Challenge to the Government, the Regulator and the monopoly companies: help fix our failed governance system

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Overview

• Review the CCC carbon budgets and what we are on target to achieve
  – The ‘easy’ GHG reductions undertaken for electricity; minimal heat and transport reductions
• GB needs more policies, but it also needs governance to ensure policies are implemented (rhetoric versus practice)
  – Governance fit for a 21 C Energy System
• The four key dimensions of a fit-for-purpose GB energy governance framework
• Case Study of All-but broken Governance - RIIO2 and distribution service providers (still hope)
• Recommendations to ‘Fix’ Governance
Challenge:

- Government / Regulator / Companies
  - Put in place a governance system which delivers / encourages the outputs we (society) want from our energy system
    - A sustainable, affordable and secure energy system
    - In other words, a governance system suitable for the 21st century
Definitions

Innovation or ‘change’ -
Not just technology, but new practices, business models, social preferences, that lead to practical change on the ground

Governance
the policies, institutions, regulations, market design (rules and incentives) & networks rules & incentives and the process/politics behind them (including the way people are involved)

‘Value’ - the short hand used to denote the ability to access revenue / payments
Figure B1.1. Hard-to-reduce sectors and the 2050 target

Source: CCC fifth carbon budget analysis.

Notes: 2015 provisional numbers presented here for waste & F-gases and international aviation & shipping are 2014 actual figures. The right hand column shows our assessment of residual emissions in 2050 from International Aviation and Shipping, Agriculture and Industry after cost-effective abatement opportunities have been taken up (our Central scenario).
We could be doing worse…

Figure 1. Emissions have fallen 42% while the economy has grown over 60% since 1990

Notes: Series indexed to start at 100. In 2016 UK GDP was £1.9 trillion and GHG emissions were 466 MtCO₂e.
The reductions are mainly from power sector carbon emissions

The rise of intermittent renewable electricity generation

Gross electricity supply

Source: DUKES 2017

- Coal, oil, OCGT, biomass
- CCGT
- Nuclear
- Non-thermal renewables
There is lots of change to electricity systems at the moment – and more expected (eg storage, smart meters, P2P etc) http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-governance-in-the-GB-energy-system-Karlsruhe.pdf and https://www.regensw.co.uk/Handlers/Download.ashx?IDMF=c2c53763-2f7f-4d70-96d3-aed4290c9021
Generation summer 2015

Source: National Grid

[Image of a chart showing GB generation by fuel type, GW. The chart includes data for week ending 14-Jun-15, with categories such as Nuclear, Coal, Solar, Hydro, Oil, Wind, Pumped Storage, CCGT, OCGT, Biomass, Continental Interconnectors, and Irish Interconnectors.]

Generation summer 2017 – new system operation required for new technologies


Source: National Grid
The Committee’s 2017 progress report to Parliament highlighted that emissions in domestic transport rose for the third consecutive year in 2016. Transport is now the largest emitting sector, accounting for 26% of UK greenhouse gas emissions. Improvements in average car efficiency across the fleet have been offset by increased demand for car travel, whereas van and HGV efficiency have shown little improvement. Demand for van and HGV travel are also increasing faster than Government projections.
We know the priority energy policy for GB should be energy efficiency – yet despite all the benefits, it still does not happen?

![Diagram: Unlocking the First Fuel in UK homes](image)

- **Cost-effective**
  - Energy savings potential: 25%
  - Average bill: £830 per household per year
  - £270 saving per household per year
  - Wider benefits of £47bn possible
  - Improved health from warmer homes: £4.6bn
  - Net benefit to UK: £7.5bn
  - Stimulation to economy from improvement works: £36.3bn
  - Capacity saved in electricity system: £4.3bn

- **Today**
  - Average bill: £1,110 per year
  - Bills already £490 lower than they would have been without energy efficiency improvements made since 2004, despite more household appliances, lamps and higher in-house temperatures.

- **Technical**
  - Energy savings potential extra: 25%
  - Average bill: £560 per household per year
  - Likely to become cost-effective in the future.
  - Average demand reduced by half compared to today.

*at today’s energy prices*
Heat sector should be broadly decarbonised by 2040 – again minimal movement

Figure B3.4. Recent poor progress in energy efficiency and low-carbon heating

It is not just that policies are insufficient BUT appropriate governance not available as well.  

2017 Report to Parliament
‘Value’ has to move from A to B

By 2030, system also has to be integrated across electricity, heat and transport

This leads to further complexities in the design, operation, coordination and appropriate transfer of value within the system and makes the case for effective governance stronger still.

Going from A to B leads to changes/ requires:

1) Supply fuels
2) Technologies & Supply Chains
3) Potentially ownership
4) Potentially different actors & different roles / business models
5) Changes to: market design & their rules & incentives; Network payments/access/rules; Tariffs; Regulatory mechanism; system operation and coordination; institutions; Codes and Licenses
6) Customer involvement

Changes to governance enables value moving from A to B
Current GB Governance System – ‘value’ suits ‘old’ fossil-based – incumbency and inertia are barriers to change

Overview Findings of IGov1 – 4 central dimensions required for energy system transformation

- Transparent & legitimate policymaking / institutions
- Flexible, coordinated operation & design
- Customer Focused
- Reforming Regulation
Customer Focused

- Customer wishes at center, and policies built around customer proposition
- Meaningful consent
- Engagement
- Trust, equity, legitimacy and democracy
- Tariffs, prices and bills
- PSO
Transparent & legitimate policymaking/institutions

• Coherent, legitimate, coordinated decision making (including incorporating CCC Advice via institutions)
• Less BEIS delegation, more SoS Direction (ie IISO v Ofgem)
• Consensus Building Body
• Market Monitor and Data Body
Flexible, coordinated operation & design
Reforming Regulation

- New Ofgem duty to meet CCC carbon budgets; stripped back to economic regulator
- More performance based regulation (ie more output focused)
- DNO to DSP; SO to IISO
- Restructured RIIO2, enabling decarb of electricity by 2030
- Closer link between network operation, market design, data and public policy goals
- Access to, and transparency of, data
Case Study: RIIO - making S&F happen

• Electricity has to be decarbonised by 2030
• Electricity networks are regulated by RIIO mechanism (Revenue = Incentives + Innovation + Outputs)
• RIIO1 for distribution companies ends 2023: so RIIO2 ends between 2028 and 2031 (depending on price control length)
• The basis of RIIO2 is being discussed now
• RIIO2 should lead to a network which could complement a decarbonised electricity system
Government policy is for a ‘smart and flexible’ energy system
Ofgem undertaking multiple consultations (RIIO2, Network Charging; Post-Supplier Hub Model; Electricity Settlement and Metering) to deliver S&F system
Flexible, coordinated operation & design

- Service should be able to sell to whom they want (national or local)
- Customer should be able to buy from whom they want (national or local)
- ISO has responsibility to develop infrastructure to meet CCC targets, and to coordinate and integrate across heat and electricity
- DSP are coordinators, balancers and integrators of local areas and markets, regulated through PBR
- Bottom-up / Area system optimisation with TO increasingly balancer
- Governance dimensions all need to encourage this, not least for cost benefits
Distribution Service Providers should be at the heart of regulatory reform and electricity decarbonisation: ‘active’; RIIO way behind
Challenge: change the role of DNOs to DSPs by the end of RIIO2

Cost of Service by end (Give NOs the money) 50% PBR

RIIO 1

COS + PBR

RIIO 2

50% PBR

+ 6.5% (RIIO 1) i.e. additive revenues

+ % RORE if do well make a higher profit

PBR - performance based regulation

more outputs
Lessons from New York Reforming the Energy Vision

Platform Service Revenues (PSRs)

- Earning Adjustment Mechanisms (EAMs)

Traditional cost of service but with rate reforms i.e. Standby-charges; opt-in's; etc

One-off non-wire alternatives Earning Adjustment Mechanisms to provide payments for networks & distribution wires to complement government goals such as reducing peak prices, increasing renewables, demand reduction, etc.

Cost of Service

Performance Based Regulation

10 to 15 years

Traditional cost of service to pay for wires; to maintain public service obligation

Platform Service Revenues to provide incentives to stimulate non-wire services & values of DER to enable & maximise this use. This moves to be paid per action rather than each kWh supplied. This could relate to information provision.
We have to turn DNOs into active DSPs. If they deliver the desired outputs: maybe they get a higher RORE?
We need process and timescales for change to fit CCC budgets. Set expectation for end date ie decarbonisation by end 2030 - and then iterative process in between https://www.energymarketers.com/Documents/MDPT_Report_150817_Final.pdf
Challenge:

- To Government: logically follow-through your CC targets and your smart and flexible energy policy by filling policy gap; sort out Duties on Regulator; undertake institutional reforms; think about customers / society first; confront inertia / incumbency
- To Regulator: ensure RIIO2 leads to networks (companies, charging, regulatory mechanism, customer focus etc) which complements a decarbonised electricity system by 2030/ cross-sector energy by 2050)
- To Network Companies: step up and become active; move on from passive box-ticking and LCD
- Users and civil society: press for change and what you want
Thankyou

For more information, please go to the IGov website

http://projects.exeter.ac.uk/igov/