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Building a zero carbon economy – Call for Evidence

IGov response to the Committee on Climate Change

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Summary

[IGov](#), a project of the University of Exeter’s Energy Policy Group, examines innovation and governance in the energy system. We focus on the fundamental, rapid energy system change that is happening at the moment, driven by technological, social and environmental factors; and examine the shifts in governance that are required in order to meet crucial goals, including carbon reduction. The evidence offered to the CCC is based on research within the UK and other countries including the US, Australia, Denmark, Germany and Portugal.

IGov analysis shows that significant reform of energy governance is necessary to achieve a zero carbon economy. In summary, the following changes are needed:

- A shift to a more people-focussed energy system, which combines consumer protection with a wider understanding of people’s roles as citizens, engaging in the transition to zero-carbon.
- Better co-ordination of energy policy with climate change objectives. This could be achieved through a strategic body tasked with overseeing the energy and carbon objectives, in line with the UK’s carbon targets – an ‘energy system transformation commission’. This would be closely linked to the CCC.
- Regulatory reform, towards a model of adaptive regulation, to encourage innovative energy services, linking supply, demand, response and storage; and linking across buildings and transport.

Below, we offer more detail on these recommendations, in answering four of the consultation questions.

Question 9 (Behaviour change): *How far can people's behaviours and decisions change over time in a way that will reduce emissions, within a supportive policy environment and sustained global effort to tackle climate change?*

There are two significant barriers to involving people in the transition to a zero-carbon energy system. First, in the current structure of energy market regulation, people are acknowledged only in their role as consumers of electricity and gas, although they increasingly play other roles, generating their own power, reducing demand, or providing demand response through batteries. Second, people are seen as consumers, yet they also play a role in the energy system as citizens – voting; engaging in the planning system; giving consent (passive or active) to energy infrastructure; and reducing or changing energy use for reasons other than cost-saving, such as a desire to contribute to carbon reduction.

This is why IGov proposals for energy governance put people at the centre. Unless the many roles of people in the energy system are understood and acknowledged, it will be very difficult to gain consent for the zero-carbon transition.

We would recommend the following measures to ensure that people are at the centre of the transition to zero-carbon:

- There should be a clear acknowledgement that people are energy citizens as well as energy consumers, with opportunities for people to participate. For example, the CCC could use deliberative processes to gain insights from people about how future carbon budgets could be met, including the balance between sectors, distributional implications, and so on. In the IGov proposal for an Energy System Transformation Commission, there would be a requirement for consensus-building processes to draw on public views and values in order to set a strategic direction for the energy system.
- There is a need for a much greater focus on demand-side measures, which will require the consent and engagement of citizens.
- Companies and policy makers must start to view end users as a source of system services, for which the customers are paid and which potentially negates the need for additional infrastructure capacity elsewhere.
- Policies should create incentives for personalised service and interaction, rather than a standardised approach, as with current supply tariffs. This requires thinking about customer propositions – what do customers actually want – and could happen as part of the move to local energy markets that we describe in Q10 below.
- Vulnerable households require specific protection, and potentially specific policies to negate any distributional impacts of other policies. This will become more important with a move to ICT-enabled services, which might encourage providers to 'cherry-pick' and avoid offering services to poorer households.
- A market monitor and data body is needed, to ensure that there is open and transparent access to data and to ensure that end users' data is adequately protected.

For further information on these points, see the [IGov working paper, People, Demand and Governance in Future Energy Systems](#).

Question 10 (Policy): *Including the role for government policy, how can the required changes be delivered to meet a net-zero target (or tightened 2050 targets) in the UK?*

Appropriate governance of the energy system is crucial to achieving a net-zero target. The current governance arrangements for energy have not kept pace with technological change (particularly distributed renewable energy and ICT-enabled energy services) or environmental and social goals (particularly the transition to zero-carbon and support for vulnerable households). The energy transition is not a technological challenge, it is a governance challenge.

There is also a need to acknowledge how political and economic power sits within the energy system. For example, the large energy supply companies, and some large-scale generators, have unrivalled access to data and expertise, as well as contacts within government and regulators. This gives them an inbuilt advantage in any consultation or advisory process. Moreover, broadly, the 'value' in the energy system continues to sit with the conventional stakeholders and system operation. Only when value can be captured by the smart and flexible system stakeholders will Britain be able to move at sufficient pace towards it.

This imbalance of power is problematic when the energy system should be moving away from the current system toward a new system which will involve different actors, most of whom do not have the resources or expertise to influence governance arrangements.

For these reasons, we argue that a fundamental change is needed in the institutions and policy that govern the energy system, detailed below.

Consensus-building and direction-setting

In the current system, there is no clear process for setting strategic policy goals for the energy transition. The task is spread across BEIS, Ofgem and the CCC, with input from other government departments and regulators (including HM Treasury, the National Infrastructure Commission, CLG and others). This leads to a confused picture. For example, The Committee on Climate Change advises on how carbon budgets should be met, but has no direct influence over energy market operation, including the codes governing electricity supply. Whilst the CCC recommends a significant increase in focus on energy efficiency, there is no clear regulator to take this recommendation forward. We argue that the current confused picture should be replaced by a new governance framework as follows:

- Reform of the institutional architecture to provide a clearer strategic lead, eg through the creation of an independent Energy System Transformation Commission, working alongside the CCC, Parliament and BEIS. This would build consensus, set a strategic direction for energy policy, and make explicit the role that the energy system plays in moving to net-zero emissions.
- An integrated Independent System Operator (ISO) to oversee the implementation of this strategy, within energy markets, including oversight of regulatory codes. This would integrate gas, electricity and aspects of transport, at different levels, both transmission and distribution. A key role of the ISO would be to ensure implementation of carbon goals set by the strategic level (as above).
- Ofgem retaining its function as an economic regulator, overseeing transmission operators and energy service providers (see below).
- An independent Data Body and Market Monitor, to oversee use of data within the industry.

For further information on these points, see the [IGov working paper, Governance for Innovation, Sustainability and Affordability](#).

Local markets for energy services

Currently, consumers (domestic, commercial and industrial) engage with the energy system in a national market, with an emphasis on supply, i.e. purchase of units of electricity or gas. For domestic consumers in particular, this is their dominant interaction with the energy system, as discussed in our response to Q9, above. Much potential for innovation in the energy system is at the local level - particularly distributed generation, demand response and ICT-enabled services. The electrification of transport will also impact at a local level. This means that national-scale markets can no longer provide the granularity required to achieve energy goals. There is a need for local markets which can reward efficient, flexible, carbon-free energy services.

The creation of local markets will require a new governance framework, to oversee distributed generation, supply, flexibility and efficiency services, linked together into local energy services. Distribution Network Operators (DNOs) could be transformed into Distribution Service Providers (DSPs), providing platforms for local markets and network services. A potential model for DSPs is New York State's Energy Vision initiative.

For more details on the DSP proposal, see [this presentation by Catherine Mitchell](#); for more details on the role of local areas in energy governance, see [this presentation by Jess Britton](#).

Adaptive regulation

It is widely acknowledged that the pace of innovation in energy services is unprecedented, particularly with regard to ICT-enabled energy services. This poses a considerable challenge to regulators, with a real risk of regulation lagging a few steps behind innovation, and acting as a brake on progress. The institutional arrangements described above - particularly a clearer, more consensual process for setting policy goals; and more flexible local governance - will help to create a more adaptive regulatory environment, governing a transition rather than a static system.

One crucial shift is to develop a market for energy services, rather than units of energy, which, as described above, could be achieved through the creation of Distribution Service Providers (DSPs).

A move to more adaptive regulation requires a shift from 'input' type regulation to output based regulation. These outputs are regulated via performance-based regulation. These outputs can change, as can the stringency of the performance-based regulation. Reviews can be included - so when something goes very wrong, such as the capping of solar after a year into the RIIO1 price control period, change can occur. Regulators need the ability to undertake assessments of 'new' topics as and when they come up - as opposed to have to wait out an agreed forward plan - which may become irrelevant by the time it is put in place.

Question 11 (Costs, risks and opportunities): *How would the costs, risks and economic opportunities associated with cutting emissions change should tighter UK targets be set, especially where these are set at the limits of known technological achievability?*

IGov evidence demonstrates that the challenges of achieving a zero-carbon energy system are challenges of governance rather than technology. There is always a risk in reform of policy and institutions, not least the time, effort and upheaval inherent in any change process. Yet we would argue that it would be more risky, both in terms of economic progress and progress against carbon budgets, to continue with the present outdated system.

The experience of distributed generation in Australia, [detailed in this blog](#), shows the difficulties of regulation keeping pace with rapid technological change, in this case huge uptake of domestic solar power. Australia experienced booms in solar panel installation in response to generous Feed-in Tariff rates, similar but more pronounced than the recent UK boom. Regulators then responded by slashing tariffs, which reduced confidence in energy regulation. Australia has now decided that a more strategic, adaptive governance process is required, similar to the model we outline for GB, above.

We know from work by Stern and by the IPCC, that the longer we leave carbon reductions, the greater the cost in achieving the targets. As such, it is important that the RII02 mechanism is set up so that the networks are able to complement 2030 / 2040 and 2050 targets – not currently the case. Similarly, market design – whether wholesale and a new local coordinating and balancing market, scrapping of the capacity market; and the design features themselves also have to complement a smart and flexible energy system. This includes the eligibility of the demand side in markets on the same footing as supply. Furthermore, policies – particularly with respect to improving energy efficiency of buildings needs to be targeted so that the vulnerable use less energy for the same comfort, thereby reducing fuel poverty and so on.

Question 13 (Devolved Administrations): *What differences in circumstances between England, Wales, Scotland and Northern Ireland should be reflected in the Committee's advice on long-term targets for the Devolved Administrations?*

Evidence from IGov research strongly supports greater devolution of energy governance, to local areas and devolved nations, as a way of enabling more ambitious carbon targets to be met.

In recent months, there has been a welcome shift toward greater local involvement in energy planning, through the Industrial Strategy. Local areas have been offered resources to develop Local Energy Plans, working alongside Local Enterprise Partnerships (LEPs). However, this approach largely sees energy as part of a wider industrial strategy, concentrating on investment and business support,

rather than governance. As discussed above, there is a need to devolve energy governance, and encourage local energy markets.

Regarding Scotland and Wales, there is currently a mismatch between responsibility for climate change strategy, which is devolved; and energy governance, which remains under the control of the UK Government as part of the GB energy market. A move to more local energy markets, together with the more strategic governance framework set out in our answer to Q10 above, would offer Scotland and Wales greater opportunities for co-ordinated energy and climate governance.