

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

[Catherine.mitchell@exeter.ac.uk](mailto:Catherine.mitchell@exeter.ac.uk)

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New Thinking For Energy



# 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 - RII02 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 21<sup>st</sup> century

# Definitions

## Innovation or 'change' -

Not just technology, but new practices, business models, social preferences, that lead to practical change on the ground

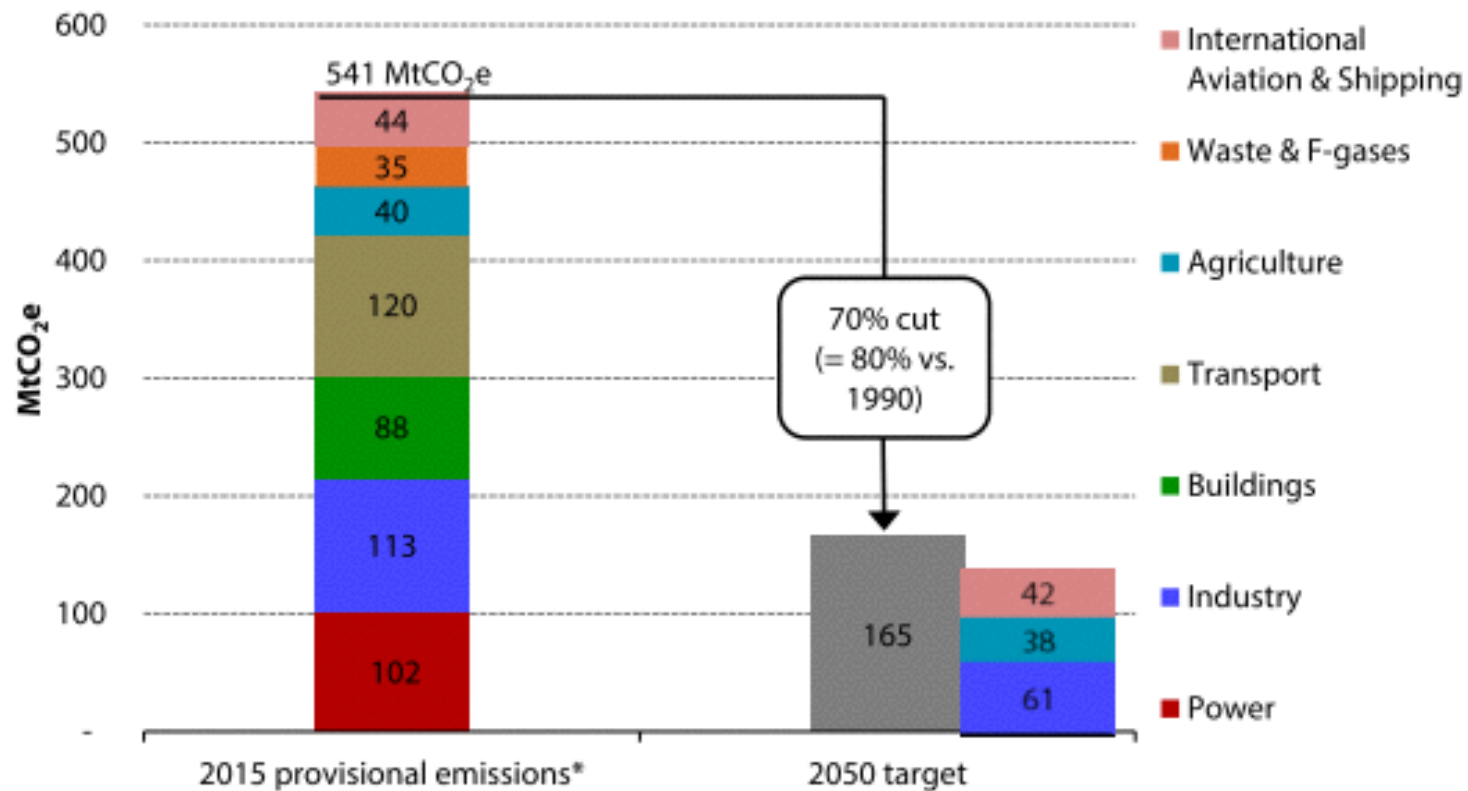
'Value' - the short hand used to denote the ability to access revenue / payments

## 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)

# CCC Carbon Budgets via the CC Act

Figure B1.1. Hard-to-reduce sectors and the 2050 target

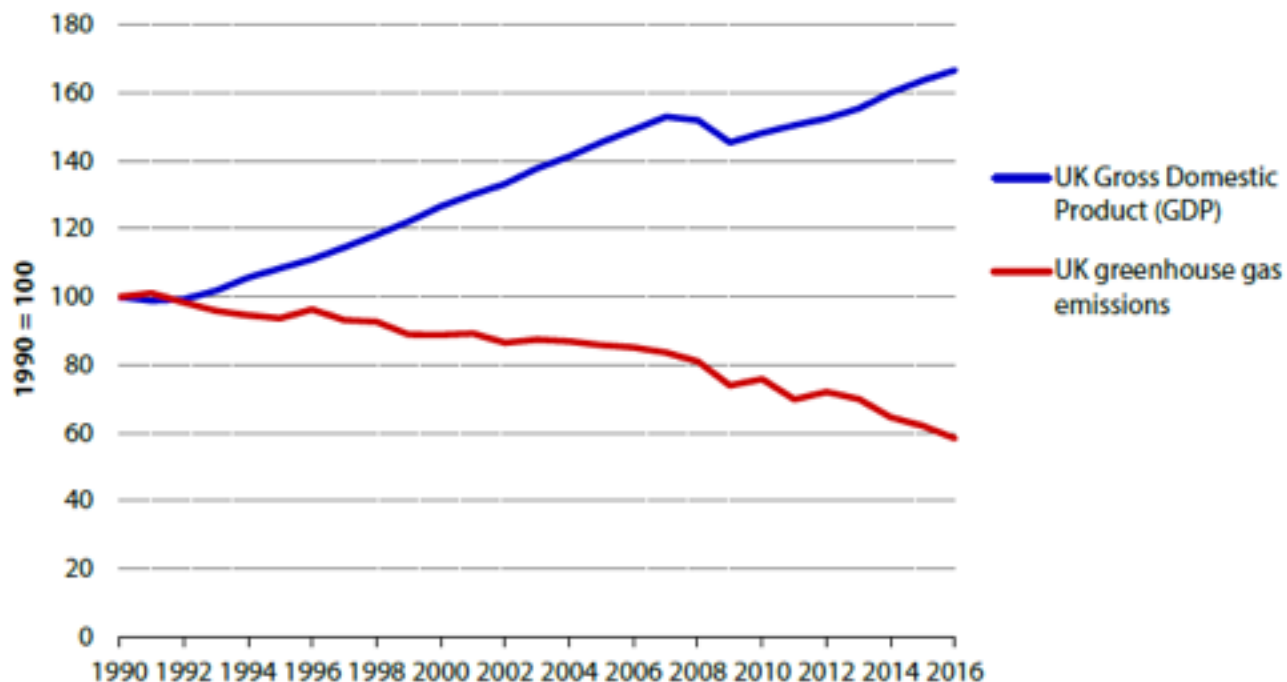


**Source:** CCC fifth carbon budget analysis.

**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

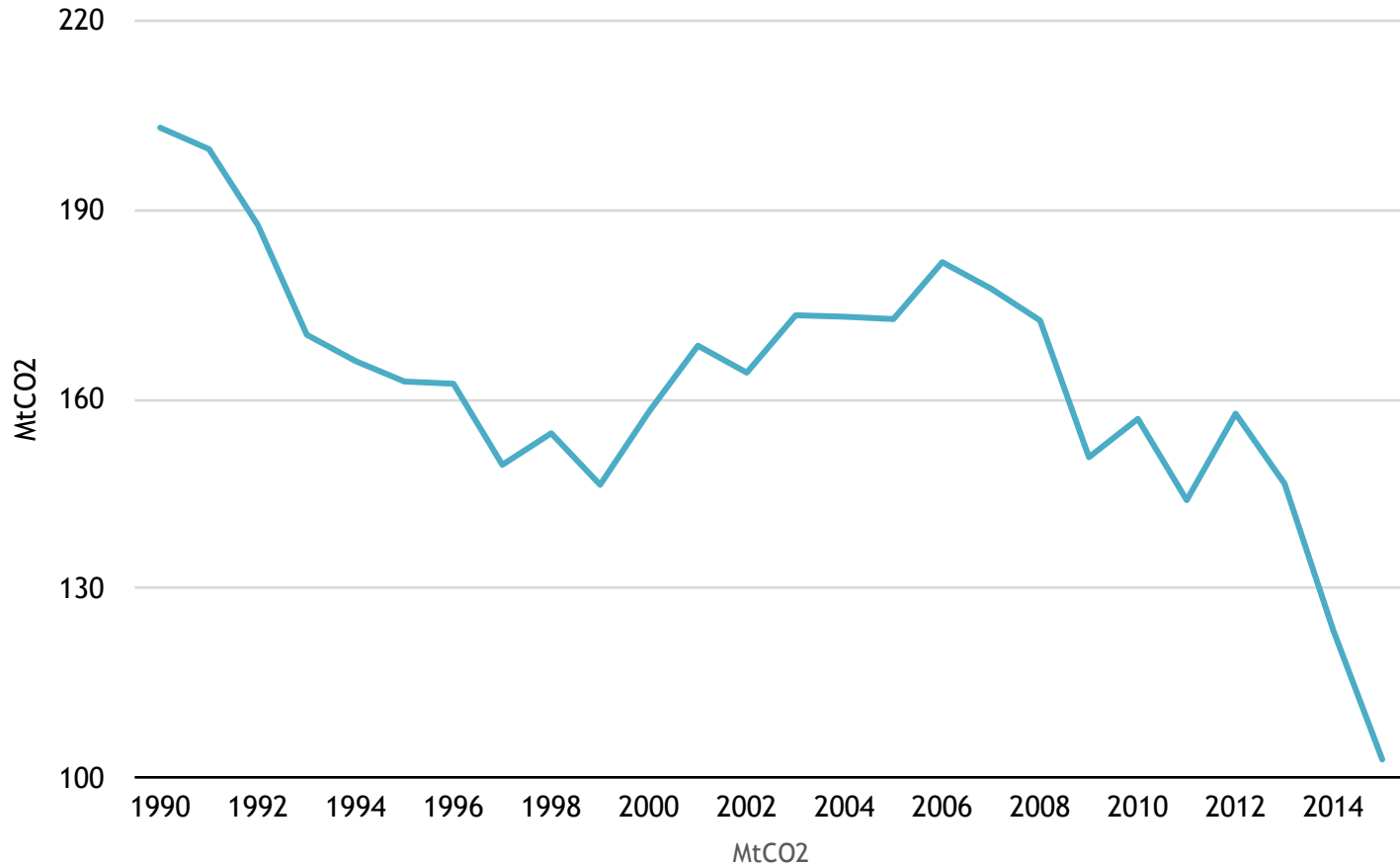


**Source:** BEIS (2017) *Provisional GHG statistics for 2016*; BEIS (2017) *Final GHG statistics for 1990-2015*; ONS; CCC calculations.

**Notes:** Series indexed to start at 100. In 2016 UK GDP was £1.9 trillion and GHG emissions were 466 MtCO<sub>2</sub>e.

# The reductions are mainly from power sector carbon emissions

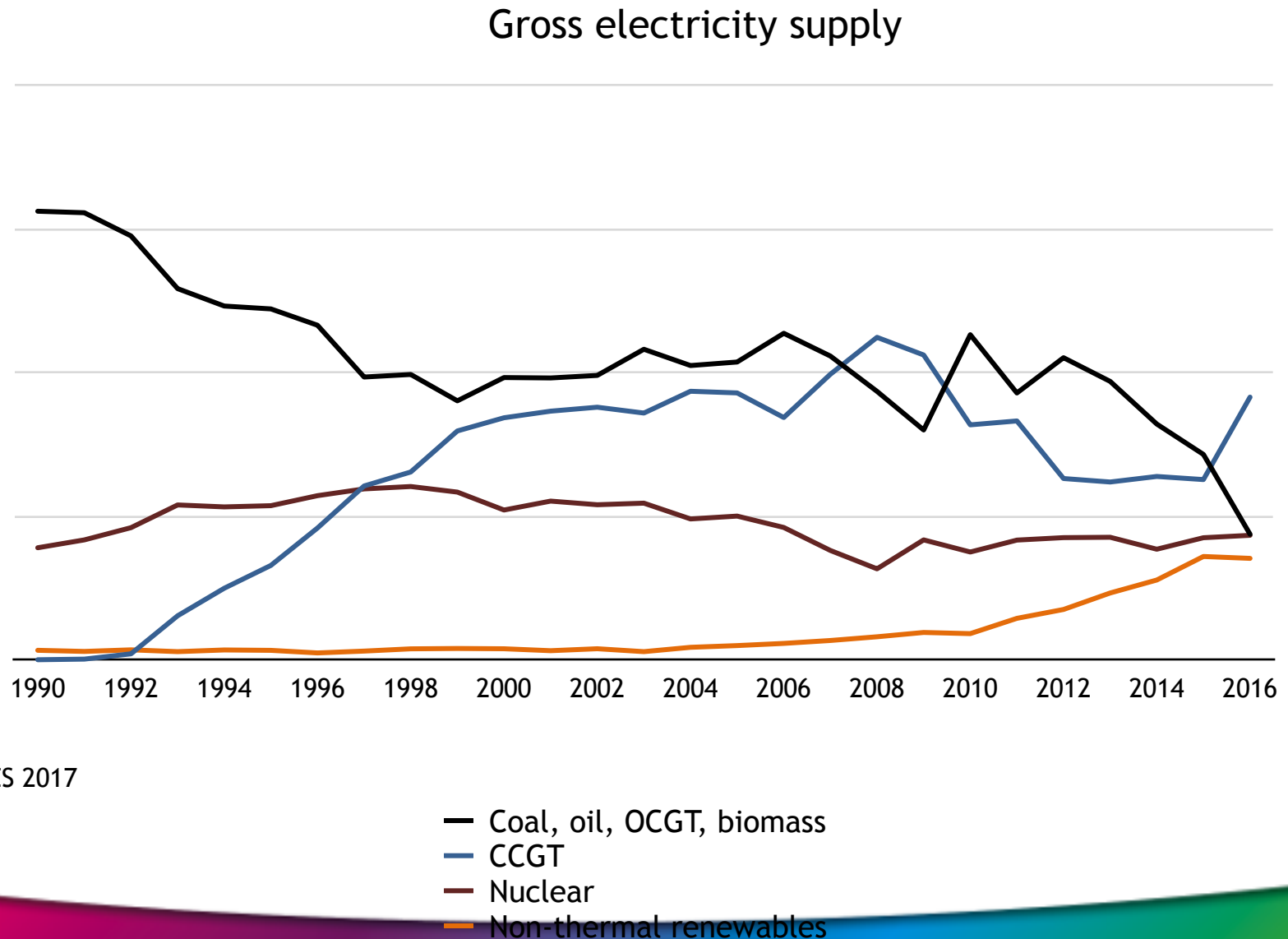
(<http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-govenance-in-the-GB-energy-system-Karlsruhe.pdf> )



Source: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015>

# The rise of intermittent renewable electricity generation

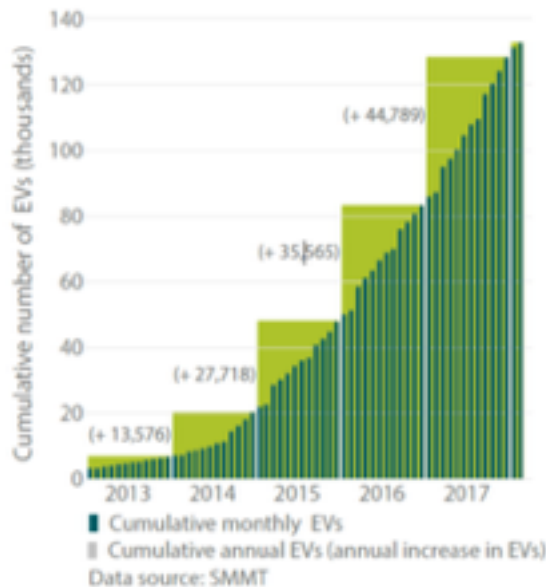
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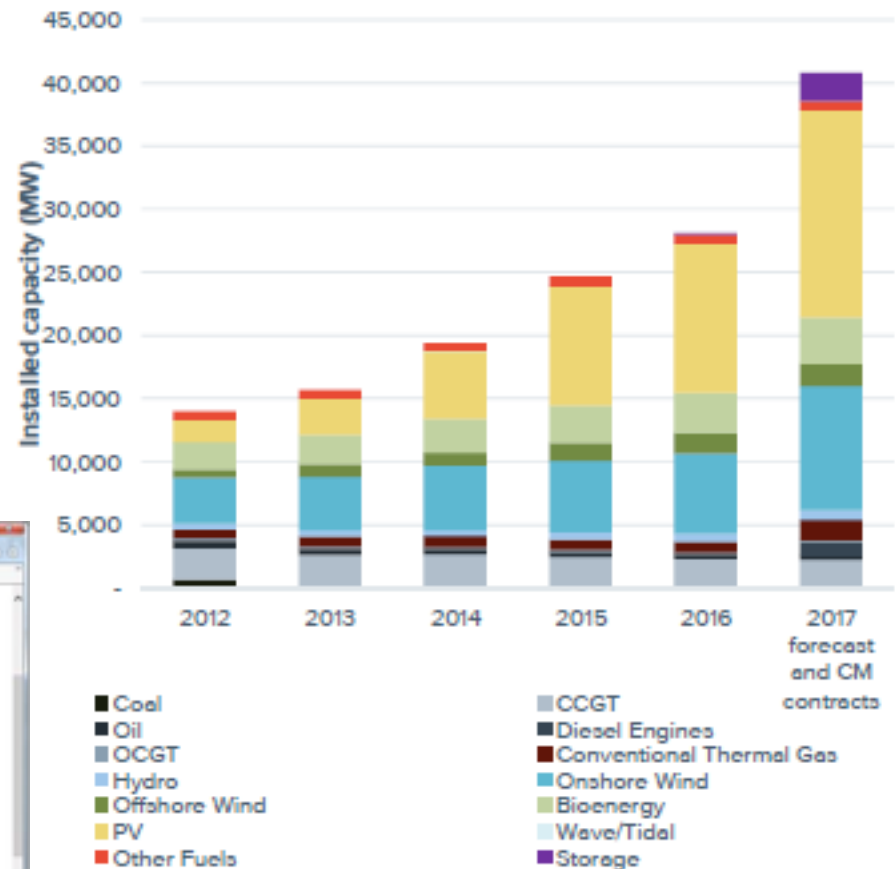


**There is lots of change to electricity systems at the moment – and more expected (eg storage, smart meters, P2P etc)** <http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-governance-in-the-GB-energy-system-Karlsruhe.pdf> and <https://www.regensw.co.uk/Handlers/Download.ashx?IDMF=c2c53763-2f7f-4d70-96d3-aed4290c9021>

**EV market growth 2013 to 2017**



**Embedded Generation Capacity (existing and contracted)**

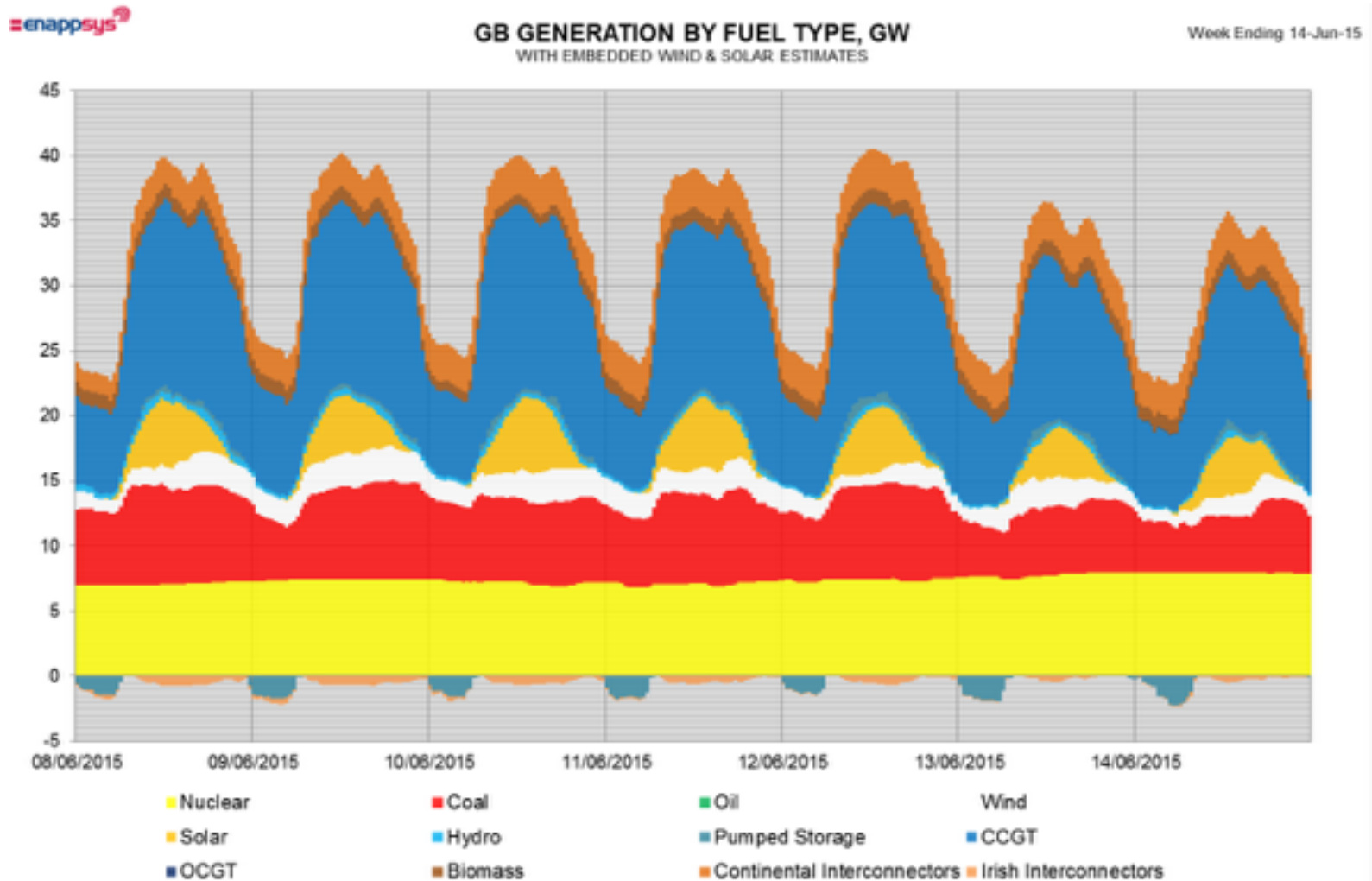


Source: BEIS and Cornwall Insight Forecasts

# Generation summer 2015

<http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-govenance-in-the-GB-energy-system-Karlsruhe.pdf>

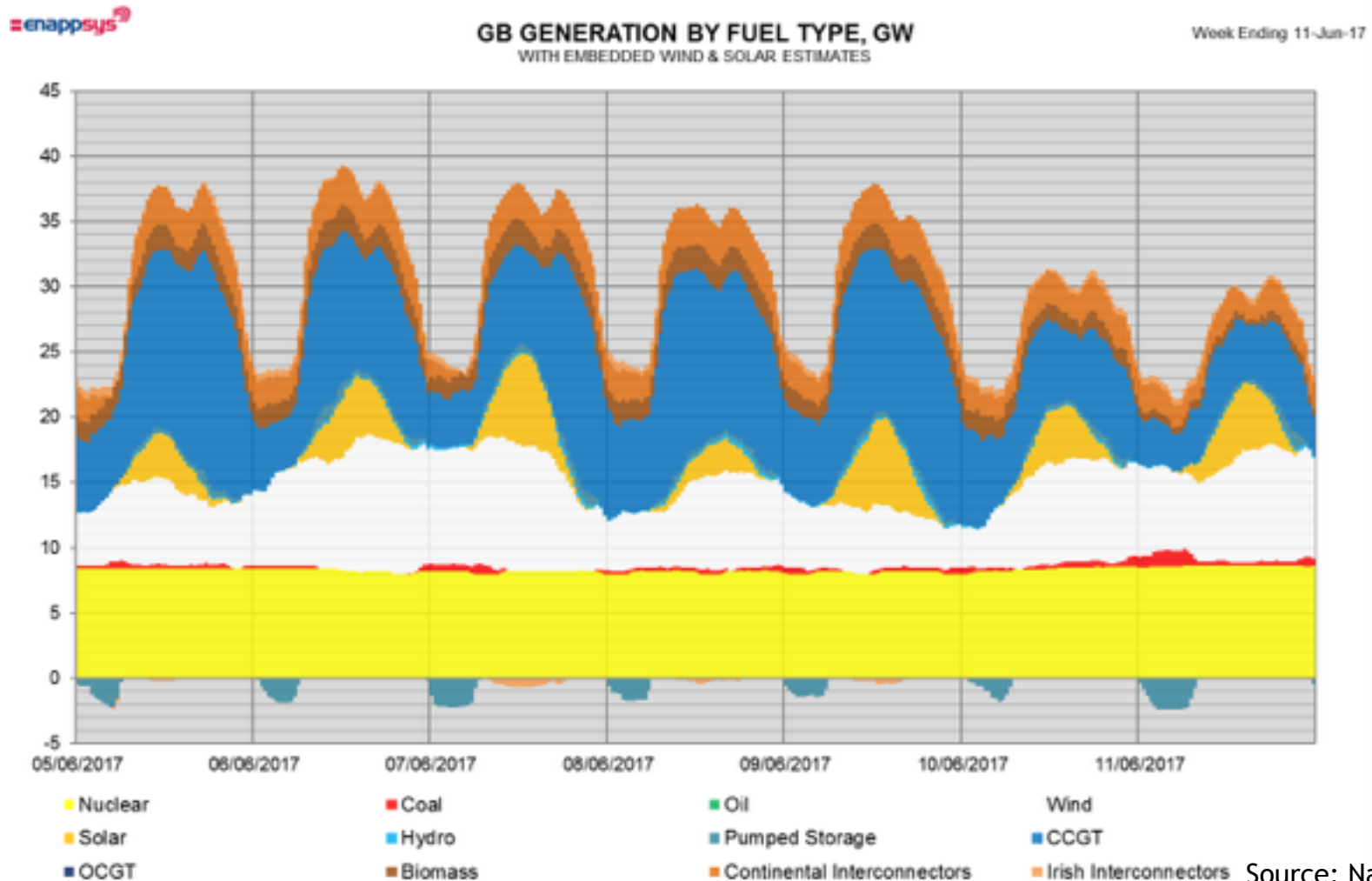
[2018/05/Lockwood-Innovation-and-govenance-in-the-GB-energy-system-Karlsruhe.pdf](http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-govenance-in-the-GB-energy-system-Karlsruhe.pdf)



Source: National Grid

# Generation summer 2017 – new system operation required for new technologies

<http://projects.exeter.ac.uk/igov/wp-content/uploads/2018/05/Lockwood-Innovation-and-governance-in-the-GB-energy-system-Karlsruhe.pdf>



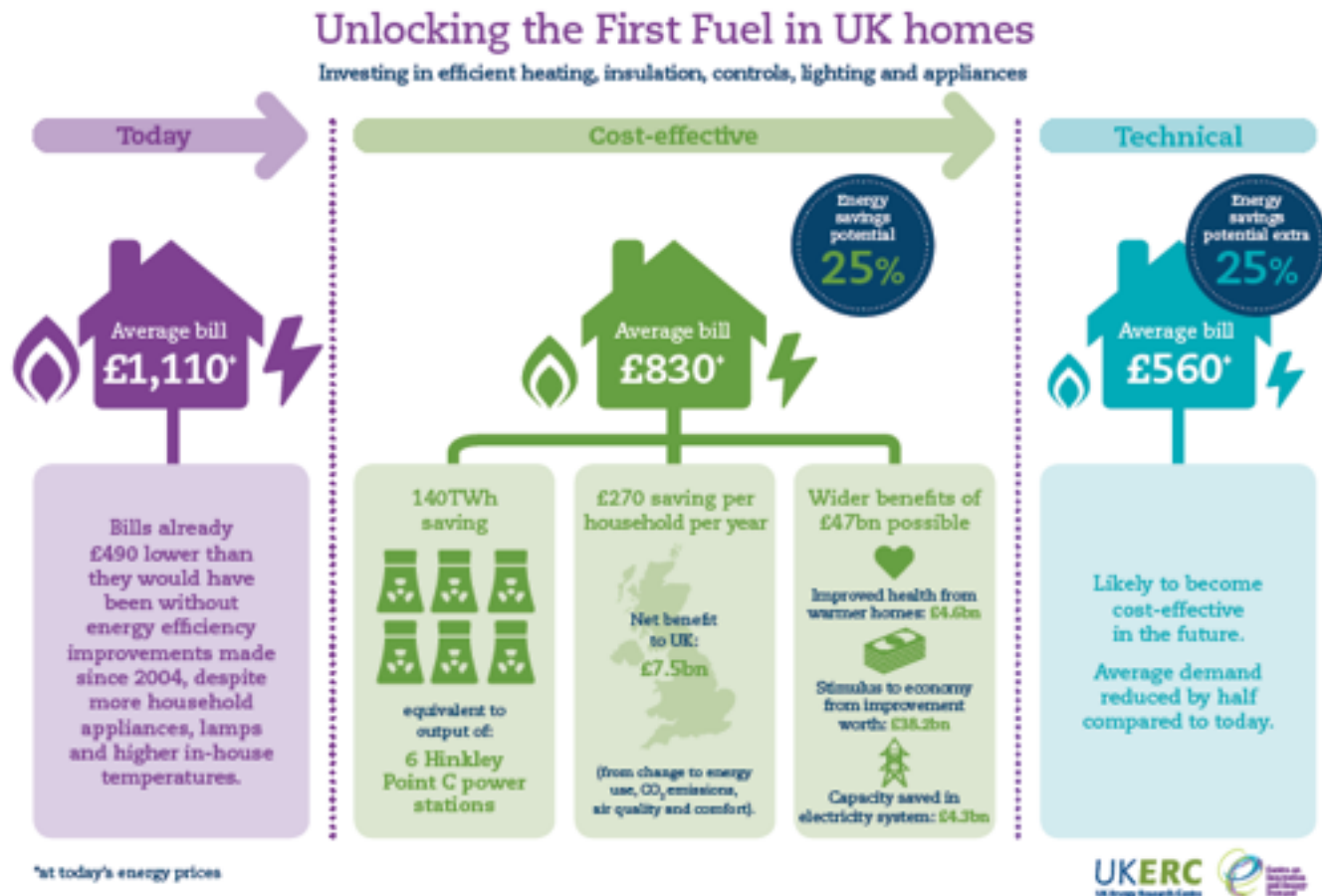
Source: National Grid

# Transport Minimal Dent to GHG Emissions

Source: <https://www.theccc.org.uk/wp-content/uploads/2018/01/CCC-Letter-to-DfT-on-Road-to-Zero-Strategy.pdf>

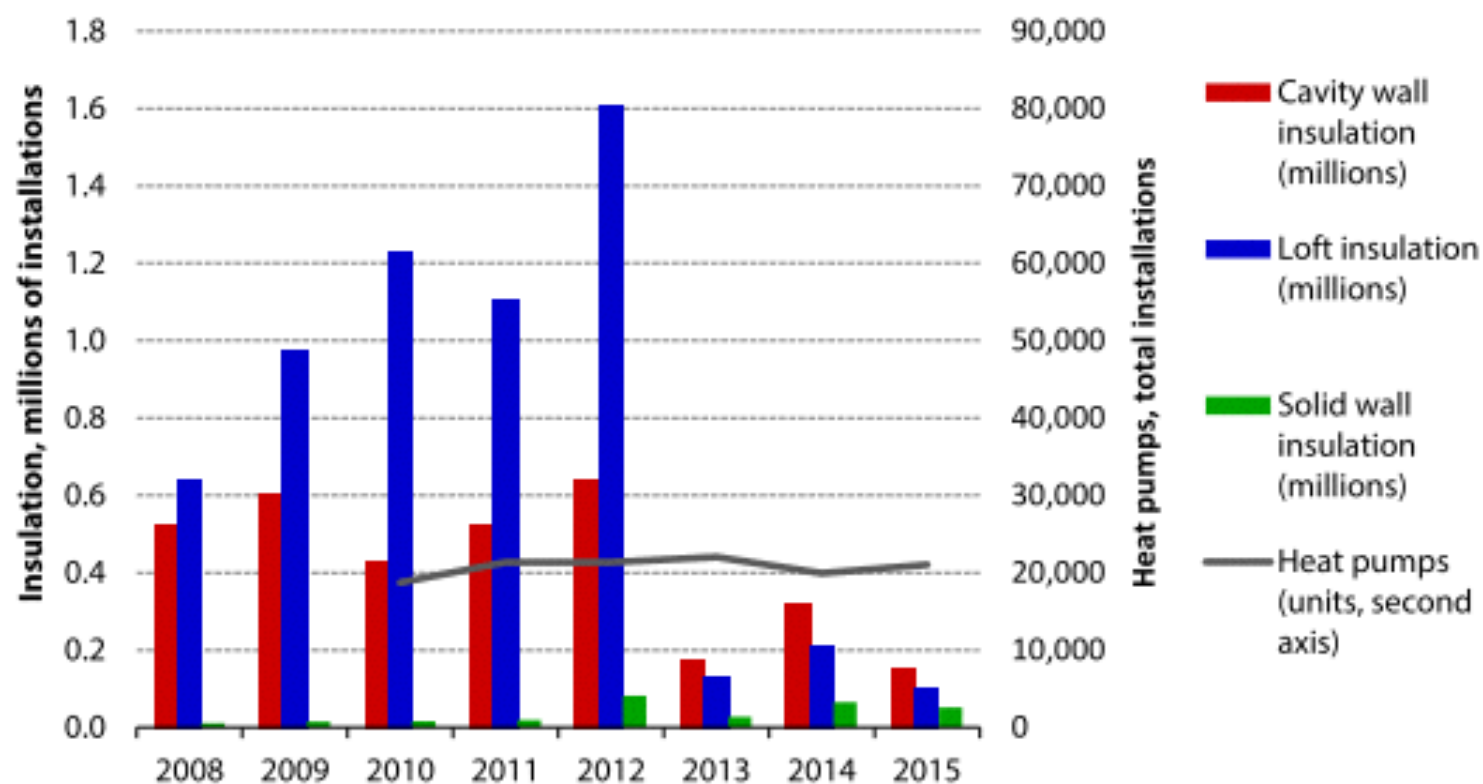
The Committee's 2017 progress report to Parliament highlighted that emissions in domestic transport rose for the third consecutive year in 2016. Transport is now the largest emitting sector, accounting for 26% of UK greenhouse gas emissions. Improvements in average car efficiency across the fleet have 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?



# Heat sector should be broadly decarbonised by 2040 – again minimal movement

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



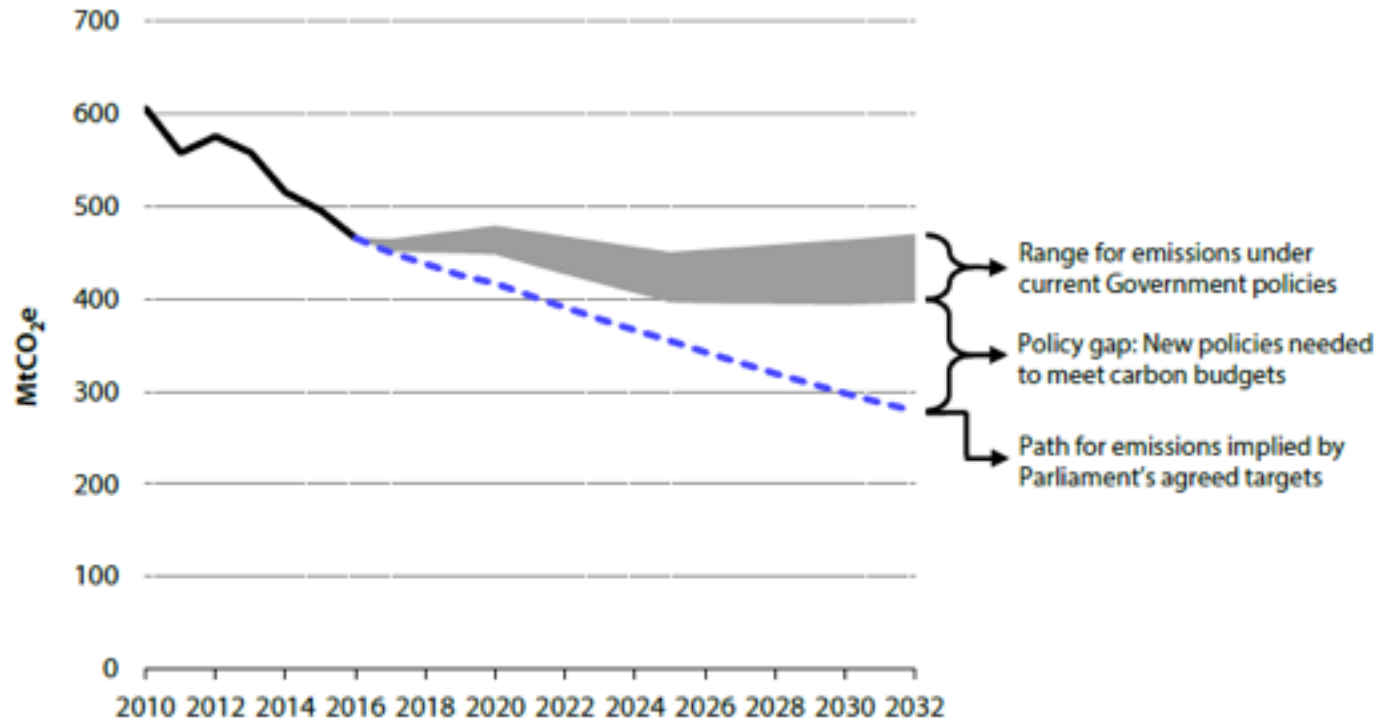
**Source:** DECC (2016) *Household Energy Efficiency National Statistics*; DECC various sources for pre-2014; BSRIA (2016) *UK Heat pumps, Report 59122/11*; CCC calculations.



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

2017 Report to Parliament

**Figure 3. Current policies fall far short of what is needed to meet the targets agreed by Parliament**



**Source:** BEIS (2017) *Provisional GHG statistics for 2016*; BEIS (2017) *Final GHG statistics for 1990-2015*; BEIS (2017) *Updated energy and emission projections 2016*; CCC analysis.

**Notes:** The grey area here corresponds to the yellow area in Figure 1.6 in Chapter 1 of Volume 2 of this report.

# '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.

A  
B

Solar, Hydro, Other  
Bioenergy  
Coal  
Wind  
Nuclear  
Gas

Current Elec  
Generation  
2016

Demand side flexibility (inc  
interconnectors)  
OCGT  
Storage  
Hydro reservoir  
PV  
Wind  
Nuclear  
Conventional Gas

High Flex  
2050 50g/kWh  
(for example)

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 → B

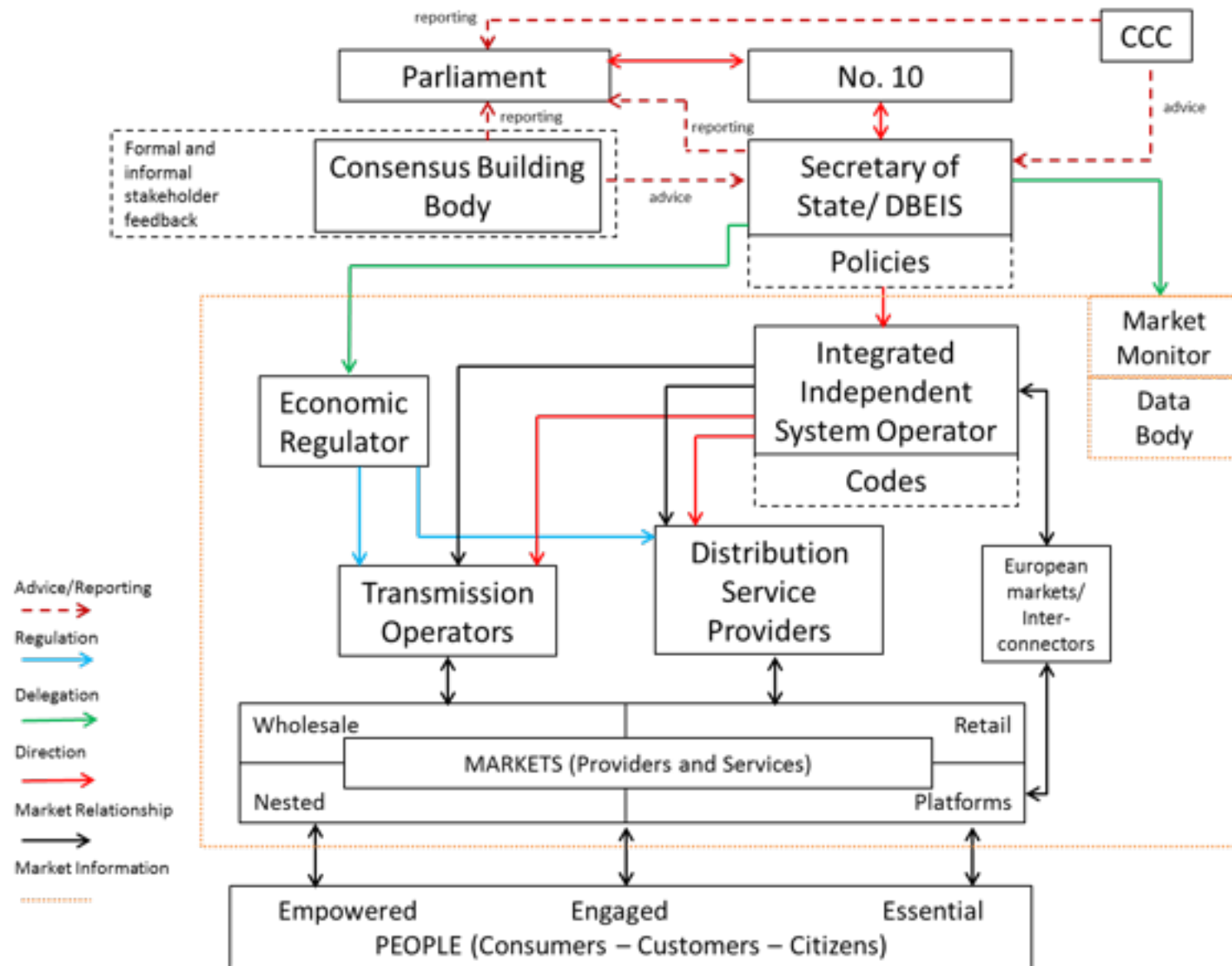


# Current GB Governance System – ‘value’ suits ‘old’ fossil-based – incumbency and inertia are barriers to change

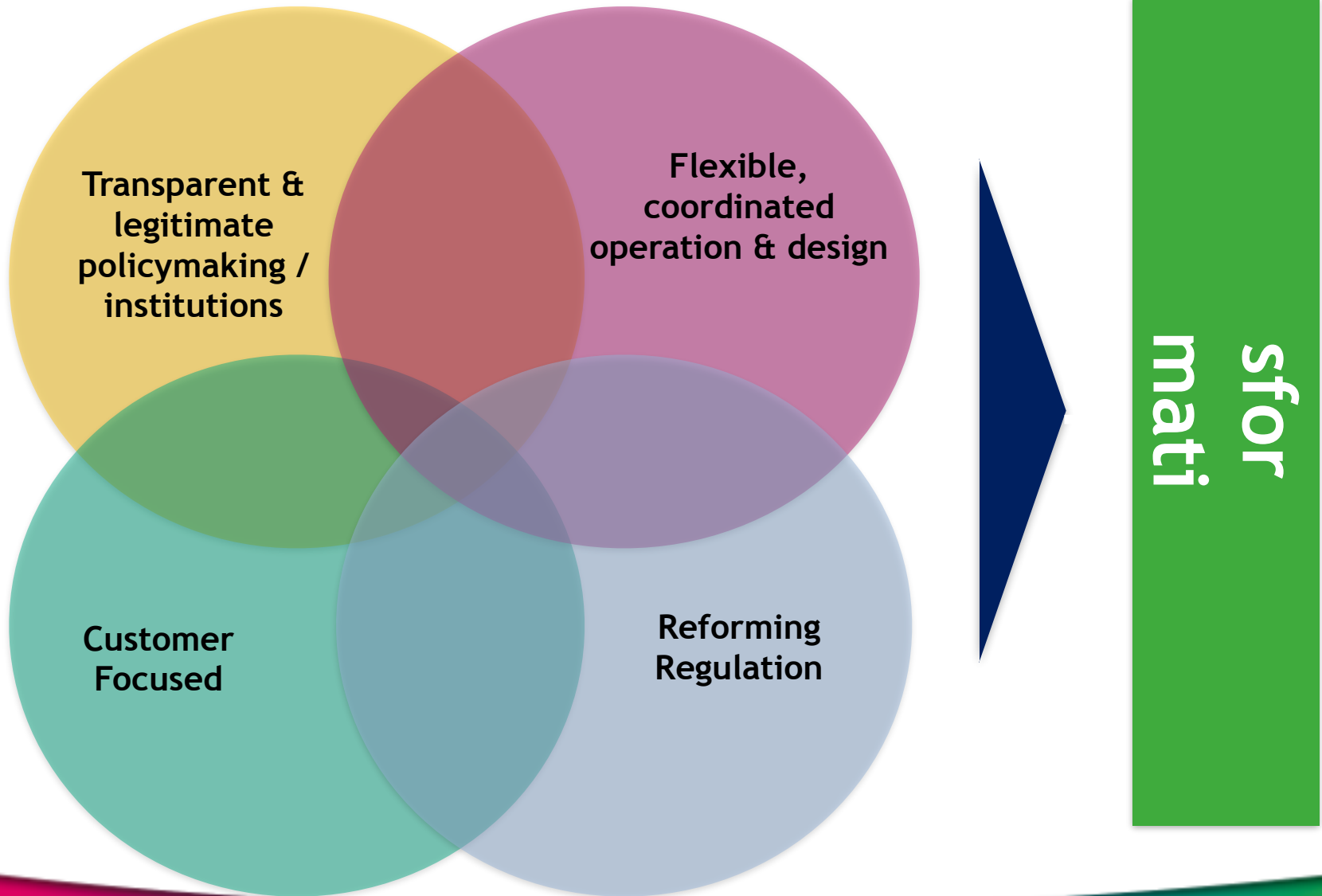


# IGov Fit-for-Purpose GB Energy Governance Framework

<http://projects.exeter.ac.uk/igov/wp-content/uploads/2017/10/SYS-Copenhagen-27-October-2017.pdf>



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



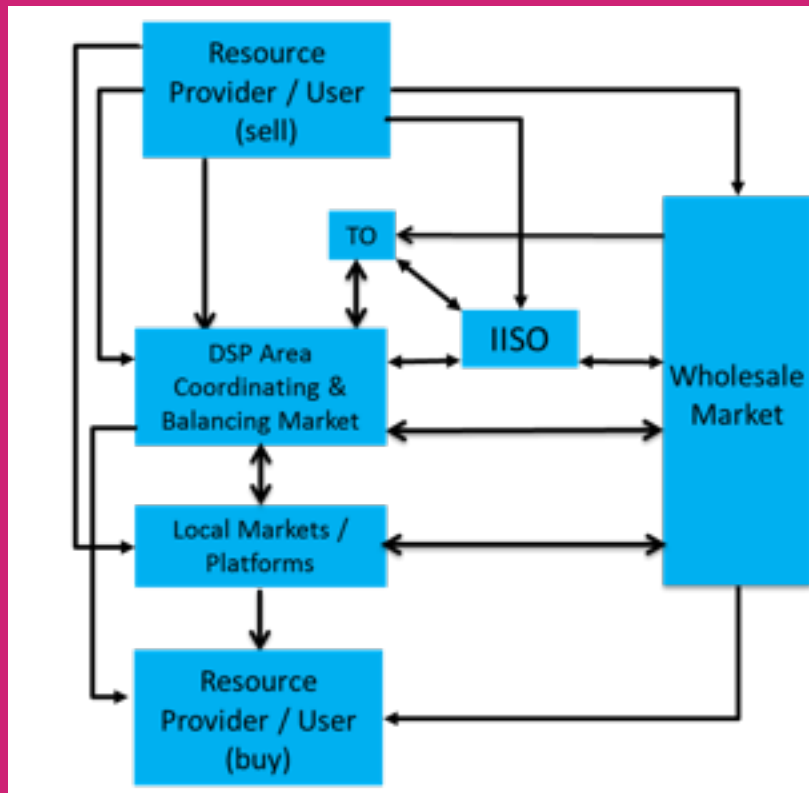
## Customer Focused

- 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

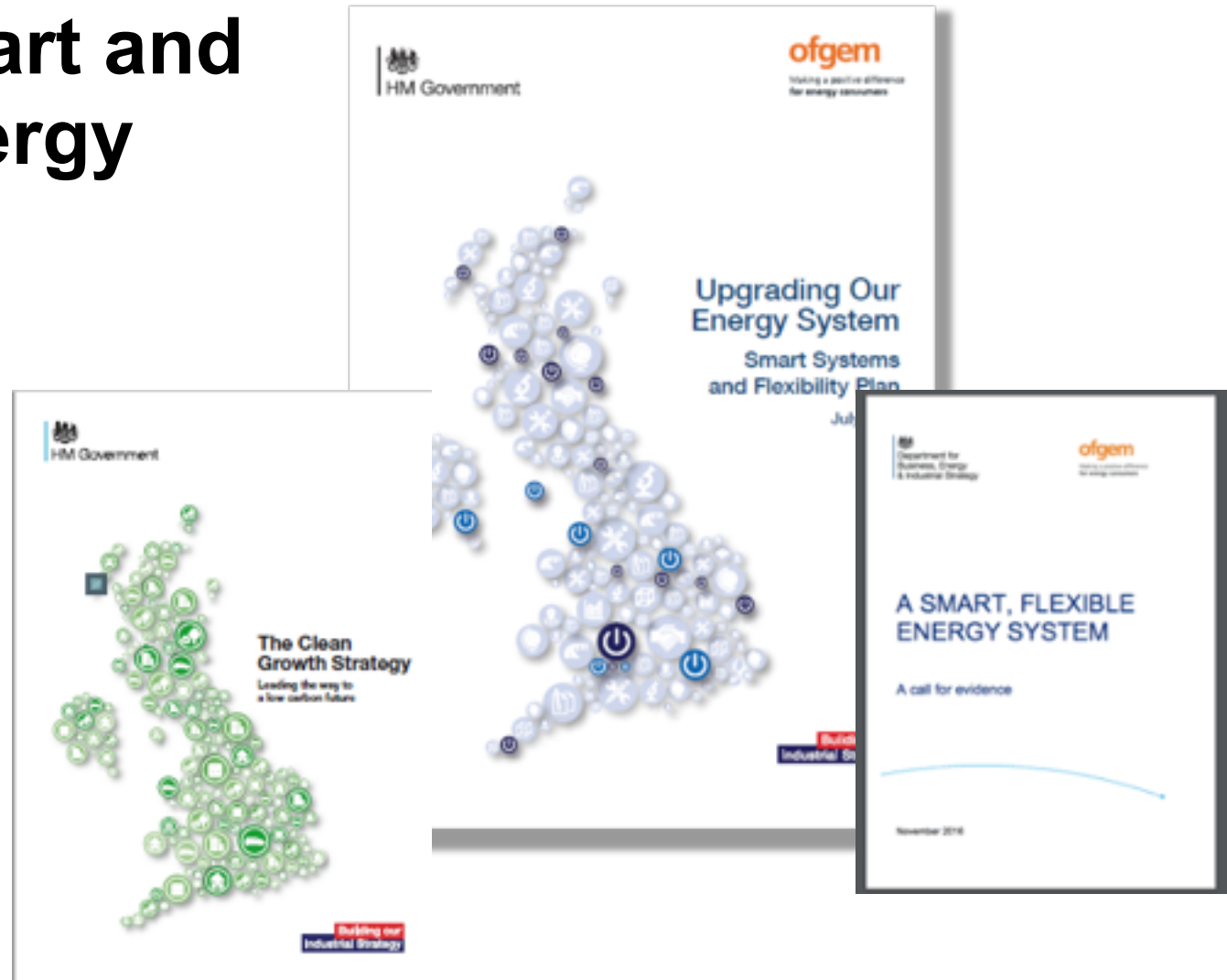
- New Ofgem duty to meet CCC carbon budgets; stripped back to economic regulator
- More performance based regulation (ie more output focused)
- DNO to DSP; SO to IISO
- Restructured RII02, enabling decarb of electricity by 2030
- Closer link between network operation, market design, data and public policy goals
- Access to, and transparency of, data

# Case Study: RIIO - making S&F happen

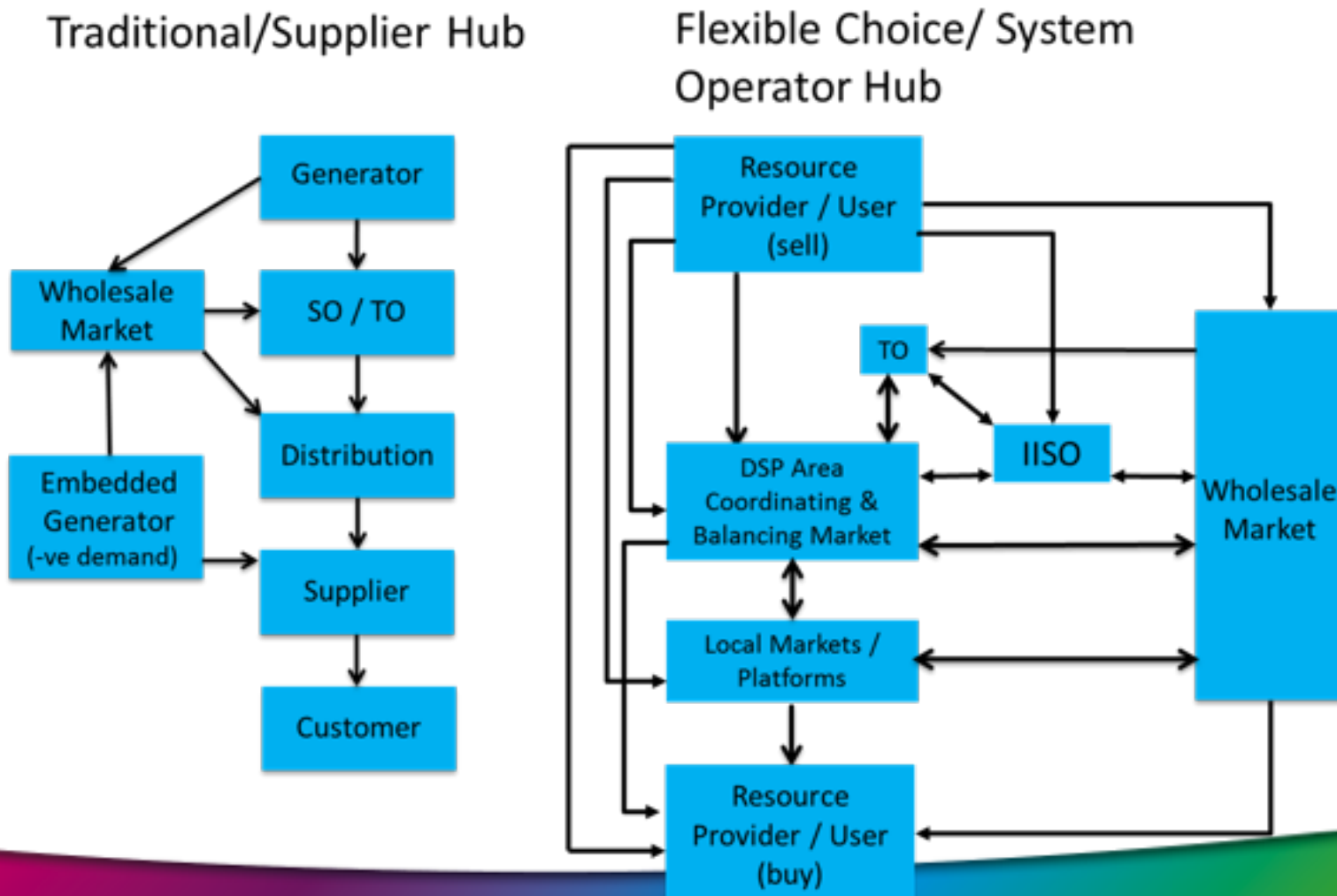
- Electricity has to be decarbonised by 2030
- Electricity networks are regulated by RIIO mechanism (Revenue = Incentives + Innovation + Outputs)
- RIIO1 for distribution companies ends 2023: so RIIO2 ends between 2028 and 2031 (depending on price control length)
- The basis of RIIO2 is being discussed now
- RIIO2 should lead to a network which could complement a decarbonised electricity system



# Government policy is for a 'smart and flexible' energy system

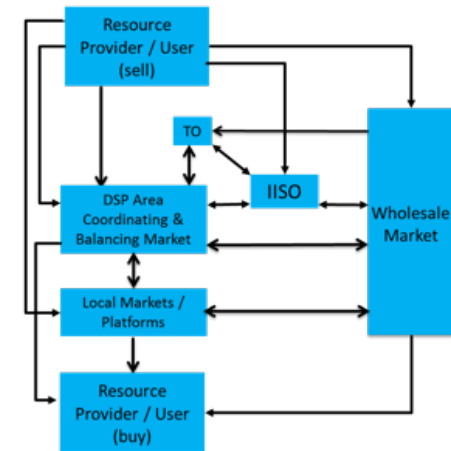


# Ofgem undertaking multiple consultations (RIIO2, Network Charging; Post-Supplier Hub Model; Electricity Settlement and Metering) to deliver S&F system



# Flexible, coordinated operation & design

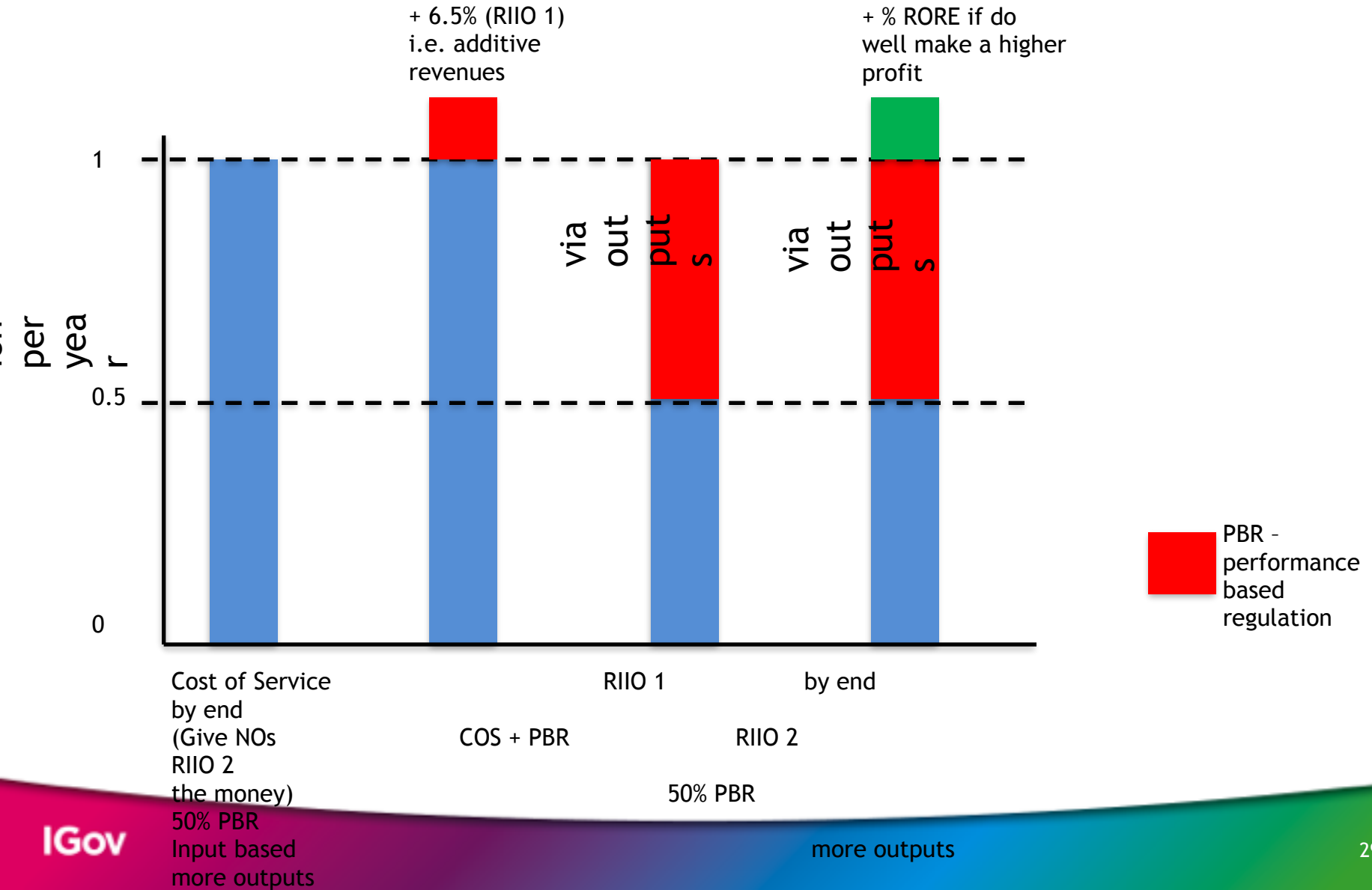
- Service should be able to sell to whom they want (national or local)
- Customer should be able to buy from whom they want (national or local)
- IISO has responsibility to develop infrastructure to meet CCC targets, and to coordinate and integrate across heat and electricity
- DSP are coordinators, 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



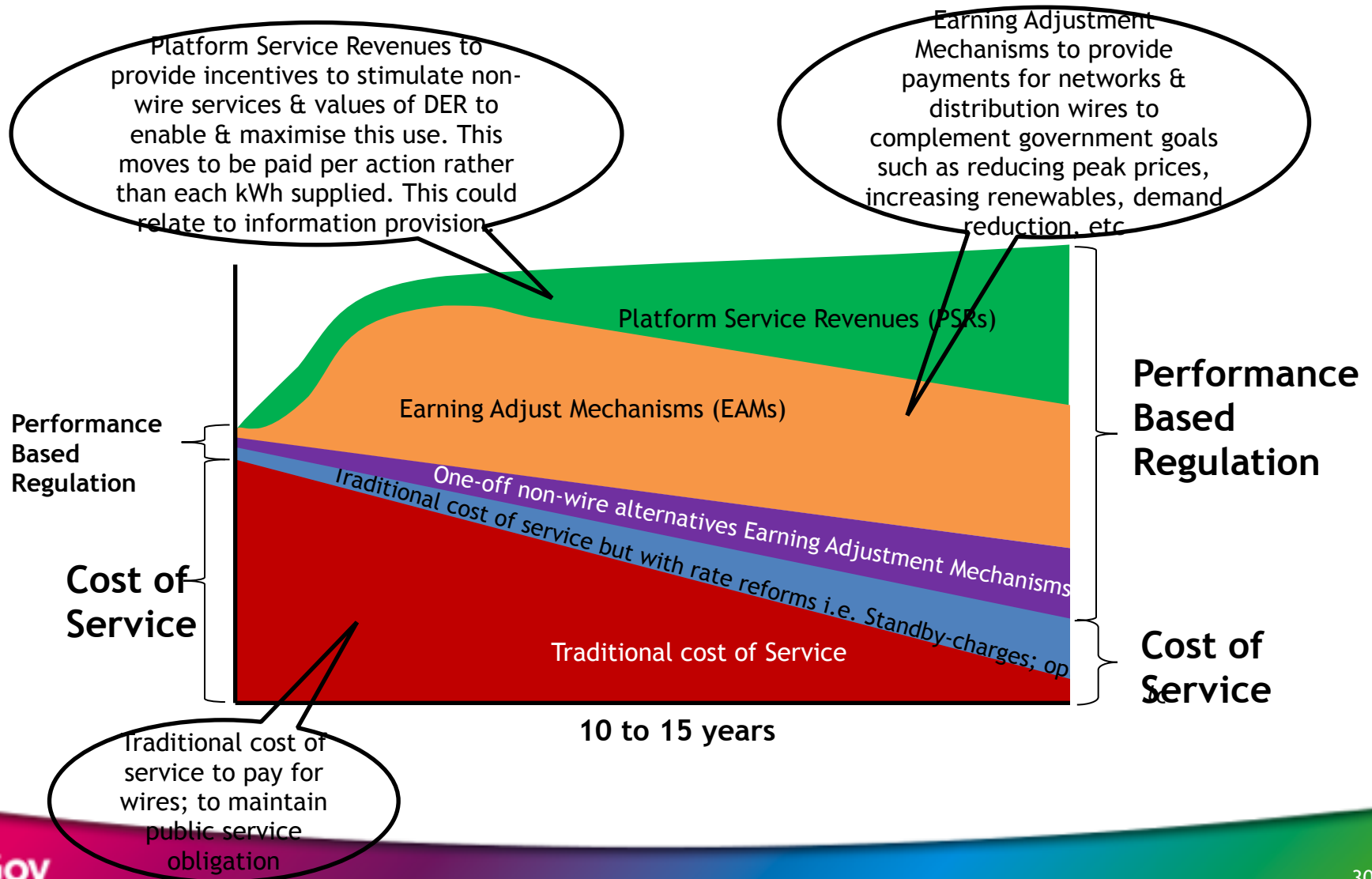
# Distribution Service Providers should be at the heart of regulatory reform and electricity decarbonisation: 'active' ; RIIO way behind



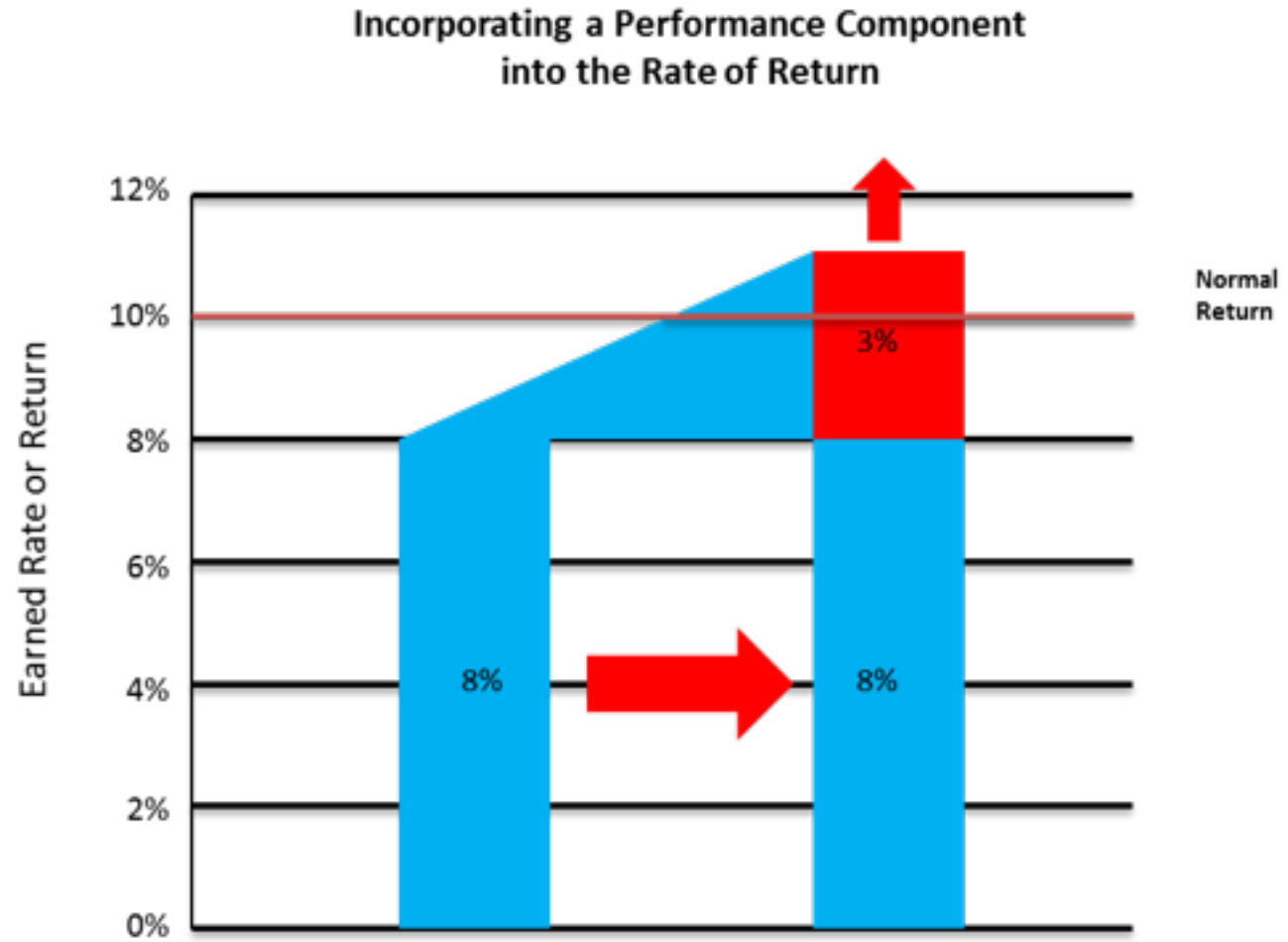
# Challenge: change the role of DNOs to DSPs by the end of RIIO2



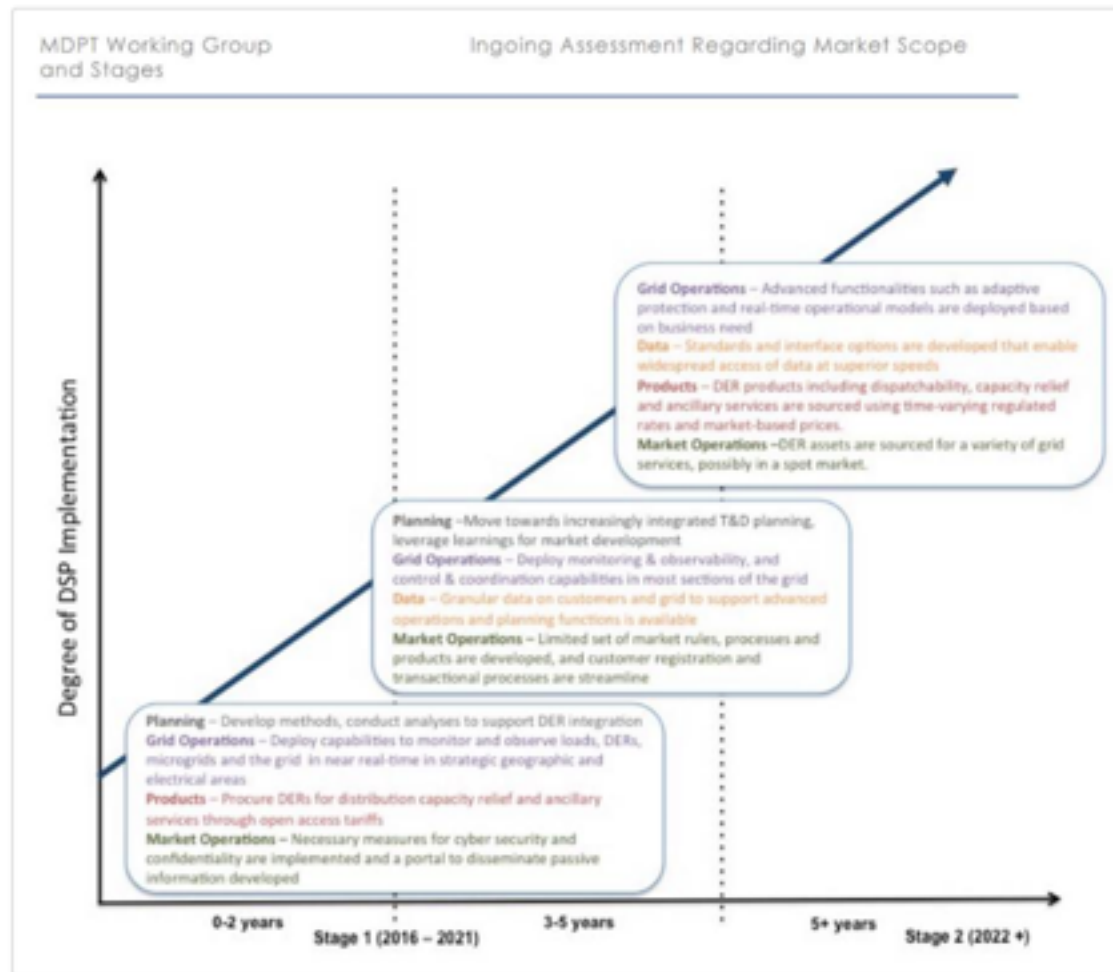
# Lessons from New York Reforming the Energy Vision



**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](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 RII02 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/>