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## **National Infrastructure Commission: ‘The Future of Regulation Study’ Call for Evidence**

**Submission from the Exeter Energy Policy Group, University of Exeter**

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### **Section 1: Introduction**

We, the Energy Policy Group (EPG), welcome the NIC’s Call for Evidence on the Future of Regulation.

We are an energy group, and as such our comments are likely to be most relevant to energy regulation.

Ultimately, we argue that it is Government which has to take responsibility for GB energy policy, and the way it is regulated. The Government has persisted with the model of regulation and regulatory relationship adopted (between Government and Regulator) when gas and electricity were privatised in 1986 and 1990, with only incremental changes, despite it being no longer suited to the [energy system and challenges](#) we face.

Ofgem, the Energy Regulator, and the process of regulation overseen by Ofgem has shown itself to be too rigid and unable to deal with the rapid changes within the energy sector, in particular related to the needs of greenhouse gas emission reduction.

We do also argue that Ofgem has been overly cautious in its interpretation of its Duties and could have performed better with respect to competition, innovation and the environment than it has done within its current Duties.

This submission is set out in the following way: Section 2 explains why getting energy governance right is so important; Section 3 answers the NIC questions; Section 4 sets out the EPG broad arguments for governance change; and section 5 concludes.

## Section 2: The importance of energy governance

Over the coming decade, the UK needs to bring about radical reductions in greenhouse gases, to move to net-zero emissions by mid-century at the latest, in order to fulfil its obligations under the Paris Agreement and avoid climate breakdown. Energy use, for electricity, heating and transport, accounts for two-thirds of greenhouse gas emissions. Reaching this goal will therefore require a major transformation of the energy system.

As the government's Industrial Strategy acknowledges, energy systems are on the brink of significant change. A wave of innovation, driven by decentralised generation and digitalised products and services, is leading to greater integration between different system components (electricity, heat, transport, storage, efficiency and demand response). Achieving decarbonisation will also require greater engagement of individuals, as citizens, customers, and consumers. Taken together, the change to energy systems can be characterised as 'D4': decarbonisation, decentralisation, digitalisation and democratisation.

To harness this innovation, and achieve social and environmental goals, there is a need for better governance. We define governance as 'the policies, institutions, rules and incentives related to the energy system, and the underlying decision-making process which establishes those rules and incentives'. Current governance arrangements were established in the 1980s and 1990s following privatisation of electricity and gas, and have evolved but not changed fundamentally since that time, despite technological advances. IGov argues that there is a need to review and reformulate energy governance, to manage a process of transformation, to encourage innovation and achieve radical carbon reduction alongside social goals.

When electricity and gas were privatised, in the 1980s and 1990s, assets were transferred from the public sector to the private sector. The state switched from being the provider of energy services, to being the regulator of private energy companies. Separate regulatory regimes were established for the maintenance of networks, generation of electricity, and supply of electricity and gas. Electricity and gas network operators, which look after the pipes and wires, are natural monopolies. So the amount that the new companies could charge, and the amount of profit that they made, was set through a bargaining system – the 'price control' process, which continues, in modified form, to this day. To encourage competition in the generation of electricity, a market was created, which allowed companies to earn money for each unit of electricity that they generated. Again, this has evolved, but not changed fundamentally, over time. A separate market was created to supply electricity and gas to households and businesses. Again, competition was encouraged, but within strict rules set by government, and enforced by regulators.

The key point is that the privatisation of energy did not result in a 'free market', but a regulated market within which firms could compete to provide services, with different arrangements in place for networks, generation and supply. There is no such thing as a 'free market' for energy. Neither would we want a free market, given that the energy system needs to meet certain standards of security, safety, consumer and environmental protection.

Because energy markets are created through governance arrangements, the 'cost' or 'price' of any energy product or service, and the profits that can be made, are defined, in large part, by those governance arrangements. In fact, the actual product or service that is traded, is itself defined by governance. For example, in the market for electricity generation, units of electricity are bought

and sold, by the kilowatt hour or megawatt hour. It would be possible, instead, to design a market where the 'product' traded is generation capacity – the infrastructure itself – or a market which rewarded energy saved through demand reduction or efficiency.

In short, governance determines the 'cost' of different generation technologies; the feasibility of different business models for generation, supply, efficiency, flexibility and storage; and the definition of 'value' within the energy system. This matters because, since the time of privatisation, so much has changed, due to both innovation and new social and environmental goals; yet the fundamentals of energy governance have not changed in step. Instead, the old system has been overlaid with new regulations and institutions to attempt to incentivise new system requirements, including decarbonisation, efficiency and social goals; yet the fundamentals have not changed, and so the overall system has become complex and contradictory.

There are a number of ways in which energy governance is no longer fit for purpose:

- There is **no process for direction-setting** or managing decarbonisation.
- **The system favours established players**
- There are **confused signals for market participants**
- There is **no way of co-ordinating integration across the energy system**
- The **governance arrangements for protecting low-income households and ensuring access to affordable energy are not clear.**

We come back to this arguments in Section 4.

## Section 3: NIC Questions and EPG Answers

### Questions 1-3 Future Changes

1. **Where has the economic regulation of water, energy or telecoms systematically failed or succeeded to**
  - a) **Facilitate future investment needs;**
  - b) **Promote competition and innovation; and**
  - c) **Meet the needs of both current and future consumers**
2. **How might the scope, functions or activities of economic regulators need to adapt in light of future challenges**
3. **How might the increasing availability of data impact regulation in future? Can data increase the pace at which regulation responds to change, enabling innovation?**

We think that economic regulation has failed at all three sub-sections of question 1, and we would argue that this is really because the current governance model based on independent regulators; primarily economic assessments; and self-regulation of Codes has run its course. It needs to move to a new balance between direction from government, and designing markets (both at the wholesale and local level) so that the rules and incentives they incorporate reflect the strategic need to decarbonise.

### ***Facilitating future investment needs***

We think that economic regulation of energy has failed to facilitate future investments; promote competition and innovation; and meet the needs of future consumers. Explaining why this is would take more than the 20 pages in total for this submission, but we would be more than happy to give oral evidence if required. In brief, we argue that the Government has failed, since the 2003 Energy Policy White Paper, to follow an evidence-based energy policy. It has wrongly assumed that supporting private interests will automatically result in outcomes in the public interest. On the one hand, the Climate Change Act requires us to reduce emissions by meeting carbon budgets, but the Government has done little to ensure that GB governance (policies, institutions, market and network rules and incentives, retail policy) is complementary to that. This has been to the benefit of the conventional energy industry and the detriment of a decarbonising energy system, which its policies say it is supporting.

In terms of facilitating future investment needs, energy policy is continuing to lock in inferior technologies despite the emergence of alternatives. For example, the Government has borne most of the risks on a new nuclear power plant (Hinkley Point C) and is thinking of underwriting another nuclear power plant – when nuclear power plants are inflexible and expensive (relative to other forms of decarbonised energy); and supports fracking (producing fossil gas) over the will of local communities and the requirement to meet carbon budgets. At the same time, there is a capacity market which subsidises fossil fuel and nuclear generation; there is minimal support to the demand side, and almost no support for renewables other than offshore wind (renewables being the block of technologies we know can help us quickly meet our GHG reduction targets) and which are also usually cheaper than nuclear power.

In parallel, around the world, the economics of energy have been changing as a result of the large scale trends in terms of decarbonisation, digitalisation and decentralisation. The trajectory of innovation within many energy systems, including that of the UK, is around these 3Ds. However, for this innovation to be ‘mainstreamed’ beyond isolated trials there needs to be a clear route to market. The current governance structures do not provide any certainty or clarity for innovative energy services in terms of this clear route to market – and this undermines investment. Investment in technologies at odds with the 3D innovation trends has been possible where the Government is prepared to significantly reduce the risk of the investment or provide extensive subsidies, such as for e.g. Hinkley Point C.

GB has continued to try and fudge its way through energy policy – supporting inflexible, large scale nuclear whilst in the same breath saying it supports a smart and flexible energy system but without ensuring the necessary barrier-free governance to encourage the latter. It is not surprising that investment has not been forthcoming.

### ***Promoting Competition and Innovation***

In terms of promoting competition and innovation, we again think GB has failed in this regard. Whilst much of this has been because of the actions of Ofgem, we do not think that they should take all the blame. Our view is that, ultimately, Government is responsible for delivering outcomes in the public interest through effective energy policy and it should ensure that our Energy Regulator and its Duties should be fit for purpose to deliver these policies towards these outcomes.

Ofgem has more or less continued executing the traditional means of regulation (broadly RAB based input regulation and adversarial between the Regulator and the companies) and has chosen a very incremental approach to change with respect to the features of the energy system. As a result, innovation and competition have been minimal.

Competition has occurred via various markets with particular designs (rules and incentives). The design of those markets were set up for large scale, centralised fossil power and nuclear plants. In a digitalising, decarbonising and decentralising world, new resources with new costs (and likely new entrants) could be incorporated into the energy industry were they able to access value for those resources, such as storage. In many cases, the rules of accessing those markets, or the incentives in them are stacked in favour of the conventional energy system way of doing things.

In this sense, competition and innovation have been poor – and this is, at root, because little urgency has been sent from BEIS to the Regulator (whether GEMA (the Board overseeing Ofgem) and Ofgem) to enable innovation; and (2) because of an unclear relationship between Government and the Regulator (again GEMA and Ofgem), about who is responsible for what. This means that any change – where competition or innovation could occur - via Ofgem (e.g. through its current multiple consultations (network charging ([residual](#) and [future](#)), [electricity settlement](#), [the supplier hub model](#), and [RIIO-2](#) issues)) appears to be taking, at best, a Business As Usual approach.

### ***Meeting the Needs of Future Consumers***

We also think there has been a failure in meeting the needs of current and future consumers. This is interlinked to the Government and Regulator's attitude to competition and innovation, and again at root related to Governmental responsibility.

Ofgem is required via their Duties to think of the interests of future consumers. Such consumers deserve an energy system which will deliver the UK's legally binding Climate Change Act targets as well as [aspiring to the 'net zero'](#) target which the Committee on Climate Change has been asked to advise on. This energy system should encompass electricity, heat and mobility. As we know from the CCC Annual Report there is a [policy gap](#) to enable GB to meet our legally binding Climate Change Act budgets. We know from the [Stern Report of 2006](#) (and Nicholas [Stern's later work](#) and other authors, including the [IPCC](#)) that decarbonising our energy system sooner rather than later would be cheaper for society than a BAU approach. Moreover, GB needs this sustainable energy system to also meet issues of equity and security. We would argue that meeting all those goals are complementary, and economic.

The Regulator has chosen to think about current customers only with respect to price – the conventional way of viewing the wishes of customers - and we would argue that the Regulator either does not think, or thinks minimally, about future customers.

The Government could have provided more leadership.

### ***Question 3***

Digitalisation enables both incremental and transformative change across the energy system, and both present challenges for regulation. At its heart, digitalisation is about the expansion of capabilities to generate and manipulate information about different components of the energy system.

On one hand, increased collection and manipulation of data is enabling incremental improvements across *existing* 'back-office' activities, such as planning, forecasting and trading, much of which is supporting the core competencies of established actors.

On the other hand, being able to generate and manipulate data is creating the potential for more radical changes in energy systems by presenting new, hitherto unexploited, value streams which can a) underpin new markets for essential services such as flexibility, b) offers benefits to consumers in exchange for access to data and c) creates routes to markets (provided enabling governance is in place) to those new entrants able to offer innovative business models. An increase in the availability of data can thus support both BAU as well as more radical change.

What is more important than digitalisation per se, is the public interest outcomes digitalisation offers. Increased digitalisation within the fossil fuel industry offers different prospects across a range of public interest dimensions (e.g. sustainability, value for money) than digitalisation that enables transitions to a low-carbon energy system.

Moreover, the increasing availability and value of data presents new challenges in the public interest, for which the current regulatory system may be unprepared for, such as how the ownership, security, and manipulation of data affects fairness, equity and value for money among consumers and energy citizens alike.

With regard to the second part of Q3, the relationship between data and the pace of regulation is not straight forward. While an increasing availability of data is affecting innovation across the energy system as already discussed, the value inherent in being able to control and optimise electricity supply and demand means that one particularly dynamic ecosystem of innovation is that around the novel technologies and business models that can unlock that value. Governance however is not currently keeping pace with innovation in this space. More data in itself will not increase the pace of governance change. However, an increasing availability of data is creating a challenge – and an opportunity - for policymakers and regulators to keep abreast of, and realign objectives with the shifting set of dimensions in the public interest.

It is clear that digitalisation is going to create customer protection issues. We think – although we are not wholly determined on it – that there should be a new Data Regulator, which is cross GB society and sectors. We also need a much stronger customer protection Regulator – again across society and sectors will be necessary – and this goes well beyond the rather narrow view Ofgem takes on minimising price. We do think that the issues of energy, water and telecoms are so different that keeping energy separate - and not having a mult-utility – would be our favoured option. However, we also do think that Ofgem should be stripped back to being an economic regulator.

### ***Solutions for Q1-3***

Our solutions are given in detail in Section 4 below. In brief they relate to (1) the need to change Ofgem's Duties to include an explicit Duty on Ofgem to deliver decarbonisation outcomes, including carbon reduction; (2) we think the British public (or society) should be able to hold Ofgem (and all Regulator's) accountable for their actions (which is currently not possible at all); (3) we think that the Energy Act 2013 should promulgate the Section 5 [Strategy and Policy Statement](#), as occurs for water and telecoms, which would allow a little more nuance between public policy and regulatory outcomes; (4) we think a new institution is required – an Energy Transformation Commission (ETC) – to parallel the Science Advice of the CCC in delivering an energy transformation. The Secretary of State would decide policy and distributional impacts, and then

hand over to the ETC to deliver it; and (5) Ofgem should become an economic regulator. More of this below.

Secondly, we think under current arrangements, Ofgem does have a Duty with respect to ‘future customers’ but we think Ofgem could interpret this Duty in a more forceful way with respect to climate change than it does. We think Ofgem should show more leadership and determination to ensure that regulation complements public policy and to make sure that networks (and other governance rules and incentives that it has control over) are encouraging of a sustainable, smart and flexible energy system. An example of how this is not the case, is the so far almost complete absence within the RIIO methodology document [SSM](#) of the regulatory details of how networks are to complement the CCC carbon budgets. [We think Ofgem](#) could provide more support for environmental targets if Ofgem chose to interpret their legal Duties in a different and because of this we think Ofgem should take responsibility for its lack of action with respect to competition, innovation and environment.

#### **Questions 4-7 Competition and Innovation**

- 4. How have the energy, water and telecoms sectors performed with respect to efficiency since privatisation**
- 5. How has competition impacted on investment, innovation and outcomes for consumers across energy, water and telecoms since privatisation**
- 6. How has regulation affected the level of innovation in energy, water and telecoms compared to these utilities in other countries or comparable industries?**
- 7. When has regulation been too slow to adapt to changing market circumstances and what have been the consequences for consumers and investors?**

Some of these questions have partially been answered for Questions 1-3 above. We also do not attempt to evaluate ‘efficiency’ via an economic assessment but rather understand it as achieving an optimal, long term framework to deliver a more sustainable energy system.

#### **Question 5**

We do think that a combination of Government policy and traditional economic regulation has led to a stagnant GB energy system, lagging behind mainstream global ideas of where energy systems are heading, as well as lagging the regulatory needs of new energy resources or services. As such, GB has become a risky place to invest not just because of policy uncertainty but also because it is lagging ‘mainstream’ views on where energy systems are heading. The exception to this is when risk has been taken away from investors and placed on Government (meaning customers) and high prices paid. Innovation has been minimal because the interlaced network of rules and incentives and institutions of the energy industry continue to support the conventional industry, and as such what innovation has broken through has done so despite Government policy and Ofgem regulation. All of this is bad for customers and the public good given that it will have negative impacts on a sustainable industrial strategy and the clean growth plan.

The UK has world-leading legislation on climate change, in the form of the statutory targets enshrined in the Climate Change Act. However these are not properly embedded in energy governance. Government departments, other than BEIS, do not have a clear, quantified responsibility to reduce emissions, and nor do local authorities or cities.

### **Question 6**

In terms of renewable electricity deployment, GB is middle of the list for industrialised countries, largely driven by the recent rapid expansion of offshore wind at the expense of a more diverse mix of renewable technologies. However, the basic constituent of British energy policy - Government policy devolved to an executive of independent regulation - does not bode well for GB. Ultimately, more direction and coordination is needed along a route that global business and GB society accept as legitimate and realistic. This is discussed further in Section 3.

Different countries around the world have different framings, sometimes known as policy paradigms, which define the broad ideas/principles adhered to within policy making and regulation. Britain follows a traditional market economy and regulatory approach; India might follow sustainable development; China and Germany more industrialisation. Some countries, not (yet) including the UK, have explicitly set a goal of energy system transformation and have set clear processes to achieve change over time. Germany, California and New York State are the best known examples of explicit transformation language.

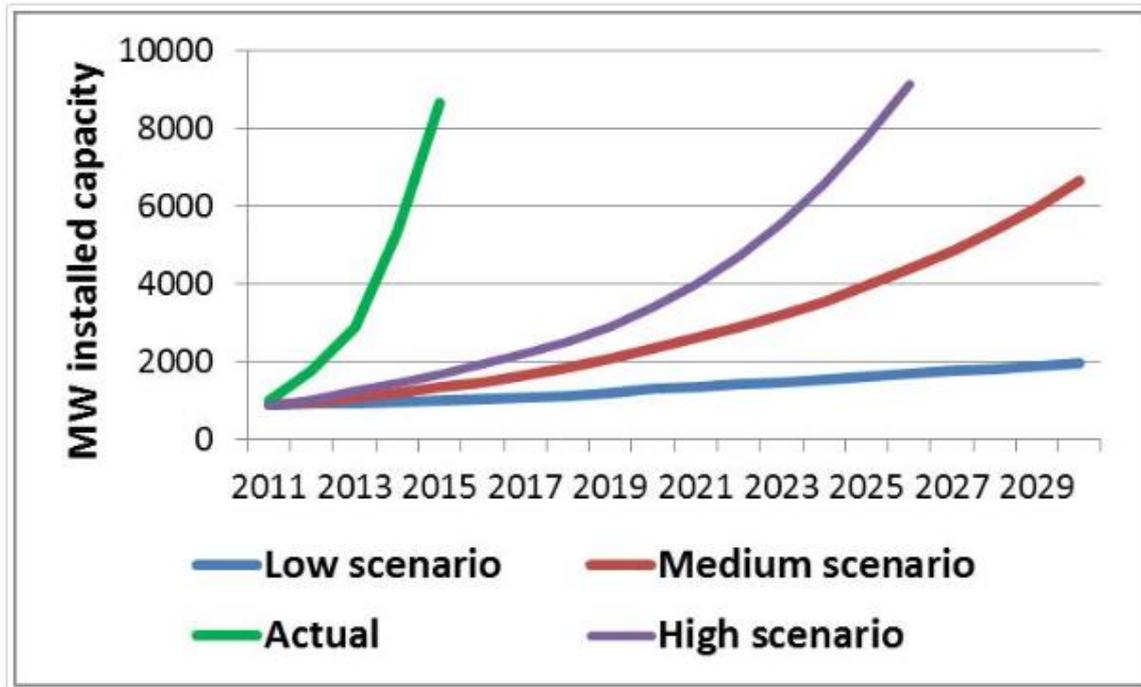
There are some countries which have experienced rapid, disruptive change as a result of missing what was going on in the world (eg [Eastern Australia](#)), and which is now trying to get their energy policy and interactions with society back on to some even keel. Having a traditional, centralised governance model similar to GB, with limited inherent adaptability within it has meant that Australia has been increasingly reactive and slow to accommodate the benefits that the disruptive change may have brought.

Markets are an essential tool within transformation but there is now a move either to more direction (e.g. CA) or to a greater balance between markets and directed regulation (NYS), [as is also expected in Australia](#).

### **Question 7**

GB Regulation has been too slow to adapt to market circumstances – and is continuing to be too slow in its recent decisions. The ‘classic’ example of this is when the electricity distribution companies based their RII01 regulatory business plans on National Grid’s low scenario for PV development, and then this was accepted by Ofgem. As can be seen from the Figure below, the reality of PV development was very different. In the South West, the outcome has been that one year in to the RII01 eight year price control, solar farms could only connect to the electricity system if they agreed to being ‘constrained off’ when the electricity system capacity of the system could not take any more electricity.

Figure 1: Solar Deployment



Source: <http://projects.exeter.ac.uk/igov/new-thinking-solar-surprise-revisited/>

Regulation could incentivise non-wire alternatives (NWA) to minimise constraints such as via the addition of new demand sources, such as a storage unit (as occurs in NYS for example). In GB, there are insufficient incentives on the DNOs to complement Government policy or even think about carbon reduction. Their basic economic incentives continue to be to add network capital as opposed to supporting NWA, and to maintain control over their network. Encouraging NWA (such as storage) is against the DNOs broad economic interests and it could also bring in possibly competitor new entrants, which might be able to take over parts of the [DNOs function](#). This incentivisation should be within RII02, yet GB has not moved beyond innovation funding where DNOs are paid to work on NWA pilots, which arguably, is their job.

Similarly, much of the change within the energy system is related to digitalisation. The combination of decarbonisation drivers, technological change and digitalisation means that cost effective market choice should occur in and around the distribution level – whether electricity, heat, mobility or storage. This means that the institutional arrangements of distribution entities and local markets (coordinating and balancing as well as platforms) are essential to a competitive and cost effective energy system. We argue that Ofgem is not driving the DNO functions (ie competitive and innovation) sufficiently, for example, not demanding DNOs become distribution service providers as in NY State nor demanding that DNOs move towards being DSOs ( a much simpler market facilitator role) until 2028. We would also argue that electricity distribution companies should know what distributed energy resources ([DER](#)) they have in their area by the end of RII01 (ie 2023) as this is a basic building block for local markets and understanding the value (or not) of NWA alternatives. The delay in understanding DER means that unnecessary, short term investments in infrastructure might take place, or investment which is incompatible with the long term goal of decarbonisation may occur, paid for by customers.

There are other examples of Ofgem being slow to adapt or lagging informed energy ideas about energy system development. [Ofgem](#) has taken a step back on embedded generation; it has kept network charging as a separate regulatory issue from the primary regulatory mechanism – which occurs nowhere else in the world as far as we are aware – and undermines the regulatory mechanism and incentives for networks. Ofgem is consulting on Codes, and we hope it will decide to get rid of self-regulation – again, only in Britain as far as we are aware. Similarly, we hope that Ofgem will make sure [RIIO2](#) (the regulatory mechanism, and [here](#)) has sufficient stringency – not clear so far at all that it will move there. In general, its economic assessments remain static and short term, rather than dynamic with assessments over the longer term, and this simply adds to decisions which are more supportive to the conventional rather than sustainable energy system.

However, it is also Government's responsibility that our regulatory system has been so divorced from technological developments and energy economics and BEIS has not helped. They did not separate out the electricity system operator from National Grid group – and the energy system is now faced with serious conflict of interest issues around flexibility providers as predicted. BEIS separated the gas and electricity system operators – which actually would have been much more useful to keep together in an electrifying world, and would have made the decision on what to do with the gas network easier.

See Section 3 below.

### Questions 8-10 Regulatory Consistency

- 8. Where could regulators work together more consistently to meet future challenges, achieve efficiencies within the regulatory system or to promote better outcomes for consumers, investors or society?**
- 9. What changes to the existing regulatory framework would be necessary to promote greater collaboration and regulatory consistency? Are there functions that might better be provided on a multi-utility basis without the need for wider organisational change?**
- 10. What is the case for or against a multi-utility regulator covering energy, digital and water?**

It seems to us that all Regulators should have climate change Duties placed on them. They should also all work to [Strategic Policy Statements](#) – which water and telecoms does, but which energy does not.

This Strategic Policy Statement should provide a long term framework designed to deliver decarbonisation in the electricity sector. It should also provide a framework for greater integration of all energy sectors (electricity, heat, transport) to reflect the reality of how systems will need to develop in future.

We think the outcomes experienced by consumers are fundamentally driven by Government; the Duties the Government place on Regulators; and the governance and wider institutions of the energy system. As said above, we think GB needs a new Data Regulator, which is cross GB society and cross sectors. We also think a much stronger customer protection Regulator – again across society and sectors will be necessary – is required.

We do think that the issues of energy, water and telecoms are so different that keeping energy separate - and not having a multi-utility – would be our favoured option. However, we also do think that Ofgem should be stripped back to being an economic regulator.

### **Policy and regulation**

- 11. Is the traditional role of economic regulation, to mimic the outcome of a competitive market, sufficient to ensure future investment and to meet the needs of current and future consumers, and if not, how might this role need to change?**
- 12. What should be the boundary between government setting policy and strategic direction and independent regulation in these sectors? Do the existing duties and functions of regulators need to be adjusted to reflect this?**
- 13. Has there been a lack of clarity over strategic goals? What is the cause of this and what has been the impact on investment?**
- 14. Are the government’s principles for economic regulation\* – accountability, focus, predictability, coherence, adaptability and efficiency – fit for purpose; and if not, how should they change?**
- 15. How can regulators act in the future to support public trust in the regulatory system for water, energy and telecoms?**

Most of these questions are addressed in the Section below.

In short, (Q11) we do not think that the traditional role of economic regulation meets the needs of current and future consumers. We do think there is a place for an economic regulator, but their role should be much narrower than is currently the case. There needs to be a new balance between markets and regulation, with more direction and legitimacy from Government.

(Q12) As said above, we do support a strategic and policy statement between the Government and the Regulator. However, we argue for an Energy Transformation Commission (ETC), as a parallel to the CCC (see Figure 3 below) which acts as a provider of information to the Secretary of State and coordinator of actions across Government and Ministries. Ofgem the Regulator would be lower in the hierarchy to the ETC. Thus, Ofgem’s current role would alter and we think their Duties should change to include one of GHG emission reduction.

We do argue that there has been a lack of clarity over Governmental strategic goals, and that this has cascaded down to regulation. As said, in the answer to Q1-3, this is a complex answer but has led to a proliferation of micro measures which often undermine each other, and do not tackle the fundamental issues.

Overall the relationship between Government and Regulator is not fit for purpose.

### **Question 15 Trust**

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 (discussed in the section below) 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 and trust 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. In this way, people will see themselves more as part of the system.
- 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.
- 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 digitalised services, which might encourage providers to ‘cherry-pick’ and avoid offering services to poorer households.
- A market monitor; a stronger customer protection regulator; and an energy data body as well as a Data regulator is needed, to ensure that there is open and transparent access to data and to ensure that end users’ data is adequately protected.

#### **Section 4: Fit for purpose governance (policy, institutions, regulations, rules and incentives for networks and markets, retail policy and the underlying decision-making and politics**

Over the next few decades, the UK will need to steer a major transformation of the energy system, in order to maximise the benefits of innovation, bring about rapid decarbonisation in line with the Paris Agreement on Climate Change, and ensure that the system meets all people’s needs. The current picture of governance is confused, with multiple advisory and regulatory bodies, working to different objectives, overseeing different aspects of the energy system. Given the required scale and pace of change, there is a need for a direction-setting process, which provides co-ordination in a crowded institutional field.

Energy governance is, as a result of the involvement of a large number of stakeholders, often with competing interests, extremely complex. Ultimately it needs to ensure that energy services are provided to households and businesses, securely, at reasonable cost. Achieving this requires central co-ordination, to make sure that the system operates smoothly and provides a reliable service. It also requires the regulation of businesses that are natural monopolies, such as the transmission and distribution companies for electricity and gas. There is also a need to make sure that vulnerable customers have access to energy services; and to ensure that environmental factors are considered – particularly carbon reduction. To add a further layer of complexity, governance must work to effectively manage outcomes over the course of time, e.g. to encourage innovation, and to drive carbon reduction.

A certain level of complexity is, therefore, inevitable. However, the UK system, which has evolved since the privatisation process of the 1980s and 90s, is now exceptionally complex and difficult to navigate.

Analysis by IGov has identified a number of problems with the current system, set out below.

**Lack of direction-setting and transformation management:** The Department for Business, Enterprise and Industrial Strategy (BEIS), as the government department responsible for energy and climate change, has overall responsibility for energy outcomes. In practice, governance is devolved to regulated bodies, particularly Ofgem. However, Ofgem’s [statutory responsibilities](#) are narrower than the overall energy system goals set by BEIS, with a primary focus on consumer protection. For example, Ofgem does not have specific responsibility for encouraging innovation, and does not have a requirement to meet carbon targets, though it is specified that “reduction of greenhouse gases” should be considered within [consumer interests](#). In theory Ofgem should receive formal social and environmental guidance from BEIS, this [process is not working](#). All the other bodies listed have different, but overlapping, responsibilities and powers. The Committee on Climate Change (CCC) and National Infrastructure Commission (NIC) have a remit to plan over a long time horizon, but other bodies have shorter-term aims. It is, therefore, unclear where responsibility lies for energy system transformation over time.

**Dominance of established players:** The current system of energy governance favours established players, in part because of its complexity. For example, energy industry Codes and Licences define the terms under which participants can access networks and operate in markets. These Codes govern the rules of engagement in the energy system, and so are crucial in any attempt to transform the system. However, the process of drawing up and amending Codes is largely done by industry representatives, overseen by Ofgem – this is essentially [self-regulation](#). In addition, established companies have greater access and resources at their disposal; given the complexity of the system and the Codes process, it is very hard for new entrants to influence decisions. There is also evidence to show that much expertise in market and governance issues lies within established companies, many of whom offer staff secondments into central government, who [depend on this expertise](#). All these factors skew the system in favour of established players and works against a long-term [strategy of transformation](#).

**Confused signals for market participants:** As shown in Box A, institutions with responsibility for energy governance all have different objectives and responsibilities. This increases the level of uncertainty in the system, and makes it very difficult to plan over time. For example, government [strategies and statements](#) have set out a vision of flexible, decentralised, ICT-enabled energy

system, and public funding is available for trials of this approach, through the [Prospering from the Energy Revolution](#) initiative and other sources. However, Ofgem proposals, such as the recent Targeted Charging Review, work against these aims, by proposing a fixed charge to access the electricity network, regardless of the value that distributed energy resource may provide through, for example, [demand response or flexibility](#). There are many such examples of confused signals.

**No clear responsibility for carbon reduction:** The UK has statutory carbon reduction targets, with rolling five-year ‘budgets’, as set out in the Climate Change Act. This process is overseen by Parliament and BEIS, taking advice from the Committee on Climate Change. However, beyond the top-level responsibility held by BEIS, it is not clear who is responsible for delivering these targets. Most organisations involved in energy governance make reference to decarbonisation, but this is not linked into the national carbon budget, and it is not clear where responsibility for achieving carbon budgets lies. For example, the Department for Transport, who are responsible for the rollout of Electric Vehicles, have presided over increases in carbon emissions from [transport](#). The six stated ‘strategic objectives’ of the Department for Transport make no direct [reference to carbon reduction](#). Similarly, the DNOs, as regulated monopolies, have no formal responsibility to reduce carbon emissions; however they manage the connection of distributed renewable electricity to the grid. The Committee on Climate Change offers advice on reduction pathways for different sectors of the economy, but individual agencies are free to take or leave this advice. There is a need for a more fine-grained process of carbon budgeting, to ensure that the most efficient and effective path to net-zero emissions is taken.

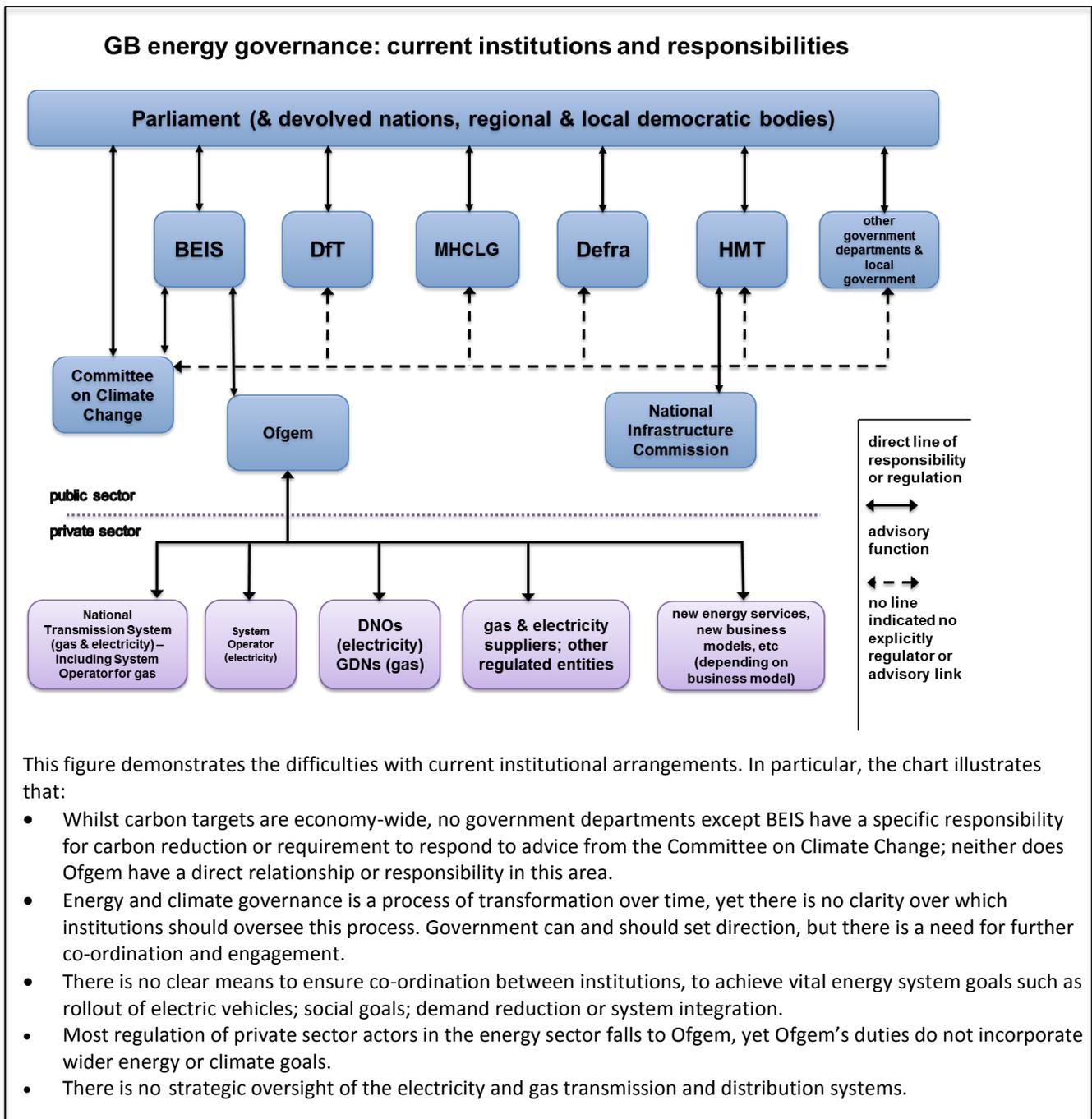
**No clear responsibility for demand reduction:** Neither does any organisation have responsibility for reducing overall energy demand, despite the social and environmental benefits this brings in terms of avoided costs and emissions. Modelling consistently shows that demand reduction is essential to the achievement of [carbon targets](#) yet demand reduction is an overlooked element of energy governance, both in the UK and elsewhere. Whilst BEIS have responsibility for energy supply, the determinants of energy demand are largely controlled by other government departments, including, for example, the Ministry of Housing, Communities and Local Government (MHCLG) for buildings and land use planning.

**No clear responsibility for system integration:** Another gap in the governance system is a co-ordination function for energy system integration. Such integration is necessary within the electricity sector – linking generation, supply, demand, flexibility services and infrastructure planning in order to bring down costs and carbon. It is also necessary to link the governance of electricity, gas, transport and other energy use. For example, the successful roll-out of electric vehicles requires alignment of transport policy with energy governance. Decarbonisation of heat also requires co-ordination, alongside important decisions on the future of natural gas networks. A whole system approach has to be taken.

**Ambiguities around social outcomes:** Protecting low-income households and ensuring access to affordable energy is a crucial aspect of energy policy. In the current governance arrangements, the unit cost of electricity and gas, i.e. energy bills, is widely taken as a proxy for protection of vulnerable consumers. As a result, measures which may increase unit costs are seen as problematic. This is reflected in political debates about ‘price caps’ for energy bills. There are many other ways in which vulnerable consumers can be protected, including targeted measures, company obligations, and so on. There is a legitimate question to be asked about whether support for vulnerable households should be provided through energy policy, or through wider social

welfare provision. However, governance arrangements in this area are not clear. BEIS has overall responsibility, Ofgem has a responsibility for consumer protection, and Citizens' Advice has a statutory advisory and watchdog role.

**Figure 2: GB energy governance: current institutions and responsibilities**



### Institutions for an Energy Transformation

The confused picture outlined above needs to be streamlined and simplified, in order to provide stakeholders with certainty about the aims of energy governance, and their part within it. There is a need for clear direction-setting by government, with energy governance goals co-ordinated and implemented by relevant institutions. In particular, governance should not be seen as a static function, but as a process of transformation over time.

To achieve this, IGov proposes the following changes to energy governance:

- A clear **commitment from Government** to govern and oversee a process of energy system transformation. This would, in effect, be a move from a principle of delegation to a principle of direction, acknowledging that active governance of the energy system is essential to achieving economic, social and environmental outcomes.
- Creation of an independent **Energy Transformation Commission**. This Commission would work alongside the Committee on Climate Change, Parliament and BEIS. The Commission would implement the objectives set by government. It would oversee the transformation process through co-ordinating all the institutions involved, and providing a hub for consultation and engagement. This proposal is outlined in more detail in the next section.
- An **Integrated Independent Integrated System Operator (IISO)** to oversee the implementation of this strategy, within energy markets. This non-profit organisation would integrate gas, electricity and aspects of transport, at different levels, both transmission and distribution. A key role of the IISO would be to ensure implementation of [carbon goals](#) set by the [strategic level](#) (as above). The IISO would also be responsible for the management of industry Codes and Standards, incorporating an independent **Codes Manager** to enable open and fair consultation and engagement from all [market players](#).
- **Ofgem** would retain its function as an economic regulator, regulating transmission operators and energy service providers in their delivery of what the Secretary of State had decided, and the plan the IISO had agreed.
- **Distribution Service Providers (DSPs)** would replace DNOs, to become co-ordinators of local energy systems, market facilitators and balancers. DSPs would implement the shift from the linear, top-down value chain of the energy system to one which places customers at its focus and values [efficiency, flexibility and sustainability](#).
- An independent cross-vector / cross sector Data Regulator; an Energy **Data Body to illuminate system data and enable new services**; and an [Energy Market Monitor](#).

### **Establishing an Energy System Transformation Commission (ETC)**

The ETC would oversee a direction-setting process, co-ordinating the key actors across the energy governance domain, and involving other actors as necessary. The ETC would not manage day-to-day regulatory issues; its function would be advisory, but it would set the overall direction within which other actors operate.

IGov's vision for the ETC is informed by experience from elsewhere. The New York REV process, outlined in Box B above, is the most similar to our proposals. Lessons can also be learned from the Danish system of negotiated Energy Agreements, which are agreed between the major political parties and supported by the [Danish Energy Agency](#).

The purpose of the ETC is not to replace elected politicians. Government and parliament would continue to set high-level goals, agreeing trajectories for carbon reduction under the carbon budget framework; social goals; and other aims such as industrial strategy and innovation. The ETC would work with stakeholders, as described below, to oversee the implementation of these goals. As such, it would provide the link between political direction-setting and day-to-day governance. By setting a direction and providing clear market signals, the ETC would enable competition and innovation in the energy sector. In short, there would be a new relationship between markets and regulation.

The guiding principles of an ETC would be to:

- **Transform:** The ETC oversees a process of change over time – a transformation of the energy system. Its role is not to oversee a static market. The goals would be set through a negotiated process, overseen by government; the aims would be to decarbonise, to allow innovation, to reinvigorate competition, to develop efficient and effective energy services, and to protect vulnerable groups, including getting rid of fuel poverty as a major issue within the GB by agreeing a process for energy justice within the energy transformation.
- **Co-ordinate:** The ETC would be the main focus of co-ordination between different energy actors, including governance and advisory bodies, private companies and other stakeholders. It would bring different groups together, depending on the issue; for example, on electric vehicles it would bring together BEIS, the Department for Transport, the NIC, companies involved in the sector, network operators and so on. This is described in more detail below.
- **Engage:** The ETC would engage a wider constituency in energy governance issues. This would include a stakeholder engagement process – eg businesses not directly involved in the energy industry; business associations; trade unions; consumer, environmental and other interest groups; etc. It would also include public engagement, to gather intelligence on public views and values on the transformation process.

### **How would the ETC work?**

The ETC would be established as a public body, through primary legislation. It would provide the co-ordination and engagement that is required to deliver long-term aims set by the democratic process, including goals for decarbonisation, social goals and other energy system requirements. In doing so, it would take advice from the Committee on Climate Change and the National Infrastructure Commission, and also provide an advisory function for government. All government departments, not just BEIS, would be required to work with the ETC in order to further goals set through the democratic process.

Figure 3 sets out the position of the ETC in the energy governance landscape.

The ETC's core function would be to provide strategic oversight of progress toward energy system goals, as set by government. It would also act as a hub for engagement, both for industry stakeholders and the wider public. Whilst keeping a focus on the overall process of transformation, the ETC would also work on a project basis to build consensus and co-ordinate planning in key areas of change, such as the roll-out of electric vehicles.

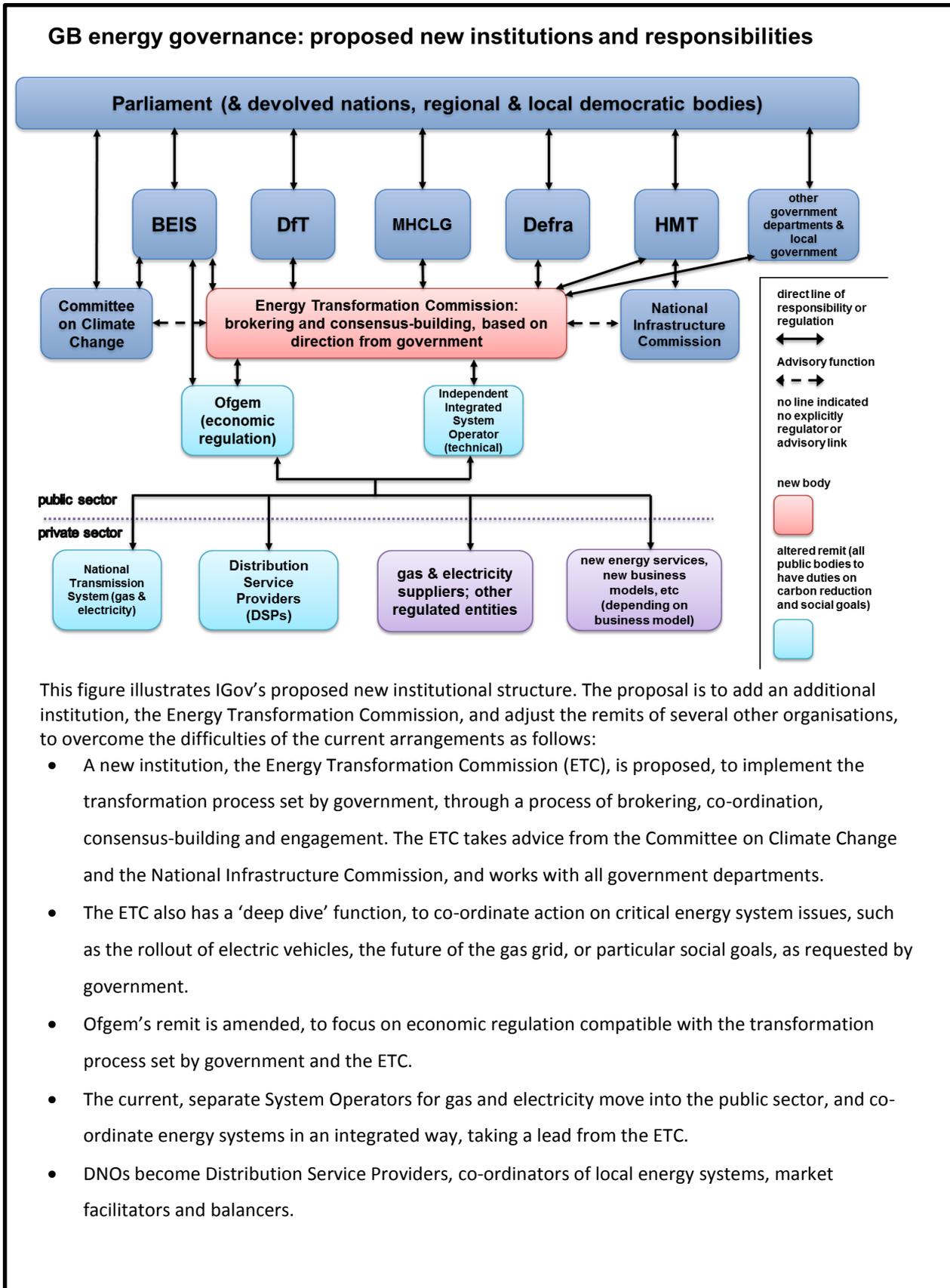
The ETC's work would focus on direction-setting, co-ordination and engagement; it would not be a delivery body. Ofgem, repurposed as an economic regulator, and an independent, integrated System Operator would deliver the required regulatory and system operator functions, in line with overall goals set by government and co-ordinated by the ETC.

The specific functions of the ETC are outlined below.

**The strategic oversight function:** The ETC would map progress toward energy system goals, as set by government, including decarbonisation, innovation and social goals. Through a process of consultation and consensus-building, it would assign responsibilities and agree the contributions to be made by different regulatory bodies. This would be achieved through an annual summit, convened by the ETC, bringing together the Secretary of State for BEIS, and the Chairs and Chief Executives of energy system regulators and advisers, to monitor progress toward energy system

transformation. Through this process, the ETC would take direction from government, and would also offer advice back to government, based on its work.

**Figure 3: GB energy governance: proposed new institutions and responsibilities**



This figure illustrates IGov’s proposed new institutional structure. The proposal is to add an additional institution, the Energy Transformation Commission, and adjust the remits of several other organisations, to overcome the difficulties of the current arrangements as follows:

- A new institution, the Energy Transformation Commission (ETC), is proposed, to implement the transformation process set by government, through a process of brokering, co-ordination, consensus-building and engagement. The ETC takes advice from the Committee on Climate Change and the National Infrastructure Commission, and works with all government departments.
- The ETC also has a ‘deep dive’ function, to co-ordinate action on critical energy system issues, such as the rollout of electric vehicles, the future of the gas grid, or particular social goals, as requested by government.
- Ofgem’s remit is amended, to focus on economic regulation compatible with the transformation process set by government and the ETC.
- The current, separate System Operators for gas and electricity move into the public sector, and co-ordinate energy systems in an integrated way, taking a lead from the ETC.
- DNOs become Distribution Service Providers, co-ordinators of local energy systems, market facilitators and balancers.

**An engagement function:** Stakeholder engagement would be designed to encourage input from new entrants as well as established industry players. Alongside this, the ETC would also collect and incorporate wider public views into account, through incorporating existing consumer research, polling and deliberative processes, and commissioning new work where necessary. It would also keep track of technology change, costs, new business models and new regulatory compacts occurring around the world.

**The deep-dive function:** The ETC would work on a project basis to oversee particular elements of energy system co-ordination and transformation, which require consensus-building and forward planning. Areas that could require such input include:

- The implementation of a country-wide buildings energy efficiency improvement programme
- Develop a process which addresses distributional impacts of transformation policies
- The transition to electric vehicles
- Decarbonisation of heat, including the future of the gas grid
- Developing domestic demand response and flexibility services
- The development of local energy markets.

For each of these areas, the ETC would bring together representatives from the relevant government departments, regulatory bodies, established businesses, new entrants and other stakeholders, to co-ordinate the transformation process.

As described above, the ETC would be one element in a reformed energy governance landscape. IGov's suggested approach is to start the reform process through the creation of the ETC. The first task of the ETC would then be to review existing organisations and responsibilities, and make recommendations to government for the reorganisation and streamlining of these organisations and their functions. While this process was happening, the ETC could begin its core work.

The system proposed by IGov does imply a greater level of steering and direction-setting in energy systems than the current model – IGov analysis shows that such direction-setting is needed. However, it would also involve a streamlining of governance and advisory organisations, so would not necessarily result in greater bureaucracy or expenditure. It would reduce or eliminate the need for individual taskforces, commissions or inquiries, such as the EV Energy Taskforce or National Grid's Future of Gas Project. If these consultation/inquiry processes were all coordinated or overseen by the ETC, that would allow greater clarity and transparency for stakeholders, and a more standardised approach to consultation and engagement, ensuring that new entrants as well as established companies can participate in the process, and that all such processes are clearly linked to system transformation.

## **Section 5: Conclusion**

The EPG welcomes the NIC Future of Regulation Study. We have argued that governance is extremely important for public interests, and that we do not think that the current energy governance in place in GB is fit for purpose. We propose an alternative Governance structure which we believe meets the challenges that Britain faces with respect to energy. We are sorry that we have not had more to say about cross-sector regulation.