Northern Powergrid's response to Government's call for evidence on the 'Cost of energy review'

KEY POINTS

- We are seeing unprecedented change in the energy system. The progress of smart technology and the digitisation of the economy are pervasive trends which will fundamentally change the dynamics in the energy market. A fundamental review of the market is appropriate in order to deliver outcomes needed by society. **The cost of energy review has correctly diagnosed many of the problems but the solutions it offers for networks are not in customers' best interests and we favour an alternative way forward that is consistent with existing Government policy: a customer-led approach.**
- To properly address the issues raised, Ofgem and Government must together **fundamentally review and decide what is being targeted** with fiscal interventions, regulations and market structures. Specifically:
  - which costs to socialise to deliver acceptable social outcomes and who pays for desired environmental policies, through which route;
  - whether to maintain or change universal service obligations;
  - which parts of the market to subsidise to promote security of supply and decarbonisation; and
  - what balance of public and private operations will best deliver efficient investment and drive service improvements for customers.
- Since privatisation there have been a large number of incremental additions and changes to the fiscal and regulatory architecture, leading to complicated legislative, administrative and commercial structures. This has had the effect of **making today's energy system intrinsically opaque** with a range of problems:
  - Changes have created regulatory niches occupied by companies - many with free-riding or parasitic business models.
  - Taxation for the decarbonisation of generation is applied to the electricity bill only – incentivising whole system inefficiency with 'behind the meter' solutions by those seeking to avoid policy costs and leading to inequitable outcomes for other customers.
- The track record of distribution network operators (DNOs) as well as international benchmarking demonstrate that **the current regime for networks continues to be largely effective and should continue to deliver successfully for customers in this period of significant change**:
  - Private ownership has delivered significant customer benefits through investment.
  - The current regulatory regime of price controls drives costs down cost, and dis-incentivises short-term investment decision making through the use of output measures.
  - By integrating the functions relating to operations and asset management, companies are able to make trade-off decisions that deliver efficiency and high service standards.
- **The evidence presented in the cost of energy review does not substantiate or justify the radical change in direction proposed.**
  - **There are lessons to be learnt from the rail sector, specifically, similarities between the review recommendations and the unsuccessful system operations in the rail sector.**
  - **Positive change is already occurring in the networks sector with the transition towards the new distribution system operator (DSO) role** in electricity. Government would need to justify any deviation from this solution that already looks set to deliver high standards of stability, security, and transparency to customers.

The solutions lie in providing customers with clear and simple ways to optimise their energy practices through engaging with a market that itself is whole system optimised.

January 2018

Responses to the questions in the call for evidence

CROSS-CUTTING

What matters should the Government take into account in considering the wider recommendations of the Review?

1. After a period of relative stability post privatisation, big questions are being asked by Government and others about how the energy system works and what it should do. In parallel to this call for evidence on a number of radical alternatives to the fundamentals that underpin the current arrangements, Ofgem is consulting on the future supply market arrangements[1] (that has provided the framework of the energy market for more than a decade).
2. **To properly address the issues raised, Ofgem and Government must together, fundamentally review what it wants from the energy system** and decide what is being targeted with fiscal interventions, regulations and market structures. If a holistic approach is not taken unintended consequences and perverse outcomes are almost guaranteed. Specifically:
    a) Which costs to socialise to deliver acceptable social outcomes and who pays for desired environmental policies, through which route?
    b) Should existing universal service obligations be maintained or modified?
    c) Which parts of the market to subsidise to promote security of supply and decarbonisation?
    d) What balance of public and private operations will best deliver efficient investment and drive service improvements for customers?

The review challenges the current consensus on the direction of travel to a smarter, more flexible system and Government needs therefore to decide if any short- or medium-term changes to that policy are required; or risk wasting time and consumers' money.

3. At the core of the Helm report's vision for the electricity industry in the long-term lie three key design principles, all of which are violated by the current structures. These are:
    a) simplification rather than ever-greater complexity;
    b) the assignment of decisions to those best able to make them; and
    c) choosing market prices and auctions wherever possible, over administered decision-making and trying to pick winners.
4. Separately, Ofgem's analysis has outlined the three current primary supplier roles as:
    a) settlement agent;
    b) customer risk management and
    c) customer protection.

[1] 'Future of supply market arrangements – call for evidence', Ofgem, November 2017.

5. Following the prior Government and Ofgem call for evidence on 'A smart flexible energy system'[2], and its successor the smart systems and flexibility plan, there is a significant amount of work taking place to deliver, codify and implement the agreed actions.
6. Many of the points Ofgem describes in its future supply market arrangements are consistent with the current industry consensus on the future energy system - enabled by new technology and the advent of improved data, customers will be at the hub of the energy system. As such, the solutions adopted must therefore be customer-led.
7. We recognise, as did the call for evidence for that, in the future, customer engagement will be guided by energy services (buying and selling energy) as well as network services (customer flexibility offered to balance the system). The active distribution system means that the supply market cannot be considered in isolation of networks (and *vice versa*).
8. Through the Energy Networks Association Open Networks project[3] , electricity distribution and transmission companies are collaborating to consider the future role of a DSO and what this would entail. We consider that the DSO will be central to enabling customers' participation in both energy and networks services markets.
9. Our view is that network operators can and should modestly expand their roles as simplifying forces in the energy system. DSOs can be the key enablers of the energy system of the future, by providing the smart common infrastructure centred around the customer, upon which a competitive energy services model may operate locally. This can be designed to offer high standards of stability, security, and transparency to all market participants; and to align with the true cost structure of new technologies. In other words, DSOs form stable and secure platforms upon which the wider systems and markets then operate.
10. However, the cost of energy review's recommendation for a regional system operator (RSO) model challenges this current direction, as set out in the smart systems flexibility plan that is being used to guide the industry programme of change.
11. It is therefore important that Government evaluates these different perspectives and confirms the direction of travel for the changes being implemented to avoid consumers' money being wasted. Specifically, across the three areas of the cost of energy review, the future supply market arrangements and the smart systems and flexibility plan:
    a) To what extent are the definitions of the problems consistent?
    b) Are the recommendations and solutions targeting the same or different outcomes?
    c) Is Government minded to change direction on that set out in the smart systems and flexibility plan?

[2] 'A Smart flexible energy system', Ofgem/BEIS, November 2016
[3] www.energynetworks.org/electricity/futures/open-networks-project/

Are there any other matters that the Government should consider to reduce the cost of energy in the longer term?

Energy efficiency was not a key feature of the review but it has the potential to be a significant source of savings for customers.

12. The report focuses on the unit cost of energy, and mentions energy efficiency only in passing; even though there is a significant potential for savings for GB customers.
13. The Department for Business, Energy and Industrial Strategy (BEIS) has recently published two reports highlighting this ('Cutting Energy Bills and Carbon Emissions in Public and Higher Education sectors' and 'Building a market for energy efficiency'). These quote the as yet unrealised potential for large savings to customers: £600 reduction for a fuel bill per home owner per year, and £862m savings per year for the Public and Higher Education sectors in total.

Policy costs are disproportionally levied on electricity bills, making up 15% of an electricity bill; this has created significant distortions in the market and is leading to inefficiency and perverse outcomes as bill payers seek ways to avoid these costs such as generating behind the meter and setting up inefficient private networks.

14. On occasions, the interaction of the fiscal / levy regime with the current supplier hub model has led to some far-reaching implications with perverse outcomes and inefficiencies and undermined the original vision for a fair whole energy system. These should be designed out of any new structure and not be allowed to perpetuate or be replicated.
15. As they seek to maximise the revenue stream from the combined heat and power (CHP) system installed, a number of bodies in the Northern Powergrid region are implementing or considering the option to act as unlicensed energy suppliers over private wires.
    a) The private wire option is currently the easiest in the current licensing framework and the most appealing because it deducts from the electricity price the cost of the regulatory overhead and policy costs that would otherwise be levied (i.e. avoiding a 'tax' that is then paid by other customers). The effect of this is for the electricity system (and electricity bill payers) to cross-subsidise heat networks from which they do not benefit – in effect a hidden form of regressive tax.
    b) In private wire networks the development of the heating and electrical infrastructure takes place 'behind the meter' optimising for nominal cost within the private network (driven in large part by fiscal interventions) rather than overall value. As such, an inefficient system is created potentially with duplication of electricity networks in the same streets and the cost recovery for existing DNO network assets then being avoided

by those customers and increasing the costs for the remainder of the DNO customer base. This works to the disadvantage of the generality of customers and imposes wider societal and environmental costs.

c) Domestic customers are often left out from the benefits of this model but bear the cost of it: they carry their own share of costs plus the share of parties able to avoid environmental costs and network charges.

d) Building a private wire to maximise income, and to bypass the current supply licence framework (and in doing so environmental and social levies/taxes), is an infrastructure solution to a commercial and regulatory issue. We believe that customers deserve a commercial solution to a commercial issue.

16. More widely, there are also potential issues of customer protection and service levels, as the distribution service ends up being delivered by independent distribution network operators (IDNOs) or licence-exempt network operators whose service standards are not as well scrutinised (and potentially not as well provided) as the regional DNO. IDNOs and private wire networks are subject to lower obligations (for example, requirements for efficient electrical design to limit losses) and have no incentive to optimise across the system which is important when we need to increase system flexibility. Commercially, by picking customers with lower costs to connect, the IDNO is able to provide a discounted cost to the developer without there necessarily being a benefit to the end customer who occupies the premises. This charging distortion that allows cherry picking of lower-than- average cost-to-serve customers and applying tariff support is to the disadvantage of the generality of customers. Inherently, this incentivises IDNOs to operate a cash-flow focused, more short-term business model that is not in customers' or society's long-term interests.Working with Ofgem, BEIS should evaluate the problems that are being created by the application of environmental levies and taxes to energy bills with the aim of applying taxes in a way that creates fewer perverse incentives. The inefficient development of networks (driven by customers seeking to avoid taxes) is just one such example, and we would encourage policy makers to carefully consider the pros and cons of where they apply environmental social levies/taxes in the context of wider regulatory structures.

A move away from licensed regulated private industry actors to public sector bodies is a major thrust of the recommendations in the review but there is a lack of evidence for how public ownership would drive improved outcomes for customers.

17. The cost of energy review suggests that a state-owned entity would be better placed than the existing combination between the regulator and privately owned utilities to oversee what would

be an even more sophisticated set of arrangements than exist today. This view is offered with little justification and we propose reasons to consider this recommendation with care:

a) Within the regulatory system, Government has a choice about which decisions will be taken in a political context and which decisions will be insulated, to a degree, from political considerations while working in a framework that in itself is a political decision. The Office for Budgetary Responsibility, the Monetary Policy Committee and independent economic regulators are all examples of where Government has taken certain high-level political decisions but then created structures to avoid certain decisions becoming politicised, often in trying to achieve better long-term outcomes.

b) In the public sector there is less, sometimes no, effective pressure to generate returns on capital compared to the private sector. In the absence of appropriate performance measures, decision makers could venture into large and bold projects to show their legacy rather than serving people[4].

c) Under the current regulatory framework and ownership model, and since privatisation, energy networks have a good track record of performance - we expand on this point later in our response.

d) This is to be contrasted with some recent instances of State intervention that have led to delays and controversy over prices, for example the Swansea Bay tidal power lagoon and the Hinkley Point C nuclear power station.

e) In the public sector, the political cycle does not always mean that decision makers in public bodies face the consequences of their choices. In contrast, private companies investing in the long-term[5] are bound to their prior actions and commitments (in networks through the succession of regulatory price control reviews to which companies are subjected).

[4] Professor Edmund Thompson, Bath University, *Personal Communication*

[5] Depreciation on DNO regulatory assets has historically been at least 20 years and is increasing to 45 years

ELECTRICITY TRANSMISSION AND DISTRIBUTION

Taking into account the findings and recommendations of the Helm Review:

- **What are the longer-term challenges for electricity transmission and distribution?**
- **What matters should the Government take in account in considering the framework for network regulation, and its associated institutional framework?**
- **What additional evidence should the Government consider to reduce the cost of electricity networks in the longer term?**

Government is right to be reviewing the structure of energy market technological and societal change is driving unprecedented change in the energy industry; many of the structures that worked in the past are not fit for the future, but the handling of the Helm's Review radical proposals has introduced some regrettable uncertainty for market players and investors.

18. As emphasised by the CBI[6], investors seek certainty, predictability and stability in politics. Having failed to contextualise the cost of energy review at publication, Government has damaged investor confidence.
19. As an example, and as far of the distribution network is concerned:
    a) One of the potential outcomes of the direction of travel put forward by the RSO model, if taken literally, introduces the potential to strand or lose the assets in a future procurement event. This would have a significant impact on the confidence of investors in their ability to make a return on investment in the UK market.
    b) The review proposes moving towards a new regulatory regime that places greater emphasis on competition, moving away from price controls, and significantly reducing the role of Ofgem. This fails to recognise that DNOs already competitively tender a large fraction of their work and suggests the potential for a major overhaul of UK regulation, with uncertain consequences for medium- to long-term investment.
20. With policy now 'up in the air' Government should quickly make clear its broad policy intent in order to remove the uncertainty. In this response we are advocating a number of areas where alternative solutions (to those recommended in the review) will lead to better outcomes.

[6] http://www.cbi.org.uk/news/2018-must-be-a-year-of-unity-clarity-and-urgency-at-home-and-on-brexit/

At a high level we agree with the review's focus on competitive processes, but think that the solutions it proposes for networks are ill-conceived: replacing regulated utilities with new public sector quangos ignores the UK's track record of regulated utilities in bringing costs down and improving reliability and service levels.

21. The GB energy network companies have an enviable track record post privatisation, having driven up their performance on reliability, customer service and customer satisfaction, whilst pushing the prices down by 17% since privatisation[7] (see Figure 1).
22. This has been confirmed recently by Ofgem in its annual assessment of energy network performances:

    'After the second year, DNOs continue to perform strongly against five of the six output categories: reliability and availability, environment, customer service, social obligations and safety'[8].

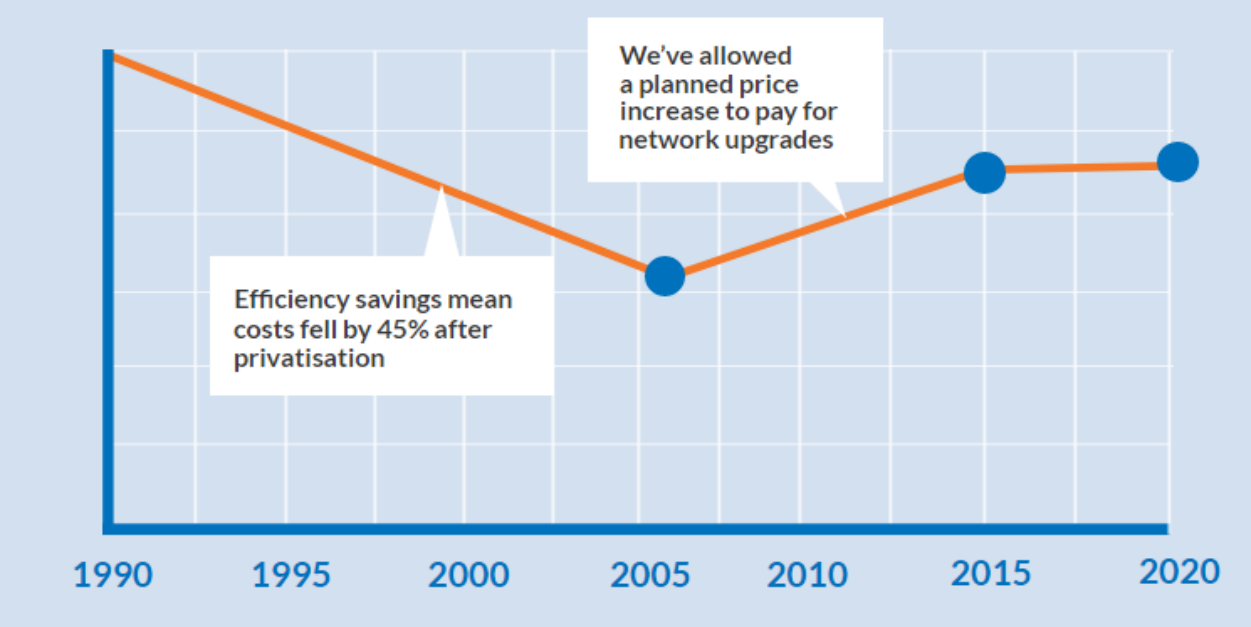
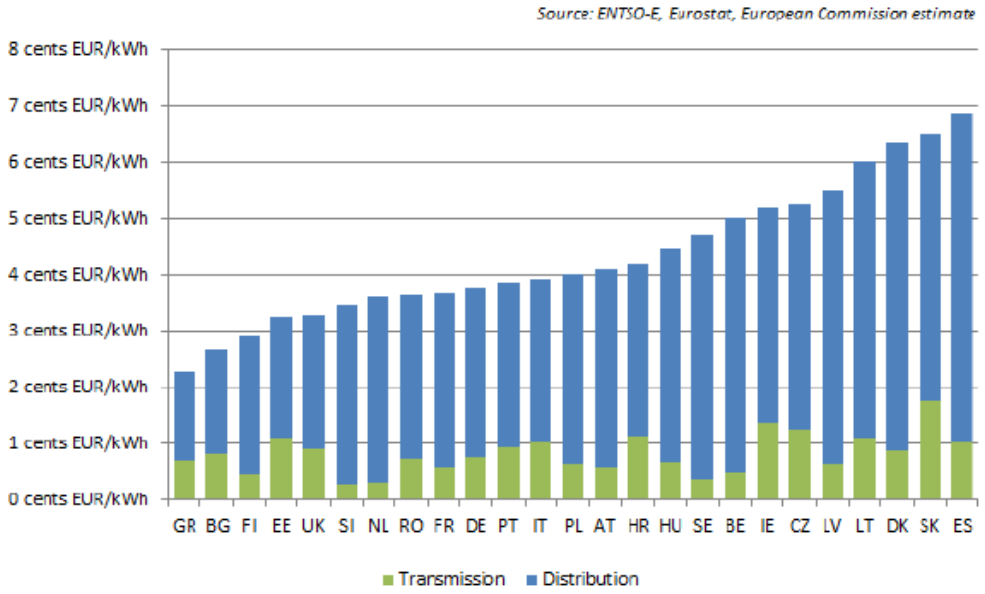


Figure 1: How energy network costs have changed since privatisation. *Source: Ofgem*

23. As may be seen in the following chart, networks costs in the UK benchmark as some of the lowest in Europe[9].

[7] 'ENA welcomes Ofgem publication of energy network price control annual reports', ENA, December 2017.
[8] 'RIIO-ED1 Annual report 2016-17', Ofgem, December 2017.
[9] European Commission, Energy prices and costs reports, March 2014: https://ec.europa.eu/energy/sites/ener/files/documents/20140122_swd_prices.pdf

Estimated costs and charges at transmission and distribution level, 2012



24. The review recommends the creation of public bodies to act as new Regional System Operators (RSOs). These RSOs would be responsible for deciding what the network needs and procuring it. This would include operations, maintenance, and enhancement to the distribution network, and the necessary finance to make this happen.
25. In contrast, we believe that the disintegrated model proposed by the RSO concept ignores the significant value to customers of integrating the various functions relating to operations and asset management. An integrated model creates better service levels and efficiency through critical mass of resources to 'get the lights back on' after major disruption and alignment of incentives to manage trade-off decisions balancing risk and cost.

The utilisation of resource dedicated to deliver planned and baseload reactive works is more efficient when the resource is also available to manage an unplanned peak workload.

26. The DNO 'lights on' service for customers requires routine levels of resources to manage 24/7 efficient operation and also contingency arrangements to access significant numbers of additional people (front line and back office) when major exceptional events are triggered by predictable and unavoidable causes such as the weather. In such cases, the DNOs' personnel and contracted labour forces are diverted from routine activity (e.g. preventative maintenance) to high-priority emergency restoration. These regional contingency resourcing pools are further shared nationally (including Ireland) when one area is adversely impacted[10].

[10] The latest example to date was on the occasion of storm Ophelia in October 2017. More information is available on: www.northernpowergrid.com/news/northern-powergrid-supports-esb-networks-power-restoration-following-storm-ophelia .

27. Key roles of a DNO are:
    a) routine maintenance of the network;
    b) incremental modernisation and development of the network;
    c) fixing day-to-day faults; and
    d) responding to major incidents, for example storms and floods.
28. These roles naturally fit together – in order to be effective in managing faults across the network and be able to respond effectively in an emergency the DNO needs a minimum capacity and standing trained workforce (either directly employed or contractors).
29. To do this efficiently, DNOs employ these people productively in the periods between the need for high-volume short-duration emergency response. It is unclear how the recommendations presented in the cost of energy review would maintain this balance of effective response with efficiency from a fragmented or disintegrated industry structure. This is a vital consideration since 'getting the lights back on' after a storm is for many customers the acid test of a competent operator due to the significant impact it has on individuals and communities[11].

Asset ownership and stewardship naturally sit together – so that the organisation responsible for maintaining the assets faces the full consequences should they fail. This is currently the case in transmission and distribution, and we believe this should not be broken. The UK rail industry presents a case study where franchising and fragmentation has not best served customers' interests.

30. The privatisation model of the rail industry in the UK in 1996 used a model that bears some strikingly similar features to the structure being proposed in the cost of energy review for the energy networks:
    a) train operation was undertaken by train operating company franchisees (TOCs), who won tendering exercises undertaken by a public body;
    b) the rolling stock was provided by rolling stock companies (ROSCOs) under contracts negotiated with the TOCs; and
    c) the rail network was provided by Railtrack.
31. Twenty years on, this model has not proven robust, consistently delivering sub-optimal outcomes:
    a) franchisees regularly renegotiate or abandon their unprofitable contracts early, most recently with early termination of the East Coast Franchise announced November 2017 - the third such announcement for this valuable franchise, with other major franchises

[11] Based on Northern Powergrid customer surveys run in the last 12 months.

also requiring intervention (Great Western and West Coast have also seen 'non-standard' commercial approaches through procurement or financial difficulties);

b) the public body running the franchise-tender process (Department for Transport) admitted in 2012 to making serious technical mistakes in a major tender award[12];

c) the ROSCOs have been subjected to a major Competition Commission market investigation, which found there was a lack of incentives for TOCs to negotiate low-cost contracts[13];

d) the networks part of the business (Railtrack) failed catastrophically only a few years after privatisation, following three serious safety incidents, and had to be re-nationalised. Investigations into the failure highlighted the splintering of Railtrack's delivery model into thousands of contractors, failures to share information or engage in adequate stewardship of the asset base[14]; and

e) the specification of rolling stock investments is now vested in the procurement agency rather than the infrastructure owner or the service operator, leading to potentially dysfunctional decisions over very long-term asset investments.

32. The proposals in the cost of energy review for electricity distribution networks have apparent unfortunate similarities to the current rail sector: it advocates public bodies running franchise auctions, that will somehow arrive at the lowest cost (in spite of the lack of incentives to do so), making use of a fragmented delivery model that separates ownership of the assets from those responsible for their stewardship. Evidence from the rail sector suggests this could lead to poor decisions over long-term investment, misalignment of delivery from customer requirements, fragmented accountability and ultimately a higher cost for both consumer and taxpayer.

The RIIO price controls effectively apply incentives to privatised DNOs that may be absent in the public ownership RSO proposal.

33. The current DNO model incentivises efficient decision making and competitive tendering via the Totex Incentive Mechanism to achieve efficiencies for the benefit of customers. If the same outputs are delivered for less cost, then customers and companies benefit in the short term by sharing the savings. Also, in the medium to long term then it is customers that benefit from those savings being effectively 'locked in' by the regulator's new expectations of unit costs revealed by the operation of the incentive[15].

[12] 'Annual Report and Accounts, 2012–13', Department for Transport, 2013.
[13] 'Rolling stock leasing market investigation', Competition Commission, April 2009.
[14] 'Railways: Railtrack, 1994-2002', House of Commons Library, last updated March 2010.
[15] 'ED1 Price Control Financial Handbook (slowtrack licensees)'version 3, Ofgem, August 2017.

34. As addressed in paragraph 17, a key question for the proposed RSO model is to what extent the public body would be effectively incentivised to make efficient decisions. In effect, at a time when the RSO would be putting the investment plan together, what would drive it to assess and take risks that optimise for efficiency?

Separating asset ownership from system operation and operational running of the network may have some benefits in certain circumstances: in large multi-million pound infrastructure projects, tendering out to market is an efficient way of operating, but much less so for smaller projects. Benefits need be weighed against costs and long-term stewardship risks before opting for a new market structure.

35. Transmission and distribution networks have very different characteristics and are operated very differently. The transmission system is a relatively simple system with a relatively small number of large discrete assets (e.g. lines, cables and substations). The distribution system is significantly more complex with millions of nodes, and a pervasive network of individually low value assets with millions of connection points. Operation, maintenance and ownership are much harder to meaningfully separate in the latter.
36. The nature of distribution is that the work undertaken to maintain the network is dominated by smaller projects - 72% by volume of our investment projects are small with an average value of £200k each. Even our larger projects average only £1.9m per project.
37. The DNO work is delivered by packaging up smaller projects into work programmes and securing the resources to deliver it. If under an RSO model this work was disaggregated with control of such programmes across numerous service providers then this would introduce material risk due to the complexity of the processes required to co-ordinate the different parties involved. There would also be loss of synergistic efficiencies already described in this response (see paragraphs 26 to 29 above).
38. The key risk question is – what incentivises the service provider to deliver effective long-term asset risk management when executing a hugely complex programme of work specified and contracted for by the RSO? In theory, alignment of interest between the contracting party and the contractor can be done through contractual arrangements, but this is practically difficult. The consideration is what are the additional costs to operate a quality assurance function that monitors stewardship of the network and what is the residual risk should these arrangements fail to adequately spot any inadequate asset management practices?
39. Customers currently benefit significantly from the competition for distribution projects. 80% of Northern Powergrid's direct operational work load consists of bought in goods, services and

materials; the majority of which is tendered. This means that a large majority of the works that we deliver are already exposed to competition from market forces.

40. It is difficult to see why a public body acting as the contracting entity would improve on the targeting or efficiency of the current DNO service delivery.
41. In conclusion, we believe that in order to be properly accountable, a serious, well capitalised entity needs to be responsible for the overall operation and integrity of the system. Such a body has an interest in running assets well to make money and avoid being held liable for poor performance. In the transition that the energy system is currently embarked in, this is the system operator (SO) and transmission operators (TOs) for the transmission system and the DNOs transitioning into DSOs for the distribution system. But according to the Helm report, that local body would be the RSO, with the public sector taking on liabilities, which, as explained above, does not systematically drive improved outcomes for customers.

ELECTRICITY GENERATION

Taking into account the findings and recommendations of the Helm Review:

- **What are the longer-term challenges for electricity generation?**
- **What matters should the Government take into account in considering the policy framework for electricity generation?**
- **What additional evidence should the Government consider to reduce the cost of electricity generation in the longer term?**

42. The work led by Government and Ofgem with the industry on the smart flexible energy system has presented a well-argued case for the need to introduce more flexibility in the system in order to accommodate efficiently more low carbon generation. As a network operator, a key part of fulfilling this vision has been the introduction of the new role of DSO.

In essence, the key question that the cost of energy review poses for networks is how non-network solutions can compete with network solutions to solve network issues in a smart flexible energy system (including generation) and we think our vision for DSO addresses this well.

43. The cost of energy review argues for an industry structure that reflects the cost and the operations of the underlying technology (demand side response, storage, distributed generation, etc.). It also argues for simplicity and capacity auction. All of these attributes may be delivered by the transition to DSO.
44. DSO models being explored in industry forums include a 'procurement and despatch hub'; i.e. an online marketplace where the DSO would tender for location-specific flexibility and which would be accessible to any distributed energy resources (including flexibility providers, aggregators) in a technology agnostic way.
45. DSOs should be required to solve network constraints with non-reinforcement solutions wherever doing so is the cheapest reliable and secure solution. Incentives between capital and operating cost solutions have already been equalised and work is taking place now to consider how best to extend this equalisation across the transmission distribution boundary. Going forward, there will need to be regulatory rules and systems that prevent TOs and DNOs favouring investment on their networks over other technical or commercial solutions that may deliver a more efficient whole system outcome for customers. This can be achieved through development of the RIIO price controls.
46. In order for DSO to provide a compelling value propositions for customers and stakeholders, a transition is required to a customer-led, actively managed (and probably semi-autonomous) network where the DSO provide a cost-efficient, non-discriminatory and technology neutral physical trading platform for third parties in our region to participate in the electricity markets.

47. The cost of energy review does not engage with this clear vision and positive momentum to implement the transition to DSO. Government would need to justify any deviation from this solution that already looks set to deliver high standards of stability, security, and transparency to customers.

Ownership of responsibility across the all aspects of network performance, and maximum access to information about the network, places the DNO in the best place to make the optimal trade-off decisions, and hence deliver the best service to the customers of today and tomorrow.

48. As the energy system transition quickens, it needs owner-operated networks that experience and respond to the costs and risks they face more acutely than any quango acting at arm's length. We have provided an illustration for this point through the rail example earlier on.
49. DNOs balance competing priorities when determining how to manage their assets for the benefit of customers. Decisions are weighted with reference to several factors including :
    a) risk of failure in service due to condition;
    b) cost of replacement;
    c) premature ageing or higher maintenance costs from more arduous service - e.g. greater use of tap changers to control voltage in an actively managed section of network;
    d) sophistication of system design - e.g. greater automation and control points to enable remote or automatic response to a power cut where network switching restores supplies; and
    e) system losses.
50. The regulatory price control already incentivises optimal balancing of these various cost and service risks through the application of regulatory obligations and output incentives. These set minimum standards and monetise reward/penalty by aligning outputs to service levels that customers value. The long-run improvements in services and costs by companies are testament to the effective operation of these regulatory levers to deliver customer benefits. In contrast there is no evidence to suggest that the review's recommendation to replace this set of well-developed instruments with a radical system of franchised contracts would deliver better results.

ELECTRICITY SUPPLY

Taking into account the findings and recommendations of the Helm Review:

- **What are the longer-term challenges for electricity supply?**
- **What matters should the Government take into account in considering the longer-term operation of the retail market?**
- **What additional evidence should the Government consider to reduce the cost of electricity supply in the longer term?**

51. We are at a time of big questions being asked by the cost of energy review and other calls for evidence – in particular the Ofgem consideration of future supply market arrangements. Government and Ofgem must together consider how these related issues should be progressed.

The future of customer engagement will be influenced by any legislation enacted to introduce price caps. Price caps will have an impact on the competitive market and customers may respond in ways that may not be expected by policy makers. Different groups of customers need differing approaches to protection.

52. The draft legislation being brought forward by Government to implement price caps could have a significant impact on the future landscape of the supply market. If enacted this will represent a move away from reliance upon competition as the mechanism by which customers are protected; instead more reliance will be placed on regulatory intervention. As such, the other steps that Government or Ofgem is considering will need to be formed on the basis of whether and how this Government intention is enacted.
53. Ofgem and Government should continue to prioritise customer protection for vulnerable consumers and the fuel poor. Collective switching as described in Ofgem's call for evidence document seems workable, as does the model currently growing in popularity of a local authority acting as a not-for-profit supplier. Looking further forward, how the market structures that facilitate decentralised energy models and peer-to-peer trading can also address provision for these groups should be a key issue for this process to consider.
54. Through our Community Energy Seed Fund, now in its fourth year, we also have witnessed the role that community groups can play in helping vulnerable households turn their attention to energy matters and get involved in decisions[16]. We believe that BEIS and Ofgem should continue

[16] We provide case studies of projects that the Community Energy Northern Powergrid Seed Fund has helped here: www.northernpowergrid.com/document-library/community-energy/community-energy-case-studies. New ones relating to the third year of funding will be available in May 2018.

the initial efforts of the previous government in supporting community energy actors[17] with a view to enhancing market participation.

55. Another community energy example is our collaboration in the Energise Barnsley community project through the 'Distributed Storage and Solar Study'[18] innovation project. In this project we are exploring the value of domestic storage, often in combination with solar panels, for customers in social housing. It is demonstrating good levels of engagement by customers seeking to minimise their bills.

The new role of DSO could have a significant impact on the future of supply.

56. We recognise, as did the call for evidence for 'A smart flexible energy system'[19], that, in the future, customer engagement will be guided by energy services (buying and selling energy) as well as network services (customer flexibility offered to balance the system). The active distribution system means that the supply market cannot be considered in isolation of it. Enabled by new technology and the advent of improved data, customers will be at the hub of the energy system.

57. Through the Energy Networks Association Open Networks project[20] , electricity distribution and transmission companies are collaborating to consider the future role of a DSO and what this would entail. We consider that the DSO will be central to enabling customers' participation in both energy and networks services markets.

58. Government and Ofgem must therefore consider the thinking on both DSO and the supply markets at the same time.

59. Ofgem's analysis of the three primary supplier roles currently (settlement agent, customer risk management and customer protection) is a useful platform to start an assessment of which key functions could benefit from innovation and competition and where supplier or intermediary obligations could be graduated between different actors in the future.

60. It would be beneficial to compare and contrast such analysis with the emerging understanding of a future where the system operator and DSOs operate, in order to test the thinking in both areas and ensure that any changes considered are complementary. The Open Networks collaboration is a good source for this consideration of future roles for network operators.

[17] 'Community Energy Strategy Update', Department for Energy and Climate Change, March 2015
[18] More information on the project on: www.northernpowergrid.com/innovation/projects/distributed-storage-solar-study-nia-npg-011
[19] 'A Smart flexible energy system', Ofgem, BEIS, November 2016.
[20] www.energynetworks.org/electricity/futures/open-networks-project/

Incremental development through time of the current supply market arrangements has led to a number of fiscal and regulatory niches where some parties exploit a position inequitably.

61. As described in the cross cutting issues section of our response, on occasions, the interaction of the fiscal / levy regime with the current supplier hub model has some far-reaching implications that are perverse for an equitable whole energy system and should not be replicated by future supply market arrangements.

62. A key example is the action by local authorities to maximise the revenue stream from local combined heat and power (CHP) systems. BEIS needs to evaluate the problems that are being created by the application of environmental levies and taxes to energy bills with the aim of applying taxes in a way that creates fewer perverse incentives. This is discussed further in the section on cross cutting issues in this response.

Supply will be significantly affected by the application of technology and customers' changing energy practices. As such, industry structure and policy needs to reflect adequately this new world – typified by the transition to electric vehicles.

63. Like the advent of solar panels, electric vehicles provide customers with more reason and greater appetite to participate in the energy system. Empowered by technological advances such as smart apps, smart meters and new car technology, customers will increasingly seek to use or provide energy flexibly in return for financial or other benefits.

64. Against this backdrop, electric vehicles bring with them a number of policy questions that need evaluating across Government. In particular:
    a) How to address the shortfall in tax receipts from a drop off in hydrocarbon fuel sales?
    b) How to develop the charging infrastructure efficiently to support the take-up of new vehicles – competitive market or regulated roll-out and whether to place the required smartness in the car, the charging lead or the charging post?
    c) Who pays for the infrastructure – vehicle users or electricity bill payers? And if the latter, how to match social policy principles with the distributional effect of deploying an adequate charging infrastructure?

65. All these important questions require consideration in the context of the cost of energy review. But they extend beyond supply (or networks) and require consideration from a policy perspective across Government departments.