
DON’T WORRY – we are not going through these diagrams in detail!

• they show it is important
  – to understand whatever it is that you are arguing for; and
  – to understand how it can fit within a whole system

• The next 5 slides shows the differing aspects of the energy system which have to fit together

• But the energy system has to fit within the wider climate and policy landscape
Local Government Dimension has to be coordinated:
Coordination is the key to acceleration of GHG reduction

- See http://projects.exeter.ac.uk/igov/enabling-the-transformation-of-the-energy-system/
- This is at, and between, all levels
  - Local
  - National
  - Global
- See https://www.ubiquitypress.com/site/books/10.5334/b
GHG reduction from the energy system is ‘easy’ relative to the other systems

- Reducing GHG emissions from energy systems is understood (broadly renewables and energy efficiency), and probably economic now if analysis is dynamic and over the long term (see https://voxeu.org/article/why-are-economists-letting-down-world-climate-change)
  - And yet emissions are still increasing globally
- Ensuring long term sustainability of resources / land use is much more complex
- Opens up issues of politics, justice / SD, data regulation, private versus public good, people and behaviour
Conclusion

• Politics and people are at the core of meeting the challenge of global sustainability and justice
A quick way to get more details about energy issues

• A recent (Dec 2019) presentation to Treasury: A detailed overview of required energy governance changes in GB
  http://projects.exeter.ac.uk/igov/presentation-key-issues-of-energy-policy-and-net-zero/

• A January 2020 edited, open access (ie free) book discussing global governance and business model issues
  https://www.ubiquitypress.com/site/books/10.5334/bcf/

• http://projects.exeter.ac.uk/igov/shortcut-to-key-igov-findings/