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Proposed objective for RIIO-ED2

1. Do you have any views on the proposed objective for RIIO-ED2?

Ofgem has proposed that the overarching objective for ED2 should be *'to ensure that the DNOs deliver the value for money services that both existing and future consumers need'*. We believe that this should be extended to capture all three of the high level output categories and not just one. Our suggested alternative is *'to ensure that the DNOs deliver the value for money services that both existing and future consumers need, whilst maintaining and delivering a safe, resilient and environmentally sustainable network'*. Without our suggested modification, we believe that the overarching objective as drafted would place a disproportionate emphasis on cost being the principle driver at a time when safety, resilience and environmental sustainability have never been more important.

We note that the Open Letter goes on to explain that *'we think these expectations can be translated in to delivery of the following outcomes [see question 2] while keeping bills as low as possible'*. Similarly, the Open Letter also takes the opportunity to link the ED2 objective to Ofgem's overall strategic priorities and explicitly references one of these priorities, *'decarbonising to fight climate change at lowest cost to consumers'*, in relation to setting the price control. In the ED2 context, it is important that Ofgem clearly defines what is meant by *'keeping bills as low as possible'* and *'at lowest cost to consumers'* as there are fundamental conflicts within both of these statements and clarity is required to help to shape the detail of DNO outputs.

If keeping bills as low as possible is the primary driver then it risks driving behaviour from DNOs that is at odds with the enabling role required to help national and devolved government's meet their Net Zero targets. On the other hand, if DNOs are expected to play a wider role in Net Zero, then it should be acknowledged that this is likely to place upward pressure on the network component of electricity bills and costs to consumers and this will be managed via the checks and balances within the RIIO-2 framework.

Network companies are being encouraged to engage in 'whole systems' thinking to make the best decisions for consumers. Ofgem also needs to think more broadly and recognise that consumers do not think in silos as electricity consumers, transport consumers, heat consumers; they consider their cost of living and welfare as a whole. If wider societal benefits such as reduced costs from fuelling cars and GDP impacts were able to be fully considered in CBA assessments, then it would demonstrate the scale of the network component of bills. If Ofgem do not believe that its' current statutory remit allows it to think more broadly than at present, then it should acknowledge and address this together with Government.

How to set price controls that support decarbonisation goals

2. To what extent should we take into account outcomes linked to decarbonisation targets, and what outcomes might this involve?

The achievement of Net Zero relies on the decarbonisation of transport and heat: transport accounts for 27% of the UK's emissions and heat contributes to 37%¹. The UK and Welsh Governments have set a target for all new vehicles to be low emission by 2040 with the Scottish government accelerating

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766109/decarbonising-heating.pdf

this challenge to 2032. For heat, nearly all heat in buildings will need to be decarbonised by 2050 which would equate to 20,000 households per week switching from the gas grid to low carbon heating between 2025 and 2050.

For transport, the market is demonstrating that electricity is the credible alternative to the combustion engine and although the options for heat are still open, it is widely expected that a mix of technologies will be utilised, including electricity. If we do not prepare for these changes, then we risk being a blocker to the achievement of Net Zero and the needs of our customers.

Throughout ED2 and beyond, we will be adapting our network to the change in government decarbonisation targets and the additional needs placed on our system. The electricity network must tackle decarbonisation and environmental impacts in three ways;

1. **Accommodating the Net Zero transition;** networks are uniquely placed to facilitate the decarbonisation of existing energy consumption through connection of renewable generation, and electrification of heat and transport.
2. **Adapting to Climate Change;** building networks that are resilient to the effects of climate change i.e. prolonged warm/wet periods, longer higher temperature periods, drought etc.
3. **Mitigating Networks Climate Impact;** reducing the environmental impact of networks and companies through adoption of environmentally friendly policy, equipment and activities.

With this context, it is clear that DNOs have a key role to play if government decarbonisation targets are to be achieved. The ED2 framework must reflect this and be underpinned by achievement of outcomes and outputs, so there must be a link to Net Zero in the suite of ED2 outcomes and outputs. Ofgem have proposed the following high level outputs and outcomes for RIIO-2.

- **Meet the needs of consumers and network users:** Network companies must deliver a high-quality and reliable service to all network users and consumers, including those who are in vulnerable situations.
- **Maintain a safe and resilient network:** Network companies must deliver a safe and resilient network that is efficient and responsive to change.
- **Deliver an environmentally sustainable network:** Network companies must enable the transition to a smart, flexible, low cost, and low carbon energy system for all consumers and network users.

We consider there to be Net Zero outputs associated with each of the above high level objectives but further work is required to define the detailed decarbonisation outputs of each and this should be the subject of ED2 Working Group discussions.

3. Are there activities that DNOs are best placed to carry out in order to achieve these outcomes? What are the alternatives? Why would it be appropriate for energy consumers to fund these activities?

DNOs are in a unique position to enable decarbonisation; they have detailed knowledge of their networks, a vested interest in the evolution of the electricity sector, and close relationships with key stakeholders. This combination means that DNOs are best placed to take a strategic view of how short term and long term needs from the network are best achieved.

ED2 is the time to lay the foundations for Net Zero. We believe that the role of the DNO needs to evolve alongside the demands on the network by society at large, leveraging the UK's successful regulated model to deliver decarbonisation in a fair and equitable way.

In our 'traditional' role as the DNO, there are some core activities in ED2 that will be fundamental to achieving decarbonisation:

- Enhanced approaches for network reinforcement and replacement, with a focus on future-proofing network investments, particularly where the marginal cost of incremental capacity/technological capability is relatively low.
- Encouraging liquid markets of flexibility to manage not only short term demands on the network, but to enable a future DSO model that will actively manage the physical realities of a more decentralised, local energy system.
- Broadening the data monitoring on our network and developing innovative analytics and modelling capability to better understand current and future impacts from wholesale decarbonisation.

Further to this, there are some new, more proactive activities for DNOs that we believe will be necessary in ED2:

- There is a major role for DNOs in facilitating the access, uptake and operation of new low carbon technologies, including Electric Vehicle charging.
- There is a substantive future role for us in working with customers and other stakeholders to encourage participation in the low carbon transition, particularly where this has an impact on vulnerable and fuel-poor customers.
- Closer partnership with major stakeholders, particularly cities and other communities, to provide expert knowledge on the capability of the network and help to shape decarbonisation plans.

We believe that a clear example of how this should develop in ED2 is with the uptake of Electric Vehicles, where SPEN has recently announced an industry leading partnership with the Scottish Government which demonstrates the clear benefits of a more expansive and joined-up approach.

This joint-funded project between SPEN, SSE and the Scottish Government will demonstrate innovative ways to deliver EV charging infrastructure, and will help us understand how to integrate charging infrastructure into our grid in a way that not only reduces pressure on the network, but also benefits consumers.

One of the core deliverables of this project is a large-scale, joint-funded demonstrator project developed with and delivered by SP Energy Networks in central and southern Scotland which evidences the value of DNO involvement in aspects of the provision of EV charging infrastructure. The project will be representative of the wide range of geographic and demographic variation in the region.

It will develop an evidence led, accelerated model for co-ordinating EV charging and electricity network infrastructure, with efficient investment and fair distribution of cost, and which unlocks economic, social and environmental benefits. The ultimate aims being the development of a strategic, lower cost approach to building and maintaining a world-leading public EV charging network in Scotland, aligned with Scottish Government targets to remove the need for new petrol and diesel cars and vans by 2032.

We believe that this model should be a precursor to a broader approach for DNOs in ED2. We would also strongly encourage Ofgem to reflect the provisions of the EU electricity directive in the ED2 price control framework and licence, in respect of EV charging, including:

- An EV specific licence condition that allows for DNOs to undertake EV charger installation and operation as a regulated activity (potentially RAV based) activity, where the market is not delivering, and this is supported by key stakeholders (e.g. Scottish Government, Welsh Assembly Government, Liverpool City Region Combined Authority, or Local Authorities).
- Amending some of the existing key licence condition definitions to enable this
- Developing detailed guidance for DNOs and stakeholders for guidance on this activity
- Provision for the future role of the DNO and/or DSO in the control of public (and potentially private) EV charger output (e.g. via aggregation/flexibility services)

We believe that the DNOs should provide EV charging infrastructure in areas where the market does not deliver at a reasonable cost and/or in a timely manner. The scale and pace of decarbonisation required (and for government targets) necessitates the provision of wide scale charger access. This may not be equitable across geographies or populations; joined-up, strategic investment, in this context, is vital.

Furthermore, the increased utilisation of the network is not a passive activity; it has real physical constraints, with considerable implications for safety and security of supply. DNOs' expert knowledge of network capabilities and impacts, tied with our extensive delivery experience, would reduce transaction and delivery costs, benefitting consumers.

We do not believe that it is the role of DNOs to justify whether or not energy consumers should pay for Net Zero. Ultimately, this is driven by government policy, and government has a variety of tools at its means to recover expenditure required to deliver policy.

Therefore we believe that DNOs are best placed in respect of these alternatives, particularly where we are beginning our decarbonisation journey as a country. We believe that the DNO must be used as the principal vehicle to help spearhead Net Zero; delivering complex technical solutions, considering stakeholder interests, and aligned to the social good.

4. How should we assess DNO funding requirements and measure DNO performance in these areas?

Under the RIIO-2 framework, DNOs are required to make their proposals for funding via their business plan submissions. This approach should remain for proposals that support decarbonisation, with the recognition that there is a high level of uncertainty around such proposals and the evidence required to justify these proposals should be tailored to recognise this.

Decarbonisation is a UK-wide challenge. However, the regional and local impacts of this policy will likely result in differences in pace and scope across the UK. We are particularly sensitive to this risk as we are the only DNO to operate in Wales, England and Scotland. It is important that any benchmarking of DNO proposals in this area explicitly considers the regional variations between network company territories. Further, there should be recognition also that there are different 'starting points' for each DNO network, e.g. differences in Load Indices / available capacity, due to historic differences in approaches to network investment thresholds and base network architecture.

We would welcome further discussion during the ED2 Working Groups, to provide clarity around how these funding mechanisms should be approached.

We also accept that in some instances, depending on the extent of the uncertainty, it may be more appropriate for DNOs to propose additional funding (and for Ofgem to assess these proposals) during the price control period via an uncertainty mechanism such as a reopeners or mid-period reviews.

Performance measures should be consistent with the intended outcome, whether that is delivery of a project, volumes of outputs, or delivered expenditure. We do not have any specific proposals on how DNO performance could be measured in this area, but would suggest that DNOs and Ofgem work together via the ED2 Working Groups to establish an outputs monitoring and governance framework that measures the delivery of our stakeholder commitments.

5. How should we incentivise DNO performance when the achievement of outcomes could be dependent on the actions of others?

Incentive mechanisms have a successful track record in delivering positive outcomes for consumers. These are most effective also when aligned with consumer benefits and when the actions are clear and the outcomes attributable to the DNO.

The proposals on decarbonisation introduce a complex set of interactions and incentives between different parties. This needs carefully considered to ensure that DNOs' incentives are aligned with the interests of consumers and stakeholders, and that DNOs are not penalised unfairly for issues outwith their control.

This is perhaps most prominent with the future connection of EV chargers, other Low Carbon Technologies (LCTs) and Distributed Generation (DG). However, we can see parallels between the delivery of decarbonisation targets and the objectives behind the historic DG incentive, and we believe that this may be useful to establish in a similar form for ED2.

In DPCR4, Ofgem introduced a Distributed Generation (DG) incentive to deal with the variability associated with distributed generation connections. It was designed to encourage DNOs to be proactive in undertaking the efficient investment required but also facilitate DG rather than just focusing on cost minimisation. At that time, Ofgem believed that the best way to achieve these objectives was the use of a hybrid incentive scheme. This was subject to a cap and collar and based on a percentage of investment being awarded on a pass through basis with the remainder incentivised via a £/kW revenue driver once the DG connected to the network.

However, Ofgem and the relevant ED2 Working Group should work together to undertake analysis to identify how this could work in practice. In particular, full consideration would need to be given to any caps and collars and percentage splits between pass through and incentivised revenue.

Similarly, Ofgem and DNOs need to ensure that the results of competing incentives and funding methodologies produce outcomes that are aligned with the best interests of consumers. As an example, in ED1 we are aware of instances of network reinforcement at LV (triggered by new Low Carbon Technology such as heat pumps) that requires a consequential upgrade to our HV network. The current rules stipulate that all LV reinforcement costs in these cases are socialised to all customers, but if a HV reinforcement is triggered, the initiating customer has to bear a proportion of these costs. In one case, this amounted to a £20k charge for a single 8kW heat pump.

We believe that this will occur more frequently in ED2. Ofgem has to ensure that the regulatory framework and incentives are aligned to enable this progress to Net Zero, and avoid creating unintended consequences and disincentives for customers.

How to set price controls that support strategic investment

6, 7 & 8. How do we ensure that network companies are best placed to undertake strategic investment and manage the associated risk? How should the risks of these investments be

managed? What, if any, changes to the framework are required to support strategic investment? How should we hold the companies to account for the delivery of strategic investment, and the outcomes that they are expected to deliver?

Ofgem's principal objective

Ofgem has a key role to play in ensuring it uses its powers and applies the regulatory framework in a way which supports Net Zero, including making decisions around strategic investment. Ofgem's principal objective is to *'protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems'*. These interests are defined to be 'taken as a whole' and explicitly include consumers interests in the reduction of gas- and electricity-supply emissions of targeted greenhouse gases. We acknowledged that questions have been raised by the Science & Technology Committee², and the Chief Executive of the Committee on Climate Change (CCC)³, as to whether this statutory remit will allow Ofgem to play the role it needs to meet Net Zero. Clearly Ofgem has a very broad remit in relation to energy but it is essential that any doubt over this is resolved as soon as possible. We would be happy to work with Ofgem to develop case studies or scenarios which highlight the various ways in which Ofgem's decision making can support net zero and so identify any marginal areas where change may be required.

Regional consideration

Given that the optimal solution for transport (and heat) decarbonisation may vary widely from region to region, there may also be a case for devolving certain Ofgem functions and activities to a more local level. A recent report by Localis⁴ suggested that certain regulatory powers of Ofgem could be regionally devolved so that cities can develop their own energy policy with Ofgem playing an oversight and national coordination role. We agree with the view that 'locally-specific' decisions are better managed by those with local knowledge and there is a risk that centrally proposed regulatory measures are inflexible and unable to properly accommodate local factors and local needs. This is particularly important when particular cities and communities have ambitions to be at the forefront of Net Zero. For example Glasgow wants to reach Net Zero 'well before 2045', Liverpool is targeting 2040, and Edinburgh advancing this to 2030.⁵

Move from detailed investment evaluation to process due diligence

*'In view of the growing system complexity and the plethora of competing solutions, there is consensus developing worldwide that a regulator's efforts may be better-placed in the design on an incentive framework so that the most cost-efficient solutions emerge endogenously without the need for extensive scrutiny of the propositions on an individual basis. With such a framework in place, the regulator's role can shift from detailed investment evaluation to process due diligence, ensuring oversight and administration of the investment framework itself as well as focusing on ensuring that commercial incentive, market design and planning process are fit for purpose in view of technological advance and the underlying system reality'*⁶

We support the above conclusion from the 'Delivering future-proof energy infrastructure' report for the National Infrastructure Commission. If the framework for ED2 sets clear outcomes linked to decarbonisation targets, and strategic investment is one of the tools that can be used to deliver these

² <https://publications.parliament.uk/pa/cm201719/cmselect/cmsctech/1454/1454.pdf>

³ <https://www.theguardian.com/business/2019/jul/22/energy-regulator-is-out-of-touch-over-climate-crisis-say-businesses-ofgem>

⁴ Localis, *Smart Cities: Fair investment for sustainable growth*, January 2019

⁵ <https://www.bbc.co.uk/news/uk-scotland-48269986>

⁶ <https://www.nic.org.uk/wp-content/uploads/Delivering-future-proof-energy-infrastructure-Goran-Strbac-et-al.pdf>

outcomes, then an appropriately designed incentive mechanism would allow DNOs to work towards the achievement of these outcomes whilst incentivising them to invest efficiently and economically (see response to question 5).

The first step must be to define clear parameters for what constitutes strategic investment. Strategic investment should not be purely speculative but supported by a needs case that has been established using a whole systems approach and with a focus on regional stakeholder needs. It may be appropriate for strategic investment to be ring-fenced within the DNO plans as the justification provided for these investments will need to be 'tailored appropriately'⁷ to reflect the different type of evidence base available for investment with higher levels of uncertainty.

CBA approach

We can see that the need for Cost Benefit Analysis by DNOs will continue to be an important element in investment decision process undertaken by DNOs and there should be a common approach to these. This includes in the way in which benefits are categorised and quantified. Strategic investment could bring a range of benefits such as reduced losses and faster facilitation of new demand and generation connections. Indeed there is a view that, once the need for reinforcement of the network is established, the new network should be oversized to future-proof and reduce losses *'given that the savings in losses exceed the extra cost of oversizing the network'*⁸.

Strategic investment in relation to decarbonisation targets may also drive benefits for consumers in a broader sense, e.g. reduced petrol/diesel costs, and to society as a whole if optimal investment timings cause less of a shock to the economy compared to suboptimal timing (e.g. wage inflation)⁹.

The traditional CBA process should be reviewed to allow full consideration of these aspects, including whether or not some of these societal benefits can be quantified consistently. In addition, given many benefits may apply to future consumers beyond the ED2 timelines, then the review should also consider the period of time over which such evaluation take place. We understand that there are examples of societal CBAs which allow for more comprehensive assessment of these factors than Ofgem's current approach.

Asset Stewardship

DNOs are best placed to deliver an overall portfolio of strategic, reinforcement and modernisation investment.

Sir John Armitt recently published an article¹⁰ which stated that *"we need a truly national, visible charging network for electric vehicles"*. He also cross referred to the National Infrastructure Assessment¹¹ which has recommended that: *"Ofgem and local authorities should enable the roll out of a truly national, visible charging infrastructure for electric vehicles, sufficient to encourage consumer demand to reach c.100% of new electric car and van sales by 2030...and Ofgem should commission electricity network operators to work with charge point providers to identify potential anticipatory investments required to accommodate public charging infrastructure"*¹²

In order to make this a viable goal and cost effective to consumers, network operators must have the principal oversight and planning role in any EV charging roll out, working alongside Ofgem. This

⁷ https://www.ofgem.gov.uk/system/files/docs/2019/08/letter_to_networks_on_achieving_net_zero.pdf

⁸ <https://www.nic.org.uk/wp-content/uploads/Delivering-future-proof-energy-infrastructure-Goran-Strbac-et-al.pdf>

⁹ <https://strathprints.strath.ac.uk/67741/>

¹⁰ <https://www.nic.org.uk/news/climate-proofing-the-uks-infrastructure-must-be-a-priority-article/>

¹¹ <https://www.nic.org.uk/publications/national-infrastructure-assessment-2018/>

¹² https://www.nic.org.uk/wp-content/uploads/CCS001_CCS0618917350-001_NIC-NIA_Accessible.pdf

should be explicitly recognised in licence. We must learn from the mistakes made with GB's smart meter roll out, where suppliers held this responsibility, yet every other EU nation chose to do so through their DNOs which prove to be the most successful option. A potential precedent has already been set by ESB Networks in Ireland. Whilst the Republic of Ireland now follows a commercial approach for EV charging, it was recognised that the incumbent network operator was best placed to ensure a non-biased roll out of EV charging from the outset. ESB Networks developed public EV charging network through a trial project running since 2014, with €25 million collected from consumers through Distribution Use of System charges. There are now over 900 charging points across the country. These charging points have never been part of ESB's RAB.

Asset stewardship is a critical factor in any asset roll-out. Network operators ensure the safe installation and maintenance of assets similar to EV chargers, such as LV pillars. Safety and asset stewardship must be taken into consideration alongside the practicalities of any roll-out. We believe that DNOs are best placed to roll out GB charging points given that this will require careful management. A clear and transparent strategy is essential to help facilitate this transition at the lowest overall cost for customers. Crucially, this strategy needs to tie together the needs of a range of stakeholders with the capacity on the electricity networks to develop a system that is safe, flexible, and cost-effective. This approach will greatly improve the visibility of network capacity and accelerating the electrification of transport across the region for all.

In addition to clarification of DNOs role in EV charging roll-out, the ED2 process should seek to formalise the ability of DNOs to own, develop, manage and operate EV charging infrastructure where the market has failed to deliver. This would align with the provisions of the EU Electricity Directive.

How to set price controls for DSO functions

9. Is there a need to separate out the revenues and outputs for 'traditional' DNO functions from DSO functions? How could this be achieved?

In principle, we would support the following approach:

- For DSO functions which can be clearly separated out from traditional DNO functions, and whose delivery does not have a material impact on DNO functions, we would propose separate costs, outputs and revenues. This will promote optionality for these DSO functions to be delivered by other parties in the future in two ways:
 - Future DNO/DSO separation will be simpler if the DSO functions already have separate costs, outputs and revenues.
 - Separate outputs and revenues will enable better performance monitoring of the DSO functions. This enhanced performance information will help Ofgem set a separate DSO price control in the future, and encourage other parties to bid to take on DSO functions by reducing uncertainty as to how DSO functions perform.
- Where DSO functions materially overlap or impact DNO functions, things become more complex. The overall aim should be to encourage the least cost solution (considering both existing and future consumers). Therefore where DNO and DSO functions have the same aim (for example, reinforcement and flexibility services have the same aim of delivering network capacity), then we consider that a single allowance with a performance incentive is the best way to deliver that, as per the load related expenditure allowance in ED1. This is because the risk of multiple outputs with different allowances is that it creates the opportunity for incentive gaming (if a DNO is low on one allowance, they might be tempted to spend from that allowance rather than choose the true least-cost solution). In this vein, we support the development from RPI-X to ED1 of a fixed ratio of fast/slow money and a TOTEX efficiency incentive as the most effective method to deliver least cost to consumers. This need to

encourage least cost will be stronger in ED2 with increased consideration of Whole System and future customers.

As per this last point, we would argue against separation of revenues and outputs where DNO and DSO functions ‘materially overlap’. However, we consider that the ‘materiality test’ used to decide this must be high, i.e. the default position should be that DSO functions have separate costs, revenues and outputs, apart from where there is a clear case to the contrary (such as where DNO and DSO functions are different methods to achieve the same objective - Here we believe that a single allowance is a better way to incentivise lowest overall cost). Minor overlaps between DNO and DSO functions should not be used as an excuse to resist the separation of DSO revenues and outputs. An example from ED1 to encourage a strict materiality test is that reinforcement decisions overlap with the totex efficiency incentive, the ISS incentive, the HI incentive and losses; yet despite this overlap we still have separate revenues and outputs for these.

We believe the ED2 Working Groups should be used to discuss the details of which DSO functions should have separate revenues and outputs.

10. In the event of the DSO function being delivered by a separate party, how might we determine the revenues for DSO activities? What type of funding model would be appropriate to set DSO revenues? In this event, would changes also be required to DNO revenues and outputs?

DSO revenue determination and funding

The method to determine revenues and the funding model is going to depend on the DSO function/activity. Functions which require capital investment (for example, communications equipment) may require a different funding model to those that largely involve operational expenditure (for example, the procurement of services).

Revenue options where DSO functions are delivered by a separate party include:

- For DSO functions that require assets/resource, something like the ESO model may be appropriate: an allowance for physical infrastructure and performance incentives.
- For DSO functions that are transactional (e.g. delivering DER resources), then revenue could be determined by allowing the party to charge a margin per transaction (e.g. 5%), based on a combination of volume and value of the transaction. Set appropriately, this could encourage the DSO function owner to undertake beneficial measures to increase the volume of transactions, such as by seeking ways to reduce their cost. These transactions would need to be in competition with another solution managed by a separate party and/or subject to an overall expenditure limit, to prevent the DSO function owner from undertaking needless transactions. This model could be combined with performance incentives and/or a cap and collar arrangement to provide sufficient financial certainty to raise debt and equity, but consumers would be protected from excessive returns.

Impact on DNO revenues and outputs

If DSO functions are delivered by a separate party then it is likely that changes to a DNO’s revenues and outputs would be required. This is for two reasons:

- There is increased risk to the DNO in delivering its outputs for DNO functions where they are dependent on DSO functions. The DNO is no longer able to manage all the risk associated with delivery. For the same reason, there is also an increased risk to the DNO’s ability to comply with its licence obligations and ensure the operational stability and safety of its network.

- There will be the loss of efficiencies that would have come from the same party providing two functions. These efficiencies could range from shared overheads through to inherent efficiencies of interdependent functions.

11. Where a DNO is undertaking a DSO function, what type of outputs or outcomes are necessary to measure how efficiently they are performing this function? Over what time period could these be measured?

Outputs and outcomes

We consider that the outputs should be the same for a DSO function regardless of who is delivering them. This is because the outputs of a DSO function should be determined by what is required to deliver a secure, efficient and low carbon energy system.

Whilst the outputs should be constant, we accept that the performance incentives and revenues for a particular DSO function may vary by who is delivering it. This is to reflect that different parties may have different costs and efficiencies in delivering a DSO function.

Time period to measure these outputs

We consider that there are two broad options for the time period in which outputs could be measured:

1. Measure the outputs over the ED2 price control.
2. Measure the outputs over a longer period than the ED2 price control (measure from the start of ED2 until some point after ED2 has ended). A longer period of measurement might reflect the longer-term nature of some objectives (e.g. the 2050 Net Zero target).

We strongly support option 1, measuring outputs over the ED2 period. This is for three reasons:

1. The urgency with which DSO and associated outputs need to be delivered. Measuring over the longer-term might not incentivise the pace of change which is required.
2. Complexity. For longer-term outputs (e.g. Net Zero by 2050), we cannot think of any outputs that would not be able to be split into ED2 outputs, ED3 outputs etc.
3. Risk. Longer-term outputs will be exposed to greater forecasting risk. This is recognised in Ofgem's proposal for a five-year price control.

How to set price controls that drive innovation and competition

12. In what ways could the existing arrangements drive more innovation and competition?

The Totex Efficiency Incentive is an effective way of encouraging DNOs to embed innovation into day to day operations and SPEN has embraced this approach. The ability to outperform the settlement through innovation and efficiency must be retained.

The innovation mechanisms could be enhanced by the introduction of Open Innovation. We strongly believe that the principles of Open Innovation¹³ can drive more innovation and completion within the sector. Open innovation offers a platform for organisations to harness ideas, insights and experience from outside their usual sphere of influence to help do things better. This aligns to the whole systems approach.

¹³ https://en.wikipedia.org/wiki/Open_innovation

SPEN is the first DNO to have successfully trialled Open Innovation. Our experience has shown that creating a series of innovation challenges which are open for a wide range of businesses and other organisations, including many outside our sector, to respond to has resulted in solutions we would not otherwise have identified.

We have commented on Ofgem's proposed innovation stimulus for ED2 in our responses to questions 38 and 39.

How to set price controls for a smart, flexible energy system

13. To what extent should we set (and incentivise performance against) baseline totex allowances for activities where flexible solutions could be provided?

For ED1, a baseline totex allowance with a TOTEX efficiency incentive was set for load related expenditure. This is an activity which could be partly met by flexibility solutions. This approach, combined with a fixed ratio of fast/slow money, removed any incentive for gaming between Capex versus Opex solutions (as had been the risk with RPI-X) and clearly incentivised the least cost solution.

Looking forward to ED2, the risk of continuing this approach is that a far greater magnitude of flexibility services may be used. There is also uncertainty around their cost. If these services are more widely available and at lower cost than predicted in a DNO's ED2 settlement, then there is a risk of that DNO grossly outperforming allowances and earning excessive returns.

There are two measures which would reduce the risk of this. Firstly, as in ED1 there could be reopeners if actual spend sufficiently deviates from forecast spend. Secondly, moving to a five year price control will reduce this risk.

A new performance measure for Load Related Expenditure (LRE)

A potentially more effective solution for the load related expenditure allowance is a new method to calculate a DNO's reward under the TOTEX efficiency incentive, to take account of this risk. This could work as follows: the ED1 approach of a baseline totex allowance, a TOTEX efficiency incentive (with fixed sharing factor) and a fixed ratio of fast/slow money is all retained. However, solely for the purposes of assessing a DNO's reward under the TOTEX efficiency incentive, all flexibility services expenditure is converted into its equivalent expenditure of a 45-year reinforcement project. The conversion ratio would be agreed upfront as part of the ED2 settlement¹⁴. So as an example:

- For ED2, a DNO and Ofgem agree a load related expenditure allowance, assuming a certain level of flexibility service expenditure.
- Over the course of ED2, the DNO procures more services and/or at a lower cost than predicted, so that by the end of ED2 the DNO has only spent 70% of its LRE allowance.
- Under the existing approach this would result in excessive returns and/or a reopener. However the new TOTEX efficiency incentive is no longer based on this actual expenditure. Instead all flexibility service expenditure is converted to its equivalent 45-year reinforcement project expenditure. The DNO's reward under the TOTEX efficiency incentive is based on this new higher deemed total DNO expenditure value. In this example, after doing this conversion the DNO's total deemed expenditure is 90% of LRE – the DNO's TOTEX efficiency incentive reward is based on this deemed 90% expenditure value (i.e. a sharing factor of the 10% underspend, as per ED1).
- All of the remainder of the LRE (i.e. what wasn't spent on load related expenditure and the DNO's TOTEX efficiency incentive reward) is returned to customers.

¹⁴ Based on our financial modelling for flexibility, in ED1 40k/year of flexibility services is roughly equivalent to a £1m CAPEX on a 45-year reinforcement project.

This approach has the advantage that consumers benefit (in the above example there's a 30% underspend, but the DNO only gets a reward based on a 10% underspend), flexibility services are still incentivised where they are good value but can't be used simply as a way to enhance a DNO's performance rewards; there is transparency on the value of flexibility services compared to reinforcements; and there is therefore transparency around any procurement decisions between reinforcement and flexibility services.

This method works for the LRE allowance for scenarios where there is material cost differential between flexibility and reinforcement. However this approach may not be suitable for LRE where flexibility is procured, but it's only marginally lower cost than another solution (e.g. network reconfiguration).

This approach is also likely to be less suitable for other allowances where there may be little cost differential between flexibility and other solutions. For these allowances, continuing the ED1 approach of a baseline allowance, a TOTEX efficiency incentive (with fixed sharing factor) and a fixed ratio of fast/slow money may be the best method to clearly incentivise the least cost solution.

Other approaches

Another approach is to adjust the TOTEX allowance within period based on the value of flexibility. We don't support this idea, but options to do this are discussed in the response to question 14.

Whichever the method is ultimately adopted, it must:

- retain the feature of incentivising the least cost solution;
- consider the impact of delayed reinforcement and not just avoided reinforcement; and
- take into account that different DNO regions will have differing levels of flexibility resource.

Any use of flexibility needs to be carefully considered alongside the needs of future consumers, especially in the context of facilitating decarbonisation. This is because, against a forecast of wide scale increasing demand under Net Zero, for a proportion of sites flexibility services may only defer rather than avoid the need for reinforcements. We need to be wary of simply postponing a capacity problem until ED3, at which point we may struggle to deliver the required spike of reinforcement works due to workforce and supply chain constraints. If this arises, it will impact consumers and risks inhibiting decarbonisation.

14. Should we instead set allowances based on the costs revealed through the flexibility tendering process? How might this work?

We believe that the broad options for this are:

1. Setting allowances based on the known cost of flexibility as revealed through flexibility tendering pre-ED2 (and then assume that flexibility costs reduce through ED2).
2. Updating the load related expenditure allowance during ED2 based on real flexibility prices (either updated annually, or via a reopener if real flexibility prices go outside a range).
3. Having individual allowances for high value schemes and only updating these allowances.

We are not supportive of option 1 as we consider that there is a high forecast risk and the actual availability and pricing of flexibility services will be determined by other parties in addition to the DNO, resulting in the DNO potentially earning excessive rewards or penalties through little action of its own.

The risk of option 2 is that it will add unpredictability and volatility, at a time when greater consideration needs to be given to future consumers. This unpredictability and volatility could also increase the costs of debt and equity financing. This would not be in DNOs' or consumers' interests as it will increase overall costs.

Option 3 reduces individual scheme allowances if flexibility solutions are used, but:

- This would counter the TOTEX efficiency incentive unless a DNO is compensated for lost revenue.

- Flexibility is often used as an interim solution or to defer, not to completely avoid reinforcement.

Therefore, we do not support setting allowances based on the costs revealed through the flexibility tendering process unless there is a method that does not result in significant volatility or forecast risk. The new TOTEX efficiency incentive method proposed in Q13 would negate the need to set allowances based on costs revealed through the tendering process, and so avoids the disadvantages of this approach.

How to set price controls in a big data environment

15. To what degree should DNOs modernise their handling practices to adhere to data best practice, and therefore (among other things) provide available, transparent, and interoperable data about their networks? What measures will be needed to ensure data remains secure?

SPEN recognises the critical importance of data in creating the efficient low carbon energy system of the future. We have already made significant strides in improving the quality of both our asset and operational data in recent years and have laid the foundations to transition to Distribution System Operator. Prior to and during the ED1 price control we have adopted a proactive network data improvement programme, as well as investing in best in class IT and OT systems. We have implemented the extensive use of mobile technology and complete Enterprise Resource Planning (ERP) end to end asset management systems. In addition to investment in proven technology, we are leading the way in Innovation funded projects. This allows us to do things differently by developing new solutions to meet future energy needs¹⁵. These investments in data and technology mean we are now well placed for the next phase of the journey to a low carbon future.

The future energy system will rely upon both real time and near real time data processing on a scale not currently practiced within the industry. To be successful, this transition will require the automation of data collection, processing and big data analytics. This will require significant investment during the ED2 price control period, not only in the systems to store and processes data, but in the infrastructure to monitor, collect and transfer data (i.e. telecoms and real time system monitoring). Examples of the changes that DNOs will have to implement during ED2 are provided below:

- In order to provide reliable data we will need to employ automated corrections which flow through to network diagrams so the correct status of the network is known.
- Automated data quality checks will be required to retain high integrity of data, which would be of increasing importance if it is to become widely shared.
- The Use of artificial intelligence and machine learning will be required to compensate for imperfect data sets, and allow usable information to still be available. We think DNOs should agree on a common standard for data sharing such as Common Information Model (CIM IEC 61968/61970). This would give a standard nomenclature to prevent misunderstanding in what is being shared.
- In addition to the provision of data (as recommended by the Energy Data Task Force report¹⁶), DNOs also require data to effectively operate the low carbon energy system. Automated and centralised registration of Distributed Energy Resources and other “network impacting” customer assets (EV, heat, microgen, battery) is essential in operating the network

¹⁵ More information on SPEN’s innovation projects can be found here: <https://www.spenergynetworks.co.uk/pages/innovation.aspx>

¹⁶ [Strategy for a Modern Digitalised Energy System](#)

effectively and efficiently. This should include sharing anonymised, aggregated customer behaviour profiles.

- Systems to model and distribute data will be required in order to be able to identify and share the correct data efficiently. This would also be required to allow tagging of data deemed to be sensitive and therefore not widely shared. This could enable standard external interfaces which third parties could consume based on their security clearance/access need profiles.
- Cyber security will become even more critical and will be extended to data sources (such as monitors) to retain data integrity and to avoid deliberate mis-information being unwittingly shared by a DNO. This should be aligned with existing NIS and GDPR requirements rather than a separate (and potentially conflicting) regulation.

16. How should we structure RIIO-ED2 to encourage metadata to be made available, and for data to be presumed open? How should we measure DNO performance in this area, and on what basis should funding be set to deliver relevant outcomes?

SPEN recognise the work undertaken by the Energy Data Task Force as a step forward in specifying the importance of data in the low carbon energy system of the future. The report, Strategy for a Modern Digitalised Energy System, promotes the principles that data should be presumed open and that the provision of metadata is of paramount importance and should be standardised across the industry where possible. However, as outlined in our response to question 15, the scale of this transformation is significant

We therefore believe there needs to be appropriate recognition of this industry shift during the ED2 price control period, with necessary funding to allow DNOs to carry out the critical work of identifying , modelling and automating the handling of data as it flows through across the sector. Openness could be measured against the provision of agreed standardised interfaces for data consumption by 3rd parties.

As stated in our response to question 25, there is potential for increased risk to our energy system if the findings and recommendations of the EDTF, regarding data openness and transparency, are to be fully implemented. Networks provide a critical national infrastructure vulnerable to attacks from third parties. The assumption that all information is public unless proven otherwise could lead to the inadvertent release of sensitive information. We believe this position should be re-considered in light of this additional risk and discussed in detail at the relevant ED2 Working Group.

17. Do you agree with the themes we plan to include in our guidance on data best practice?

We agree with the main themes on data best practice and Ofgem's intention to further enhance the Long Term Development Statement. We also recognise the importance of data best practice as outlined in Ofgem's Position Paper on Distribution System Operation. We look forward to responding to more detail on the proposals during the forthcoming consultation.

Length of the price control

18. We welcome views on our proposed position of a five-year price control for RIIO-ED2.

We acknowledge that a five year price control would have some merits, notably limiting the exposure of companies and consumers to any uncertainty or changes in the wider macroeconomic environment. However, in our experience, one of the material benefits of an eight year price control is the increased certainty over longer timescales, which we have been able to leverage to secure investment for larger scale projects and to negotiate better prices with our supply chains.

Should Ofgem move to a 5 year price control, it should not defer important decisions into later price controls and use the shorter price control period as an opportunity to avoid making longer term decisions. For example, investment is required to facilitate EVs and the EV transition; we cannot wait until it is too late.

It is also important that Ofgem reviews the price control negotiation process to ensure it is suitable for a 5 year price control cycle. If we mirrored the ED2 timelines for ED3 then we would expect to see an Ofgem open letter around 18 months after the commencement of ED2 which does not give much time to learn any meaningful lessons for ED2. For a 5 year cycle to work, we believe there needs to be commitments from Ofgem both to deploy a less complex price control negotiation process going forward and to avoid a radical overhaul of the framework between ED2 and ED3.

19. Are there any elements of RIIO-ED2 price control that we should consider setting over a longer or shorter period? Please give reasons.

We do not think there is a need to set elements of the price control over a longer or shorter period. It is true that the price control period sets an artificial timeline around outputs that are linked to long term policy proposals e.g. Net Zero. However, dealing with these via the use of differing price control periods would add further confusion to a process which is already complicated. Instead, the RIIO-2 framework should ensure that there is funding provision within the timelines for RIIO-2 for outputs that will deliver benefits beyond the end of the ED2 period.

It is increasingly important that, when assessing projects that extend beyond the price control period, Ofgem's cost assessment considers such expenditure and associated benefits in their entirety (including environmental and sustainability outputs), taking into account the longer time horizons involved. For example, such expenditure may need to be assessed separately from the benchmarking of baseline expenditure in a single price control, to encourage optimal investment profiles.

Giving consumers a stronger voice

20. We welcome views on whether these enhanced engagement arrangements are appropriate for RIIO-ED2.

As one of the only network operators to hold both transmission and distribution licences, we believe we hold a unique perspective on the enhanced engagement process for RIIO-2 and are keen to work with Ofgem to help build the lessons we have learned into the approach adopted for ED2 and have outlined some initial recommendations for ED2 below.

Empower each DNO's own Customer Engagement Group (CEG), by retiring the Ofgem Consumer Challenge Group (CCG)

As we have expressed previously, in ET2 we have found the triangulation of feedback from our own stakeholders, our own independent TO User Group and the Ofgem CCG to be challenging. We believe the new Customer Engagement Groups, which are being established by all DNOs, will be best placed to influence business plans for several reasons:

- CEG members will have more time for on-boarding, learning about the business, users of the network and needs of end consumers.
- CEGs will be weighing up the different national, regional and local ambitions for climate change, the uptake of low carbon technologies and the associated impact on each individual DNO's plan.
- Ofgem's CCG adds another layer of complexity to the enhanced engagement process, which is not effective. Instead, we would propose that Ofgem formalises a regular meeting with all 6 CEG chairs, which would provide an important forum for each of the groups to coordinate their challenges at a national level.

Publish enhanced guidance around what success looks like for these groups

We have seen a number of inconsistencies emerge between the content of various guidance and decision documents on the role of the User and Challenge Groups, and the approach that its members appear to expect to take. There is a relatively high degree of subjectivity in some of the success factors listed, for example - what Ofgem considers 'high quality' engagement to be. We have been concerned that Ofgem's assessments could include consideration of whether we had met unspecified expectations.

We recommend setting out a clear set of minimum requirements for each DNO, which states what action Ofgem expects each company to take to meet the criteria associated with the enhanced engagement approach. We also recommend a clear set of guidelines for the chair of each Customer Engagement Group – setting out Ofgem's expectations for these groups and publish a template for the final report as soon as possible, so the group know what they are working towards.

Create a framework to encourage a smooth engagement process

Should Ofgem wish to continue with their CCG, we have some suggestions:

- If Ofgem is providing advice to the CCG, based on analysis, this should be made available to the DNO. The DNO should have the opportunity to clarify or respond to any of the points made. This would help ensure any challenge which the group provides is put forward on the basis of understanding all appropriate context and background.
- It is critical that appropriate time is built into the process to allow feedback to be acted upon. For example, we understand, as per the "RIIO-2 Challenge Group Priorities and Work Plan" document, that there is an expectation that the CCG will next meet with SPEN on our ET2 business plan in the last week of October. Following this, written feedback will then be provided to us in early November. This provides very little time to make any substantial changes to the content of the plan. We feel that Ofgem's project management process in T2 has not factored in the time required by companies to ensure that plan content has been through a robust governance and assurance process. Our internal governance process means that we have to lock down content changes many weeks or months before a major submission to Ofgem and we are concerned that we will be faced with a bottleneck in the ET2 process in November. We suggest that for ED2, Ofgem agrees that there will be no change of expectations on content from Ofgem or CCG feedback for several months before a business plan submission due date. The precise cut-off point could be agreed via the relevant ED2 Working Group.
- It can be a time consuming and challenging process to ensure that all comments from the CCG are understood, documented and responded to. We believe that it would make the process easier if Ofgem agreed a template for comments (perhaps based on the Business

Plan Guidance content) and a common method of responding to these comments. We are happy to work with Ofgem to share our experience and make some proposals.

- We would also recommend that if the final business plan to Ofgem is accompanied by an explanation of how a DNO has or has not addressed CCG feedback on its' draft plan, then there should be no need for the DNO to engage with the CCG between the receipt of draft comments and final plan submission (except to request clarification). Any expectation of further contact causes further pressure on timelines.

Meeting the needs of consumers and network users

21. We welcome views on whether the proposed output categories and incentive arrangements are appropriate for RIIO-ED2.

Output categories

The three proposed new output categories look reasonable and at this stage we consider that all aspects of current DNO business activities could be included within at least one of the three categories proposed.

This structured approach is useful, but there may be challenges as future detailed outputs emerge which do not clearly fall into one category e.g. DSO, Whole System and Flexibility etc., and the ED2 Working Groups should be used to agree consistent categorisation.

Licence obligations, Price control Deliverables (PCDS), Output Delivery Incentives (ODIs)

Ofgem has proposed that the framework for delivering ED2 outputs will be set by a combination of licence obligations, price control deliverables (PCDs), and output delivery incentives (ODIs).

It is difficult to provide much comment in this area as much of the detail around the use of these tools is still to be thought through. Therefore we suggest that once the ET2 and GD2 business plan submissions have been received and considered, Ofgem should review this area to assess whether these tools are capable of delivering what Ofgem is expecting or whether a change of approach is needed for ED2.

Notwithstanding the above, if Ofgem decides to progress with using these tools in ED2 then further clarity is still needed. We find the PCD concept quite abstract and challenging to understand how it could be used in practice. To ensure that DNOs are aligned in our understanding of how this is to be used, it would be useful if Ofgem could provide:

- some examples of where these could be used, perhaps linking to where they may be used in Gas Distribution or Transmission or mapping them to established ED1 terms; and
- a checklist which outlines which aspects of a PCD will be standard (e.g. if a PCD is only applicable for outputs which exceed a certain materiality) and which are non-standard (e.g. an ODI may or may not be associated to a PCD) .

22. We are interested to hear if there are new elements of the services DNOs will need to deliver that should be included in the current output categories. Alternatively, we welcome views on whether these should be captured by a new output category. For these new elements, we are interested to hear how delivery of these services should be valued and measured.

Via the RSE Working Group, SPEN recently worked with the other DNOs to provide a list of 'emerging areas' that require consideration within the ED2 framework. It is likely that further areas will emerge during ED2 Working Group discussions, but a summary of this list is provided below and we believe the is a useful starting point for Working Groups to consider. We believe that many of these areas could fall within the three high level output categories that Ofgem has proposed.

Emerging areas where ED2 treatment to be considered	High level description of area
EV connection	There may be a requirement to have an accelerated programme of the provision of new connections/network capacity for EV charging points/stations. This may involve working directly with local authorities and potentially providing anticipatory network infrastructure in readiness for EV charging requirements. Whilst normally this would fall under connections activity, there may be a requirement for different treatment of this EV related activity.
EV charging services	Innovation developments have led to the possibility of DNOs/DSOs influencing <i>when</i> EV vehicles are charged, so that demand peaks (and therefore network reinforcement) can be avoided. The development of these services, the technical arrangements and the commercial arrangements are yet to be fleshed out.
DSO	Licensees are progressively developing DSO services (such as procuring flexibility). The development of the package of DSO services/functionality will require funding to establish the teams and processes to support flexible services. Examples of areas for consideration in relation to DSO activities are: <ul style="list-style-type: none"> a. Accurate forecasting b. Efficient dispatching of flexibility c. Successful coordination with ESO d. Minimised total costs e. Data quality utilisation and visibility
Flexibility market	Licensees are exploring the use of flexibility to procure generation/demand turn up/down. This flexibility is in lieu of traditional network reinforcement and therefore could be viewed as being part of the decision making of how to deal with network capacity issues
Asset impact of higher network utilisation	The use of flexibility (with associated higher asset utilisation) needs to consider the impact on asset health), network losses and potential impact on network performance.
Cross sector/whole systems	A Whole System mechanism is required in ED2 to ensure there is increased coordination between parties within the electricity sector to drive efficiencies, and also increased cooperation with parties across multiple vectors to produce ED2 solutions which capture whole systems benefits.
Forecasting	As both demand and generation profiles become more volatile (due to e.g. electrification of transport, increasing penetration of intermittent renewable generation) there is increased risk associated with planning network capacity and real value in being able to provide accurate forecasts (taking into account weather and societal inputs) and enabling liquid local markets to drive the best costs for flexibility. Asset Utilisation and weather have implications on Asset Performance and also Heat / EV demand.
Digitalisation	The scale of EDTF activity that will be required under ED2 is currently uncertain and discussion is needed on how this activity is to be treated.

Cyber resilience	<p>The current ED2 Business Plan guidance requires TNOs and GDNOs to complete a Business IT Security Plan (BAU expenditure) – focused primarily on cyber security for business systems, and a Cyber Resilience Plan – which is incremental expenditure focused primarily on Production Systems Operational Technology (OT), in response to the Network and Information Systems Regulations 2018 (“NIS Regulations”).</p> <p>The pace of change in this area makes it difficult to predict how DNO cyber defences will need to evolve. The threats are changing, and the technology available to us is developing rapidly and the ability to respond to emerging threats.</p>
Black start and system security	Uncertainty may remain in ED2 in relation to this. Industry requirements in relation to system resilience and black start may not be agreed prior to ED2 plan development e.g. number of days of battery and telecoms requirements.
Persistent Pollutants regulations	Organic (POPs)
	As at 15th July 2019, EU Member States shall identify and remove from use equipment containing > 50 ppm PCBs and volumes > 0.05L, no later than 31 December 2025. The high-level impact on DNOs is still being quantified via the ENA, but initial analysis suggests it could potentially lead to significant additional costs and the mechanism for dealing with these in ED2 needs to be considered.
Legislative change for Environmental and climate change	It is currently unknown what new/updated Government Policy will be implemented over the ED2 period to accommodate Climate Change targets. An example of one area that is currently a ‘known unknown’ for DNOs in ED2 activity is electrification of heat.
Sustainability	<p>While legislative change for environmental and climate change is covered above, ED2 should consider wider sustainability contributions to achieve Net Zero and effective means to drive positive behaviours on decarbonisation and societal benefits.</p> <ul style="list-style-type: none"> - SF6, Fluid filled cables, network losses reduction, demand side reduction (energy efficiency). - Enabling community energy schemes with CO2 reduction - Demonstrating the consideration of social (e.g. supporting vulnerable customers) and decarbonising benefits in investments. - Business carbon footprint

23. We welcome thoughts on how to ensure that we continue to protect the interests of vulnerable consumers, particularly in light of the energy system transition.

We believe DNOs have a role to play in helping customers with the energy transition. DNOs could assist customers to access new markets through education, collaboration and partnership, working to make sure customers who may be disadvantaged are not left behind. We understand that customers will be more dependent on electricity as we move into this new energy landscape and we also have a role to play in supporting customers through partnership working to ensure more customers do not fall into fuel poverty as a result of the shift in the way customers need to use energy.

There are business as usual activities needed to support vulnerable customers during power cuts which should continue and given the success of the Broader Measure of Customer Service in ED1

and the extent to which this has improved overall customer satisfaction, we believe this should continue and there is an avenue to extend this to measure the satisfaction of those customers who are vulnerable and who have asked to be registered for Priority Services.

However beyond that there will be many customers who may be disadvantaged if they cannot access new markets and services, these customers need to be considered. DNOs, Ofgem and Government all have a part to play in supporting these customers to ensure there is not a divide between those who are knowledgeable about the new markets and have the funds to access them and those who have less knowledge and/or funds. It is our intention to understand in detail what support each of our customer vulnerable groups would need to access new services and technologies and we can see potential for ODIs to be developed to incentivise DNOs to support customers through this transition with the aim of providing access to services which will benefit our customers and or ensure customers do not fall into fuel poverty. It is possible that this could be delivered through an extension to the vulnerability incentive and DNOs measured on their effectiveness in supporting customers through this new landscape, through partnership, collaboration and innovation.

It would also be prudent to learn lessons from the deployment of past initiatives that were designed to support vulnerable communities but had limited success, e.g. Green Deal. Engagement with key stakeholders such as Citizens Advice Bureau may be prudent to ensure the practicalities of such schemes are understood.

Maintaining a safe and resilient network

24. We welcome views on how DNOs should continue to ensure their networks are resilient, particularly in the context of the new or changing way assets are used.

We consider system resilience investment to include resilience to physical, virtual and environmental threats, both to and from network assets.

For ED1, SPEN put forward some key elements of resilience planning, such as resilience of our wood pole overhead lines to severe weather through higher build standards and ETR132 tree cutting. This has delivered clear benefits to consumers. We support broader plans for resilience in respect of flooding, cyber security, and black start.

Resilience is crucial for the future energy system. As asset utilisation increases (through electrification of heat and transport, provision of non-build solutions and avoidance/deferral of conventional solutions), the consequences of asset failure are more significant. It should be noted, that the SPM interconnected network offers higher levels of asset utilisation and security of supply compared to the national average, already reflecting the changing nature of network expectations. Assessment of investment plans in ED2 must therefore recognise the increasing importance that network assets contribute to economic and social stability. This was most clearly evident during National Grid ESO's 9th August 2019 frequency response event, where there were widespread and unforeseen impacts for customers.

ED2 must recognise the diversity of customer expectations including industrial and commercial. Some customers place increasing value on continuity of supply, whereas others are more resilient to interruption. DNOs must consider these needs and the needs of their most vulnerable customers in resiliency planning. SPEN considers a variable Value of Lost Load (VoLL) measure to be a key enabler to ensuring investment is appropriately prioritised, and support ongoing work in this area.

We support embedding the long-term monetised risk approach (NARM) for asset resilience investment. If properly implemented, NARM should realise customer benefit by ensuring the correct asset interventions are delivered at the correct time. The existing Network Asset Secondary

Deliverables (NASDs) approach is well developed and adjustments should only be made where they improve this measure. Details of the NARM approach must be agreed early to ensure the mechanism is stable during preparation of ED2 submissions and that customer benefits can be fully realised. We look forward to continuing to work with Ofgem and industry partners to provide a firm basis for assessing and monitoring the condition and risk associated with network assets.

A target for overall level of risk delivery for the ED2 price control and a condition based approach, ranked on consequence, remains the most robust and scientific method for informing asset prioritisation and optimisation. We are supportive of the setting of a relative monetised risk target for the price control, providing a more direct link between proposed intervention activities and outputs, whilst retaining the ability to react to emerging risks. In contrast, targeting an absolute level of monetised risk has increased sensitivity to background changes and restricts the ability to respond to in-period changes.

Network companies must also fulfil ESQCR, health and safety, environmental, sustainability and security of supply obligations amongst other targets that are not directly related to NARMS. These should be measured via engineering justifications and CBAs, as set out in the RIIO-2 SSMD¹⁷.

Furthermore, in respect of IIS, we have strategically invested in our underlying network health and resilience (particularly in overhead lines) over the last two price control periods to ensure that customers benefit from the underlying resilience of the asset base; we want our customers to experience less faults, not just shorter duration faults. However, the existing IIS framework does not consider varying customer expectations or the needs of vulnerable customers and allows DNOs that historically offered poorer levels of network reliability to benefit through step improvements in unplanned customer outages.

A more appropriate measure of reliability should recognise absolute DNO performance as well as improvement against a national network average. It should also consider a variable VoLL, the impacts of flexibility on system reliability, and liabilities of flexibility service providers. This would more accurately account for the customer experience and does not reward short-term thinking. This measure should also be weighted for the mix of network types and terrain severity to ensure comparisons are equivalent across network operators.

25. We are interested to hear stakeholder views on how DNOs should ensure their networks are resilient to physical and/or virtual threats, as well as being able to withstand the effects of adverse weather and the impacts of climate change.

We support the approach to improve network resilience to the increased risks posed by climate change, extreme weather events, physical and virtual threats. Networks must respond to these threats proportionately.

Environmental Threats

The pace of investment in environmental resilience must increase due to the increased risk from the deepening severity of weather and climate events. In our view, DNOs should be encouraged to invest in the underlying issues to secure assets against outside physical and environmental threats, rather than undertaking short term mitigation measures, which fail to meet the interests of future customers.

Due to the inherent uncertainty in climate events, the level of investment which represents best customer value is difficult to set and may lead to variation in response across DNO groups. Customers should be protected from this uncertainty through adoption of a consistent and nationally

¹⁷ https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf

co-ordinated scenario, informed by key stakeholders, to inform DNO climate resilience plans. The balance of risk between network operators and customers should recognise the improved customer service and avoided environmental consequences e.g. contamination, etc. We also note that through facilitating decarbonisation and electrification, networks play a pivotal role in mitigating the human contribution to climate change.

Physical & Virtual Threats

DNOs must continue to ensure networks are safe and prevent the access and operation of network assets by external parties. Investment should be a combination of targeted prioritisation and increasing minimum standards/specification at site interventions. Again, this should be through a coordinated standard for our most critical components of network infrastructure – both virtual and physical. Continuing improvements should be expected through design, construction and innovation.

Network operators must continue to adapt, invest and improve their robust cyber security processes, systems and infrastructure. As network automation, monitoring and control is rolled out to facilitate flexible services and improve network reliability, there is increased vulnerability to malicious attacks to these digital systems. The importance of investing in these measures will increase over time as the systems become more integrated, with further reach of remote control.

Networks provide a critical national infrastructure vulnerable to attacks from third parties. There is potential for increased risk to our energy system if the findings and recommendations of the EDTF, regarding data openness and transparency, are to be fully implemented. The assumption that all information is public unless proven otherwise could lead to the inadvertent release of sensitive information. We believe this position should be re-considered in light of this additional risk and discussed in detail at the relevant ED2 Working Group.

Virtual and Cyber threat resilience should continue to be paired with digital infrastructure projects to ensure efficient procurement. As this is an area of significant technological uncertainty, a dedicated uncertainty mechanism should exist within the price control to reopen the settlement if previously unrecognised digital threats emerge. This could be similar to the ED1 Physical Site Security reopener.

26. We would also like to hear how stakeholders believe climate change mitigation and adaptation may affect network maintenance and development in the short, medium, and long term.

DNOs must present plans that are inclusive of the activities required to adapt to changing climate in the short, medium and long term and how networks should contribute to the mitigation of climate change. Through facilitating decarbonisation and electrification, networks play a pivotal role in mitigating the societal contribution to climate change. This low carbon transition and the further adoption of LCTs, will result in increased network loading will inevitably drive increased maintenance requirements, accelerated thermal deterioration and interventions.

Adapting to Climate Change

The increasing frequency and severity of severe weather events will likely cause more common and severe flooding (both fluvial and pluvial) in future. We have started to respond to these impacts in ED1, however additional challenges associated with prolonged warmer periods, including drought, will also be likely in ED2 and beyond:

- In the short term, DNOs must plan for increased maintenance as duty increases on some assets, e.g. substation plant affected by increased temperatures or the urban heat island effects. Overhead conductors may also reach higher temperatures due to both increased

load and higher ambient temperatures; this may create low ground clearance issues that have not previously been observed.

- In the medium term, assets with increased duty will experience accelerated thermal deterioration, shortening asset life and requiring advanced replacement programmes.
- In addition, as summer vegetation growth periods are extended due to longer warmer and wetter periods, safety clearances of overhead line conductors to trees and vegetation will be more challenging. This will likely require more aggressive programmes to manage safety (ESQCR) compliance. These effects are already beginning to appear, despite SPEN operating a 3-year tree cutting cycle on all of our overhead line networks.
- If climate change is exhibited through summer drought conditions, changes to ground electrical resistivity will affect substation earthing, potentially leading to electrical protection operation problems and unsafe sites.
- Summer drought conditions may also change ground stability, with mechanical consequences for underground cable systems and overhead pole stability.
- In the long term, network planning must account for increased asset loading as customers and appliances counteract changing ambient conditions. Networks must be designed to be climate tolerant with the ability to maximise our use of capacity headroom (such as via flexibility, Active Network Management, and the establishment of a Distribution System Operator).

Mitigating Climate Change Effects

DNOs must also seek to reduce their own climate impact through reduction of their business carbon footprint (BCF) and wider environmental impact whilst facilitating the low carbon transition. This should include the use of environmentally friendly alternatives to existing solutions, such as the adoption of G³ (Green Gas for Grid) as an alternative to SF₆ (sulphur-hexafluoride) insulation medium. G³ gas has a significantly lower global warming potential, is ozone safe and avoids the risk of soil pollution. However, G³ equipment has a higher unit cost, requires a larger footprint and has different handling certification. Considerations for transitions such as these must be made in business plan submissions.

Similarly, network investments should be supported by environmental impact life-cycle analysis, making use of an indexed value for CO₂, amongst other measures, to ensure investment schemes have weighed environmental impact in their selection.

The environmental impact of flexibility solutions should also be considered within justification assessments e.g. increasing asset utilisation will increase network losses (a component of which could be produced by carbon-intensive generation).

27. We would like to hear views on how we ensure DNOs remain resilient to the challenges presented by an ageing and changing workforce.

To maintain a sustainable, resilient workforce during ED1, we have maintained a considered forward workforce plan based around our core strategy of “Grow our own”. This was developed in an environment of high competition for skills in our core competency areas and also in areas of technological developments of relevance to our sector. We believe that to build a resilient workforce into ED2 and beyond it is critical that Ofgem continues support this form of forward workforce plan.

We are pleased to note Workforce Resilience has been specifically included in the ED2 Open Letter consultation. We believe there should be a requirement to explicitly set out our proposals to maintain a resilient and diverse workforce in RIIO-2 within the Business Plan. We are experiencing a change in the traditional skills required by employees working within a Distribution business due to technology changes, and anticipate further changes to skills from both technology change and the industry evolution to a DSO model. As a result, we would propose that in addition to workforce renewal plans, companies are incentivised to provide the relevant training associated with the facilitation of a low carbon future and encourage collaboration with local supply chains in order to further support our local economies.

Our strategy recognises that whilst we are working in an environment of high competition, we continue to experience a high workforce renewal rate as a result of the accelerated retirement of long serving staff. This issue was recognised following the introduction of new pension flexibilities in 2015 and we have been planning for this transition via multiple formal trainee and graduate programmes which will ensure the sustainability of our workforce.

Workforce resilience is more than just a function of workforce renewal. Our people matter to us, and we are committed to providing a place where everyone works together, supporting each other in delivering great service to our customers and stakeholders. Focusing on our values and what they mean for each of us as employees will help us to continually develop the culture we need to drive the organisation. Our current values underpin our strategy to bring our company closer to our customers, communities and stakeholders, to create a leading position in engineering and asset management and to equip our people with the skills needed for the future. This will help us attract the talent we need and also motivate our existing employees to deliver the highest levels of performance.

Delivering an environmentally sustainable network

28. We welcome views on how DNOs should work to minimise the impact of what they do on the environment and facilitate the transition to a low carbon energy system. We are particularly interested in the implications of the government's updated target of net-zero emissions by 2050.

We fully support the significant step change in consideration of the environmental impacts embedded in the network between RIIO-1 and RIIO-2, as exemplified by the content within the SSMD¹⁸. We support the move to widen environmental impacts from a focus on carbon, recognising the need for balanced, multi-capital solutions that deliver societal and business decarbonisation alongside the enhancement of natural, social and human value. We welcome Ofgem's acknowledgement that decisions should be based on full life cycle costs and the aspiration to seek solutions that deliver benefits both within and beyond the ED2 price control. Our stakeholders similarly support this step change.

We would strongly support a methodology which takes the Net Zero aims of the Committee on Climate Change as its starting point, necessarily seeking to significantly accelerate societal decarbonisation and the related networks investment, and recognising the need for efficient anticipatory investment in order that networks do not become a barrier to the speed of societal decarbonisation necessary. Where supported by stakeholder engagement and robust data, anticipatory investment might include the installation of increased performance or capacity equipment or carbon negative assets.

¹⁸ https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf

Recognising the differing targets for net zero (2045 in Scotland, 2050 in England and 95% reduction by 2050 in Wales), we favour methodologies for benchmarking and comparison which provide sufficient scope for DNOs to propose the appropriate level of efficient investment to deliver the targets relating to their network locations and stakeholder ambitions. Crucially, this also needs to reflect more localised ambitions of our cities, such as Liverpool, Edinburgh and Glasgow, which are aiming for much more aggressive Net Zero timelines.

We support the introduction of Science Based Targets for all DNOs to ensure that the actual carbon footprint reductions required to meet relevant national targets are met, and to enable supply chains common to Transmission and Distribution operators to compete on an even footing regarding scope 3 emissions reductions and data provision.

As the largest portion of operators' carbon footprint, the carbon impact of network losses is a function of the carbon intensity of the energy flowing through networks (which is decreasing year on year) and the amount of energy flowing through and across our system (which is increasing, due to increased renewable generation). We would therefore expect to continue activities to enable and accelerate the decarbonisation of the energy mix and reduce the potential losses from our network. However, recognising the increased duty that will be placed on our distribution network as we seek to accommodate rapid decarbonisation, any expectation of an absolute reduction in network losses during ED2 may prove counter-productive. The physical characteristics of the electricity network would instead point to higher losses where our system utilisation continues to increase to its limits.

Recognising its significant global warming impact, we would welcome a framework that enables DNOs to remove SF6-filled equipment from networks as quickly as feasible, and we would expect that CBA methodologies would be weighted to sufficiently recognise the lifetime global warming impacts of assets to allow this swift transition. As another key area of carbon impact, we would expect increased focus upon the reduction of scope 3 and embodied carbon emissions and would welcome a framework which encourages collaboration between operators and supply chain in order to develop a common set of measurement tools, reduction targets and expectations.

We welcome a framework that seeks to balance the delivery of societal decarbonisation with the enhancement of the natural environment, enabling DNOs to deliver 'beyond compliance' activities where appropriate.

Compliance-based activities such as pollution prevention measures will continue, and we would expect that the use of materials and chemicals hazardous to the environment (such as pesticides) will become more limited during the ED2 period.

We would welcome a framework which encourages operators to develop a common approach and robust methodologies to measure and drive improvements in biodiversity and the value of natural capital. However, the regulatory framework supporting this must recognise that geographical differences in terms of legislation and existing biodiversity value may mean that it is not feasible to set common biodiversity targets or timelines across all operators.

We would expect a move towards operators embedding the principles of a circular economy and efficient resource use within their processes during ED2. Operators should be encouraged to focus on avoiding waste generation via consideration of full life cycle impacts at the earliest opportunity, and to manage any remaining waste to maximise its re-use or recyclability where possible. Again, we see effective operator and supply chain collaboration as essential to the delivery of these aims.

29. We also welcome views on what this may mean for the type of activities networks undertake, how these may be funded, as well as the outputs and/or incentives they should be exposed to.

We fully support the significant step change in consideration of the environmental impacts embedded in the network between RIIO-1 and RIIO-2, as exemplified by the content within the SSMD¹⁹. We support the move to widen environmental impacts from a focus on carbon, recognising the need for balanced, multi-capital solutions that deliver societal and business decarbonisation alongside the enhancement of natural, social and human value. We welcome Ofgem's acknowledgement that decisions should be based on full life cycle costs and the aspiration to seek solutions that deliver benefits both within and beyond the ED2 price control. Our stakeholders similarly support this step change.

We would strongly support a methodology which takes the Net Zero aims of the Committee on Climate Change as its starting point, necessarily seeking to significantly accelerate societal decarbonisation and the related networks investment, and recognising the need for efficient anticipatory investment in order that networks do not become a barrier to the speed of societal decarbonisation necessary. Where supported by stakeholder engagement and robust data, anticipatory investment might include the installation of increased performance or capacity equipment or carbon negative assets.

Recognising the differing targets for net zero (2045 in Scotland, 2050 in England and 95% reduction by 2050 in Wales), we favour methodologies for benchmarking and comparison which provide sufficient scope for DNOs to propose the appropriate level of efficient investment to deliver the targets relating to their network locations and stakeholder ambitions. Crucially, this also needs to reflect more localised ambitions of our cities, such as Liverpool, Edinburgh and Glasgow, which are aiming for much more aggressive Net Zero timelines.

We support the introduction of Science Based Targets for all DNOs to ensure that the actual carbon footprint reductions required to meet relevant national targets are met, and to enable supply chains common to Transmission and Distribution operators to compete on an even footing regarding scope 3 emissions reductions and data provision.

As the largest portion of operators' carbon footprint, the carbon impact of network losses is a function of the carbon intensity of the energy flowing through networks (which is decreasing year on year) and the amount of energy flowing through and across our system (which is increasing, due to increased renewable generation). We would therefore expect to continue activities to enable and accelerate the decarbonisation of the energy mix and reduce the controllable losses from our network. However, due to the increased duty that will be placed on our distribution network as we accommodate rapid decarbonisation, the physical characteristics of the electricity network point to higher losses where our system utilisation continues to increase to its limits. We would therefore favour a framework which seeks to drive and measure improvements primarily through leading activities (e.g. technical solutions for loss reduction or the introduction of lower loss assets).

Recognising its significant global warming impact, we would welcome a framework that enables DNOs to remove SF6-filled equipment from networks as quickly as feasible, and we would expect that CBA methodologies would be weighted to sufficiently recognise the lifetime global warming impacts of assets to allow this swift transition. As another key area of carbon impact, we would welcome a framework which encourages collaboration between operators and supply chain in order to develop a common set of measurement tools, reduction targets and expectations.

We welcome a framework that seeks to balance the delivery of societal decarbonisation with the enhancement of the natural environment, enabling DNOs to deliver 'beyond compliance' activities where appropriate.

¹⁹ https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf

Compliance-based activities such as pollution prevention measures will continue, and we would expect that the use of materials and chemicals hazardous to the environment (such as pesticides) will become more limited during the ED2 period.

We would welcome a framework which encourages operators to develop a common approach and robust methodologies to measure and drive improvements in biodiversity and the value of natural capital. However, the regulatory framework supporting this must recognise that geographical differences in terms of legislation and existing biodiversity value may mean that it is not feasible to set common biodiversity targets or timelines across all operators.

We would expect a move towards operators embedding the principles of a circular economy and efficient resource use within their processes during ED2. Operators should be encouraged to focus on avoiding waste generation via consideration of full life cycle impacts at the earliest opportunity, and to manage any remaining waste to maximise its re-use or recyclability where possible. Again, we see effective operator and supply chain collaboration as essential to the delivery of these aims.

30. Finally, we are keen to understand how DNOs' performance should be measured, and how we should assess the value that consumers place on the provision of these services and activities.

It is critical that we represent the ambitions of all stakeholders – particularly those that are dictating public policy and Net Zero objectives – in the development of our business plan submission. DNOs have a pivotal role to play in enabling decarbonisation for wider society.

Performance is best measured by quantitative metrics. However, these may prove challenging to adequately benchmark and establish in some areas, either due to provision of datasets, or the variability inherent in DNO operations and network characteristics. We would welcome the development of common methodologies in the ED2 Working Groups. This must apply equally across all energy sectors to ensure that whole system outcomes can be assessed.

We would support an approach that seeks to measure the performance of DNOs in a format which balances their enablement of societal decarbonisation and their management of the direct environmental and sustainability impacts of their networks and operations. This would represent a continuation and broadening of annual external environmental and sustainability reporting and the introduction of business plan and RRP data tables which seek to quantify environmental costs and benefits, consistent with T2 where appropriate. We would expect that the environment and sustainability data provided by operators should align to relevant recognised protocols and be audited and/or verified by suitably qualified external assessors. Recognising the pace of change in the environment and sustainability agenda, we would support a degree of flexibility in reporting regimes to enable operators to report on relevant performance areas as the environmental agenda matures and baseline data becomes available.

Whilst we support the use of consistent reporting metrics, we would caution against any rigid use of normalisation and comparison between companies, due to the variability of existing environmental and social capital across different networks and locations and the related potential for positive impact. For example, sites which have high existing environmental capital may represent less potential for biodiversity improvement than sites with low existing capital. Therefore, operators with higher proportions of sites with higher existing capital may not be in a position to deliver the same degree of biodiversity improvement as those operating in more degraded areas. Equally, the nature of the solutions delivered must also change based on the quality and type of the existing habitats and landscapes, which may result in variability of costs, delivery mechanisms and timelines. In addition to this, we would expect that assessments of operators' environmental performance would take into account differences in environmental regulation in the devolved nations, the difference in the range of voltages covered by DNOs north and south of the Scottish border, and differences in scale of

operations and asset age. We also recognise the enhanced role that off-site mitigation may play for DNOs, due to the more distributed nature of their assets and sites.

We would welcome a regulatory approach that strongly supports a shift from characterising end users as 'consumers' towards characterising them as 'users', in order to recognise the significant value that all network users can both deliver and derive in terms of societal decarbonisation and environmental impact, and the shift from one-way consumption towards more circular and flexible use of the network. Further, we would value a regulatory approach that enables operators to assess and satisfy the needs of the environment as a stakeholder in its own right.

Historical engagement activity with both uninformed and informed end users has indicated that they struggle to attribute any meaningful value to these services and activities. Many environmental and sustainability-related investments represent minimal impact upon an average annual electricity bill and, when asked, end users are willing to pay for all suggested options in line with their strong expectation that we should do everything in our power to reverse climate change, biodiversity loss and resource depletion. Whilst the use of consumer value proposition statements in the T2 process is welcomed as a way of describing benefits in ways that all users can understand, their value as a means of benchmarking between companies may be limited due to the many variables outlined above. There is also a risk that value propositions do not adequately present the externalised environmental costs of activities (for example, the likely transport, materials and waste impacts associated with the installation of low carbon generation may not be factored in).

Whilst operators have moved towards measurement of social return on investment during recent years, this approach is not yet aligned across the industry and may therefore provide variable results if not standardised. The measurement of natural capital may serve to add additional rigour to the measurement of value for network users and the environment as a whole. We also support a regulatory model where costs and benefits over the whole lifecycle of assets are taken into consideration when considering user value.

Recognising the many variables outlined above, stakeholders' strong interest in us delivering the maximum environmental benefit possible, and geographical and social variability within and between operation licences, we support a framework which values robust and high quality local engagement with informed stakeholders.

Enabling whole system solutions

31 & 32. We welcome views on how RIIO-ED2 can best capture the benefit of whole systems solutions. We are also interested in views on how these benefits should be measured. We further welcome stakeholders' opinions on whether the electricity distribution sector's approach to whole systems should be different from the other sectors and, if so, why?

As a responsible network operator, we are already applying and delivering whole system solutions in accordance with broad obligations to work in an efficient, economic and coordinated manner wherever appropriate. SPEN can point to a wide range of examples where we are already looking across the energy sector. In our Dumfries and Galloway project we have developed novel commercial arrangements which effectively coordinate activities, decisions and data across SP Distribution, SP Transmission and the ESO. We consider this an example of the benefits of a Whole Electricity System approach. Further examples of whole system thinking are the processes developed under our Network Access Policy to identify solutions to reduce system outage constraint costs through implementing alternative network design or infrastructure options. We consider that the effective development of whole system solutions is still being established, not least for the electricity sector through the ENA's Open Networks project. Our innovation project 'Charge' is taking a coordinated approach between distribution network planning and transport planning to yield benefits and accelerate the deployment of public charging infrastructure for electric vehicles.

We recognise the importance of ensuring that Ofgem's Whole Systems policy is developed and implemented in a way which is consistent with our broader obligations, including competition law. We will work with Ofgem and others, e.g. via ED2 Working Groups, to ensure that any Whole Systems is effective and clearly drives benefits for consumers'.

Scope: consistency in approach and definition

We agree that, within RIIO-2, the whole system scope for electricity distribution needs to be consistent with the other sectors. Any divergence could create conflicting drivers between sectors which would reduce the incentive to cooperate and ultimately risk the realisation of benefits to consumers. It is also our view that it is in the interests of consumers for Ofgem to apply a broad definition of whole systems. A broad definition, which reflects consumers in their role across multiple sectors (including electricity, gas, heat, transport) is likely to achieve greater benefits to consumers and society as a whole by reducing inefficiencies from decisions being made in silos.

Within the SSMD²⁰ for ET2 and GD2, Ofgem states it will '*adopt a broad definition of whole system. In addition to the gas and electricity sectors, the scope of the 'whole system' is expanded to apply to all other areas so long as coordination with those areas produces net benefits for the existing and future consumers of the relevant network sector. For projects involving broader areas, networks should particularly focus on the goals of decarbonisation and sustainable development.*'

We are not aware of another definition being proposed for ED2, and if the above definition is to be used then we believe it would benefit from further clarity and guidance from Ofgem. Such guidance is needed to ensure a common understanding of the scope and the evidence required to demonstrate whole systems' thinking. For example, activities within the heat and transport sectors will increasingly impact the electricity networks and the importance of cooperation with key stakeholders in these sectors is growing. However, without clarity from Ofgem, it is not clear if the definition outlined above would consider such activity as 'whole systems' thinking because although there would be a net benefit to society, such coordination may provide these benefits to consumers in their role as heat or transport consumers and not as electricity network consumers.

Business Plan Incentive and measurement of benefits

We note the proposal within the SSMD²¹ to evidence whole systems thinking within the minimum content requirements of the Business Plan, and hence within the Business Plan Incentive. It is important to recognise and reward good planning, but believe that this will only be possible if there is a consistent approach to measuring net benefits.

We recommend an action on Ofgem (which could be delivered via the ENA's Open Networks Project) to develop of a standard approach to considering whole system costs and benefits. For example, adoption of EVs will increase network loadings and network costs, but will save a typical family >£1,000 per annum in fuel costs and this needs to be recognised under the measurement of whole systems. Such standardisation would also facilitate better understanding across industry of whole energy system costs. For example:

- A more highly utilised network will result in significantly higher network losses that need to be supplied by additional generators and paid for by customers (via Suppliers); and
- Investment in networks / flexibility can enable wider customer benefits or societal benefits e.g. a reduction in annual vehicle fuel costs from adoption of an EV).

²⁰ https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf

²¹ *ibid*

Coordinated Adjustment Mechanism

The use of a 'Coordinated Adjustment Mechanism' (CAM) is being proposed to ensure that the revenue and responsibility for outputs and projects should be aligned with the party best placed to cost-effectively deliver them. We urge Ofgem to emphasise that business plans should be designed to minimise the need to transfer revenues in the period by actively considering whole system approaches from the outset, and the use of the CAM should be considered a backstop and not a routine measure.

Notwithstanding the above, industry should be fully involved in the development of the detail of this mechanism to avoid it resulting in any unintended consequences by creating the wrong incentives in one or both parties. The interaction with the Totex Incentive Mechanism (TIM) will be particularly important to understand. A means of sharing a portion of the whole system benefits is required, which will sufficiently incentivise an operator not to invest and get credit for this, whilst also benefitting the party that is undertaking the expenditure.

Managing uncertainty

33. We welcome views on how we should manage the uncertainty associated with forecasting allowances, and whether there are any mechanisms we could or should consider in helping to manage this uncertainty.

The RIIO mechanism handles marginal uncertainty well through cost, volume and risk output drivers with upper and lower 'dead-bands' and materiality thresholds (1% of average annual allowed revenue). These measures are sensible, symmetric and meaningful, offering a fair balance of risk between customers and DNOs. However, these cannot be applied where uncertainty extends beyond reasonable dead-bands. ED2 is more uncertain than any previous price control;

- ED2 is the first price control where flexibility and non-build solutions could offer viable alternatives to conventional solutions at the time of business plan setting. The cost, availability and longevity of these solutions are set by the market and cannot be accurately forecast in advance. We are seeking to define these characteristics but expect a large degree of uncertainty to remain. Our response to questions 13 and 14 provides information on our approach to address this uncertainty.
- ED2 forecasts for LCT uptake and connection of decentralised renewable generation to achieve UK Net Zero targets vary significantly. Our response to question 42 provides information on our approach to this uncertainty.
- Impact of the outcomes from the Significant Code Review are uncertain and cannot be forecast in advance of ED2 submissions.

These uncertainties must be addressed explicitly by the price control framework as it will not be possible to set accurate ex ante allowances in the above context. The use of revenue drivers for areas including LCTs, distributed generation and flexibility should be considered as an alternative where impact cannot be assessed upfront. A successful precedent is the DG Incentive Mechanism deployed in DPCR5. This style approach could be used in combination with ex ante allowance for areas which have greater certainty of costs, e.g. conventional solutions.

ED1 included a mid-period review and uncertainty reopeners; in our view these are of continuing benefit in the proposed shortened 5-year period for areas where detail will not be known to make informed price control submissions upfront but must be addressed in period. This may include

Virtual/Cyber threats, Service Positions (cut-outs), Land Agent Activity, Environmental Legislation, International Trade regulations, Scottish Independence, Black Start and others.

We endorse the continued use of the above uncertainty mechanisms and welcome discussions to develop a mechanism which considers revenue drivers for high uncertainty areas (LCT, DG & Flexibility) in addition to ex ante allowances. We expect further detail regarding mechanisms for managing uncertainties to emerge through Working Group discussions. We look forward to working with Ofgem to develop methods which offer fair balance of risk with consumers and companies.

34. We seek views on the use of indexation, particularly on any adjustments for labour and construction cost inflation.

Use of RPE indices

We consider price changes in companies' input costs relative to inflation, referred to as Real Price Effects (RPEs) and captured using a range of input price indices, to be an imperfect way of reflecting the external input price pressures we face in the short-term as they are extremely volatile year-on-year, whilst network companies' actual costs are not typically subject to such swings. Indexing RPE allowances would increase risk for both customers and companies as a fluctuating RPE index would lead to increased volatility in customer charges.

Instead of using the annual RPE indices themselves, it would be better for Ofgem to use a long term average of RPE indices and apply this less volatile figure on an annual basis.

Efficiency assumptions

The cost of delivery is also affected by the productivity improvements companies can achieve over a price control. Any assessment of RPEs therefore needs to be considered alongside assumptions about ongoing efficiency. Regulators, including Ofgem in RIIO-1, have recognised this link by assessing the two components of cost delivery in a consistent manner, basing both on long-term evidence. We would urge that Ofgem retain consistency when assessing both RPEs and ongoing efficiency in RIIO-ED2.

Our analysis of RPEs in ET2 has shown that long-run averages of RPEs have broadly been in line with productivity growth, and current RPE forecasts using the input price indices used in ED1 match the long-term evidence on ongoing productivity improvement. This close link suggests a net adjustment of zero and lead to our suggestion of setting a zero RPEs allowance and a zero ongoing efficiency assumption for RIIO-ET2. Although further analysis will need to be undertaken, we believe this would also be a pragmatic and simplified approach for the RIIO-ED2 price control. It would allow companies to hedge their risk exposure to changes in input costs and it would avoid volatility in revenues and customers' bills.

35. We welcome views on our approach to highly anticipatory investment projects. We are interested to hear whether stakeholders would suggest additional processes or regimes for facilitating such investments that support the energy system transition whilst protecting consumers from potentially inefficient investments.

Anticipatory investment will be a key enabler in the drive to decarbonise. We believe that the relevant ED2 Working Group should seek to identify a set of common principles, or guidelines for what constitutes anticipatory investment and look to develop a suite of early warning indicators to alert DNOs to particular trends that may indicate a need for anticipatory investment. Examples of some factors that could be included in the suite of indicators are: Local Authority Net Zero commitments; EV

market changes, and DNO Load Indices and load changes. Data analytics will be key to the assessment and monitoring of such indicators. It is important that we find a way to ensure that DNOs will operate in a consistent manner.

Our responses to questions 6 – 8 also outline the need to broaden the input to the identification and evaluation of strategic investment. The plans and decisions of local government and stakeholders should form part of the overall investment case.

36. We welcome views on the type of issues that should be considered through an inter-institutional group.

We welcome the creation of an inter-institutional group. The group should be used to consider longer term strategic network issues and provide a clear Net Zero plan for networks which recognises that our devolved governments have differing low carbon ambitions to the UK Government. If the UK is serious about decarbonising its economy, there is need for much greater input from devolved and local governments in regulatory decision making. We believe that it is in our regions' best interests for Ofgem to fully take into account and facilitate devolved government differences and regional ambitions. If ED2 does not incorporate these views, then there is a real risk to our communities and stakeholders that we will not be able to help them deliver their own low carbon ambitions. We therefore believe that an inter-institutional group should have representation from the UK, Welsh and Scottish governments.

The group should be established in enough time to provide clear direction to DNOs on their Net Zero role. It needs to be up and running at an early stage in their business plan development. We are concerned that if it takes too long to establish this group then the DNOs will build their plan based on one set of assumptions and then be told to amend this at a late stage which cause confusion and negatively impact on the quality of plans submitted.

37. We invite stakeholders to advise what type of expenditure they believe should be subject to alternative arrangements for sharing risk, and what these arrangements may look like.

In general it is appropriate to allocate risk to the party best able to manage it. DNOs should bear the risk associated with their direct performance; if they do not achieve the output they have agreed to deliver then they should be held accountable. However, they should not be expected to bear the full risk for changes in factors that are outwith their control. This needs to be the fundamental basis for establishing risk arrangements around ED2 outputs to support decarbonisation. For example, if Ofgem agrees that the consumer needs a network that will accommodate the transport low carbon, DNOs should not be faced with a penalty because Ofgem does not see the demand materialise and believes there is a stranded asset cost.

The ED2 Working Groups should be used to propose and discuss alternative risk sharing arrangements, including whether other stakeholders who will benefit from the drive to decarbonise could share some of the risk. In doing so, it should be recognised that although risk may be transferred among stakeholders, it cannot be ignored completely – there is only so much risk that can be allocated away from DNOs and that the increased level of risk of certain expenditure in ED2, will undoubtedly have to be reflected within the allowed return to encourage the desired investment.

Driving efficiency through innovation and competition

38. We welcome views on the proposed innovation stimulus. We are interested to hear views on the types of projects that should be funded through either the NIA funding or a new funding pot.

NIC replacement

Scope:

We support the introduction of a new network innovation funding pot, replacing the Network Innovation Competition (NIC) pot with a sharper focus on future-facing strategic energy system transition (EST) challenges. EST and the associated challenges have been drivers for SPEN innovation in RIIO-1 along with improving efficiencies to benefit consumers.

The EST challenges for ED2 should be clearly defined through engagement with network companies and third parties. These EST challenges definitions should be done in a collaborative and transparent manner, and should be flexible to changes when required and keeping pace with technological advancements, changes in policies and regulation. The ENA innovation strategy 2018 has already set a precedent in this direction defining themes of innovation based on EST challenges.

Notwithstanding the above, the NIC replacement should not preclude strategically important transformational innovation that does not fall under the pre-defined EST categories. SPEN encourages Ofgem to retain the flexibility of funding strategically important projects where justified that demonstrate high levels of collaboration and significant benefits to customers.

We support a comments made by the gas sector that there needs to be a focus on the decarbonisation of heat and we consider that more needs to be done in this area. Therefore the funding pot needs to be sufficiently flexible to fund cross-vector projects.

Allocation of funding:

We suggest an independent board with representatives from licensees, third parties, government bodies and research institutes should have an ongoing review and governance role over the project portfolio. In addition:

- The bid process should be streamlined by reducing the evaluation duration while increasing transparency and accountability for use of innovation funding.
- There should be a continuous review mechanism in place across the project portfolio to help ensure a balanced innovation portfolio across themes and avoidance of repetition of themes to efficiently address energy system challenges.
- Funding allocated to each EST theme should be proportional to the relative importance of the theme and the long term benefits that can be generated. The level of funding allocated to each theme should be reviewed annually and adjusted in accordance with perceived strategic importance.

Mechanism:

As the network company with the greatest value of NIC projects we have developed a thorough understanding of the NIC process and a robust monitoring framework to keep track of our projects. Based on our experience, we believe that it would be beneficial for much of the NIC governance to remain relevant to the new funding pot, but have suggestions for reform to improve deliverability, visibility of outcomes and improve ease of benefits tracking to better ensure benefits are delivered to GB customer. These Include:

- A stage gated review and gap analysis to help ensure projects are aligned to original objectives and are on track to deliver benefits. If deemed necessary, there should be a re-evaluation of project deliverables.
- A unified review and benefits tracking mechanism (in terms of impact assessment, application and implementation review).

NIA

We support the decision to retain the Network Innovation Allowance (NIA) in ED2 as the existing allowance has encouraged increased engagement with third parties including SMEs and academia and has addressed critical system issues that required innovative solutions.

We support the requirement for companies to include high-level areas of focus for NIA spending within their business plans, rather than individual projects, and how much additional funding they believe is necessary for these areas of focus. Innovation is fast paced and constantly evolving, therefore those ideas that will be included in the 2023 Business Plan submission will likely be affected by opportunities and advances in the period between 2023 and 2028 so locking in innovation too rigidly in advance risks not being able to take advantage of subsequent innovations. This would be detrimental to customers.

We also welcome the change of scope of the NIA to focus primarily on projects that are related to the longer-term energy system transition and address consumer vulnerability. A focus on vulnerability has the potential to introduce new ways of providing support to allow better access to the benefits of new markets and reduce costs to protect against fuel poverty. We also encourage Ofgem to retain the flexibility to allow funding in other areas, where customer benefits can be demonstrated.

It should be recognised that NIA projects focussed on longer-term energy system transition could be more likely to be of a lower Technology Readiness Level (TRL), which makes tracking of benefits more challenging. We support the work being undertaken through the ENA, developed on the Energy Innovation Centre measurement framework proposal, which will address these benefits tracking challenges. From examining best practice innovation in other sectors we also believe there is a need to ensure a balanced portfolio of innovation projects in terms of TRL/maturity. We propose that the innovation funding should be proportional based on the stage of the innovation maturity with agreed proportion of the funding available for higher TRL network deployments and demonstrations and agreed proportion of funding for low TRL early stage research and development (R&D) activities to support the longer-term energy system transition. We believe that there is a role for an independent board to coordinate the innovation efforts of licensees under NIA and this board could help ensure the TRL/maturity level of the portfolio is balanced while also helping to promote collaboration.

39. How can the benefits of the innovation stimulus be maximised by supporting schemes proposed by non-network parties?

We consider that the benefits of the innovation stimulus can be maximised if third parties are better supported to better develop their ideas before presenting them to the DNOs.

At the last ENA third party call for NIC projects some 50+ ideas were received however, only two were taken forward to full submission stage. This uptake could have been improved and therefore more competition introduced if the innovation ideas were better developed and aligned with the needs of the DNOs.

An intermediary like the ENA could take a role in aligning and demonstrating how particular third party offerings meet DNO requirements. Better matching and consideration of offerings is likely to see more conversion into innovation projects.

Q40. We also welcome views on our proposals for the different competition models in RIIO-ED2, and what, if any, criteria should be set out for the use of early or late stage competition models.

We support, and already use, competition where it delivers better outcomes for consumers, provided that it is established in an effective and transparent way. As set out in our response to the Sector Specific Methodology consultation of December 2018, we argued that if Ofgem intended to extend its competition policy into electricity distribution, then different competition models to those current proposed for ET2 would be required, to reflect the different operational nature of the distribution network. As the ED2 Open Letter confirms it is Ofgem's intention to extend early and late competition models to ED2, we continue to hold the view that different versions of Ofgem's existing early and late competition models will be required, for ED2.

We note Ofgem's descriptions of the timing of potential early and late competition processes. Whereby early competition is a competition run ahead of the project design process, and late competition is where the solution has been identified, but ahead of construction or after construction but ahead of operation.

As we have already highlighted at transmission level, Ofgem's competition policy must be designed in a way which respects the statutory framework, particularly network operators' licence obligations and builds out from existing competitive markets.

Early Competition

We are strongly of the view that the evolution of the DSO model will most certainly drive, and deliver, Ofgem's envisaged early competition processes, and should therefore be considered as the lead facilitator of delivering early competition in distribution. DNOs have a licence duty to ensure that networks are developed and maintained in an efficient, co-ordinated and economical way (S.9 Electricity Act 1989). It therefore follows that by adopting the DSO model for the facilitation of early competition, undertaking competitions and the tendering of activities, the licensee remains in control of those processes.

Looking to ED2, flexibility will play an important role in helping to deliver a safe, reliable and decarbonised network, at least cost to the consumer. Reflective of Ofgem's objectives for introducing competition, flexibility should therefore play a central role in the execution and delivery of early competition processes – not only delivering actual benefits to consumers but also supporting Ofgem's whole system approach.

We see significant opportunities for flexibility, as a DNO. So much so, we have already developed and tendered for flexibility services with a view to utilising flexibility for deferring or avoiding the need for network reinforcement and to provide additional network security during planned outages. We have already implemented a process and developed design tools to quickly identify reinforcement projects where flexibility is likely to be a viable alternative. This resulted in an initial tender in March this year, for 116MVA of flexibility services across three network groups. Individual service requirements ranged from 1-40MVA and we are now in discussion with one provider, following this tender.

Following this initial tender, we completed a full review of our load related plans for our two licence areas. From this, we are now tendering for up to 110MW of flexibility services across 10 sites with contract lengths ranging from 1-4 years. As part of this tender, for the first time, we are also tendering

for MVar to help with voltage constraints. We believe that we are the first DNO to tender for reactive power.

Well-designed market platforms will play an important role in facilitating flexibility provider participation. We are currently undertaking three main activities in this area:

- We are engaging with Pico to identify how we can reduce the barriers for potential providers and give visibility to our requirements. Pico hosted our March 2019 tender round and is also hosting our current tender round.
- We are also in discussions with other market platform providers. At this early stage of the market, it is important to understand the range of offerings and the functionality other providers offer.
- Our Fusion project has developed the technical specification for an end-to-end flexibility system, to do everything from assessing the requirement for flexibility through to dispatch and settlement. The project will tender to establish how this specification can be met. All findings from this innovation project will be made publically available.

For early competition, 'certainty of system need' must be a consideration in the delivery of early competition processes to deliver actual benefits to consumers. As we have an overarching obligation to operate our network in an economic and efficient manner, DNOs are best placed to confidently identify where flexibility services are the least-cost solution to a particular network problem. The DSO model offers DNOs significant flexibility in the delivery of early competition, so that if new effective solutions are required, the DSO can adopt these at the earliest opportunity, delivering network security and the most cost effective outcome for consumers. Flexibility will be essential in ED2, if early competition is going to be delivered cost effectively for consumers.

As suggested in the Sector Specific Methodology decision, we would caution against the ESO playing a role in the running of early and late competition in RIIO-2. With its role in operating the GB Balancing Market, the ESO has a commercial interest in the development of non-asset and commercial solutions. There is undoubtedly a conflict of interest in one sole party being responsible for the operation of the Balancing Market, whilst at the same time, deciding upon the make-up of the GB wide electricity network, GB wide, accommodating the solutions supported under the GB Balancing Market.

There are 3 further compelling reasons why the DSO, rather than the SO, should operate the distribution network:

- **The DNO is better placed to do so.** Active real-time operation of the distribution network using third party services would be a new activity for both the SO and the DNO. However the DNO is significantly better placed to take this on. DNOs already have the communications infrastructure, control centres, and deep knowledge of how distribution networks work, which is required to operate them. As we are already trialling this activity, it would be a small step for the DNO to take on this role. However, the cost and complexity of the ESO taking on such a responsibility would be considerable, given the greater capability and knowledge gap, not to mention the size of the distribution network compared to the transmission network which the ESO currently operates (~1,000,000km versus ~20,000km).
- **Little operational benefit of doing so.** Given the lower voltage, largely radial nature of the distribution network, and lack of connectivity between distribution GSP groups, what happens on one circuit rarely affects more than a small area. There is therefore no material operational efficiency to be gained from one party operating the whole distribution network. This is

compounded by the fact that the ESO would need to duplicate some of the capabilities of the DSO, meaning consumers would be paying twice, for no discernible benefit.

- **Bad for competition and consumers.** Ofgem successfully uses a benchmarking approach, comparing the DNOs against each other. This approach introduces competition and keeps costs down. If the ESO were to be the sole party responsible for operating distribution networks, then the competition that arises from benchmarking would disappear, which would undoubtedly be a bad outcome for consumers.

We are in no doubt that early competition processes in ED2, should be delivered through the DSO model, allowing the licensee's technical proficiency and intricate knowledge of their own networks and local/regional circumstances to be fully utilised, to consumers' benefit. This will ensure that the long term design and operational requirements of the distribution network are considered, and that the necessary investments taken, deliver cost effective solutions.

Late Competition

If Ofgem intends to introduce late competition models in ED2, like ET2, there must be specific criteria so that DNOs have transparency and consistency in those projects which could potentially be subject to late competition delivery models. It is essential that companies know what to plan for, and that investors have confidence that they understand the scope and risks of what they are investing in.

We do not consider Ofgem's current proposed late competition models for ET2 of CPM, SPV and CATO to be appropriate, or cost effective, for the delivery of distribution projects.

In our view, late competition practices have already been introduced at a distribution level, under the IDNO regime. It is important that lessons are learned from this experience, before further late competition models are proposed by Ofgem. As the IDNO experience shows, there is a risk that the introduction of competition can not only create unintended consequences, but the benefits to consumers may not materialise, as originally envisaged. In this particular example, whilst we continue to promote competition in connections, the benefits to consumers can be challenged in a number of ways:

- Our experience suggests that many developers, when making the decision on who to appoint to install and own the utility infrastructure will typically opt for the "cheapest cost" option, ignoring any long term quality of service issues. Furthermore, we are not aware whether the developer passes any reduced network charges resultant from progressing on basis of the IDNO (rather than DNO) solution on to the customer.
- SPEN introduced a Fault Service for IDNO's to provide access to SPEN fault teams to provide a restoration and repair service for connected customers, regardless of whether they are connected to our distribution network or the IDNO network. The introduction of this regime highlighted that IDNOs are not currently equipped to provide the level of service which SPEN delivers to DNO connected customers, without significant support from the incumbent DNO. We provide this service to IDNOs on a commercial basis.

The importance of robust CBA processes

In its Open Letter, Ofgem has reached the view *'that the extension of both early and late models of competition to electricity distribution is likely to provide better value for money for consumers.'* However, we would have expected Ofgem to justify in detail how it has reached this viewpoint for electricity distribution, given that Ofgem's updated Impact Assessment (which accompanied its Sector Specific Methodology decision) was very limited in detail on electricity distribution. It also only

undertook a CBA exercise on the delivery of projects of £100m under the late competition models for ET2.

In advance of designing and reaching a decision on whether to introduce early and late competition models into ED2, we expect Ofgem to undertake a robust Impact Assessment exercise, determining whether it is cost effective for distribution projects to be delivered under early and/or late competition models. We already take such an approach in our flexibility work, whereby we have undertaken significant work to develop a financial modelling tool, which allows us to confidently identify where flexibility services are the least-cost solution to a particular network problem. For any given reinforcement, this tool calculates the maximum equivalent value ('ceiling price') that should be spent on flexibility services.

We very much hope that Ofgem will follow our lead in this area. Should it determine that consumer benefits can be derived from competition in ED2, we would then expect robust CBA exercises, on a project by project basis, determining whether a particular project should be subject to a late competition delivery model. Any CBA methodology derived for these purposes must also allow the opportunity for stakeholder engagement and critique.

Q41. We also seek input from stakeholders on how native competition obligations and best practices can be used to ensure the best outcomes for consumers and to drive changes in the role of networks in a transforming energy system.

We have a responsibility to develop and maintain an economic, efficient and coordinated distribution network. We extensively use market driven competition for the benefit of consumers, and we will continue to do so during ED2.

We already support utilising competition in distribution with almost 84% of our regulated distribution construction activities delivered by the market. In doing so, we have developed an effective procurement model and monitoring practices which strongly reflect Ofgem's principles of Best Practice, as set out in its Sector Specific Methodology decision.

Forecasting and scenarios

42. We welcome views on our approach to planning, forecasting and scenarios for RIIO-ED2. In particular, do stakeholders have other suggestions as to how we can best manage forecasting risk for consumers?

We are supportive of the ENA common RIIO2 scenario being utilised to provide a baseline for some business activities within the ED2 period. There are benefits of this approach, particularly for whole system investments at network interfaces where network companies require an aligned view. However, ED2 must also explicitly recognise the requirement of local networks to reflect the communities they serve and to empower communities to meet regional decarbonisation targets.

The 'consistent view of the future' adopted for transmission does not apply as well to electricity distribution as there is greater need to recognise local and regional variations. This is especially true regarding distributed generation, for instance the geography and climate in the central and southern belt of Scotland and Wales means connection of wind generation is much more likely. The type of connecting generation, e.g. PV dominant vs. wind dominant, will have different fault level contribution characteristics and affect regional networks differently. Networks will also have significant variations in 'starting positions', e.g. available capacity headroom for the connection of demand and generation,

and will experience differing degrees of LCT or DG clustering depending on regional characteristics including population, demographic and politics.

SPEN are the only DNO group to operate across all three GB political administrations and so must incorporate differing views and policy objectives within the ED2 business plan, e.g. Scottish targets for the electrification of transport have much tighter timescales than Westminster. This cannot be properly recognised through a common scenario approach to forecasting.

We are supportive of business plans making use of regional forecasts, such as the DFES scenarios being developed by DNOs, which are informed by and comparable with the common scenario but allow for devolved, regional and local variations to be accounted for. We consider it to be of highest importance that where DNO forecasts and scenarios are utilised they are informed and endorsed by robust stakeholder engagement e.g. local authority and industry plans which may have immediate or mid-term network impact such as local EV incentives, electrification of commercial fleets, changing industrial loads and local climate emergencies, etc.

Business plan and totex incentives

43 & 44. We welcome views on our proposal to remove the early settlement process for RIIO-ED2, instead focusing on alternative mechanisms to receive high-quality and ambitious business plans. We also welcome views on our proposals to use the Business Plan Incentive and the confidence-dependent incentive rate arrangements for RIIO-ED2. In line with this, we are interested to hear stakeholder views on the range that should be used for both of these.

Early settlement

Given the timescales within which the ED2 arrangements need to be concluded, we are supportive of the removal of the early settlement process.

Business Plan Incentive

Ofgem's proposed business plan reward is consistent with our objectives and we believe in principle has good regulatory qualities including, ensuring stretching cost, and output forecasts, are submitted promoting a RIIO-2 settlement that is good value for money for consumers.

We believe it has been acknowledged that the RIIO-1 business plan incentive was an important catalyst that influenced the step change in the comprehensive nature of network operators' business plans. In our view, one of the important benefits of RIIO is the proportionate feedback and reward depending on the quality of the business plan. If a business plan is well-justified, demonstrating appropriate stakeholder engagement with a clear strategy, then it is appropriate for an incentive mechanism to reward companies.

Considering the success of the established business plan incentive in prompting good value for consumers we believe that, in line with the other sectors, Ofgem should retain the option of awarding up to 2% of a company's own totex in circumstance when a plan demonstrates good quality and value.

To date the new business plan incentive lacks detail and guidance on what criteria Ofgem will apply in their business plans assessment. The clear communication of the detailed assessment criteria is a prerequisite to ensuring the Network Operators are informed and the process is equitable. We believe there would be benefit in reviewing Ofwat's approach to business plan guidance, which provided clarity well in advance of their submission date.

We are not opposed to an upfront penalty regime for companies that do not meet Ofgem's minimum requirements, however this is on the basis those requirements are clearly and unambiguously set out well in advance of business plan submission. For ET2, we are seeing Business Plan Guidance changing within weeks of business plan submission dates; without sufficient notice of requirements it would be difficult to justify the application of penalties to companies who fail to meet the business plan minimum requirements.

Confidence Dependent Incentive rate

We do not agree with the confidence incentive rate proposals. In our view the blending approach has more inherent issues than the mechanism it is seeking to replace.

- A blended sharing factor based on low/high confidence cost assessment will drive DNOs to make an increased number of proposals ex post via uncertainty mechanisms as companies seek to reduce the level of low confidence costs in their ex ante allowance. We believe this approach is at odds with RIIO framework as this will create more volatility for consumers.
- Unless the funding around decarbonisation is ring-fenced in some way, then an overall sharing factor which is determined by the percentage split of low/high confidence costs within a DNO's business plan will unfairly penalise those DNOs who have a strong ambition to deliver Net Zero. The trajectory to electrification of transport is inherently uncertain, lessons from PVs should be learned where the 2011 to 2030 forecast uptake was met in 4 years instead of 19²². This uncertainty is not within the control of DNOs and they should not be penalised for trying to manage this in a way that meets their local stakeholder needs.
- In general, the determination of costs as either high confidence or low confidence introduces a new degree of complexity which will require consistency checks across DNOs and other sectors. Ensuring consistent and equitable application is an essential regulatory quality, however this will be very difficult to achieve across all DNOs. Inconsistent application of the categories or costs with similar properties will create the possibility of unintentional inequality across companies and sectors. A detailed methodology of this proposal incorporating category definitions and the criteria for weightings should be provided to meet good regulatory practice.

Fair returns and financeability

45. We welcome stakeholder views on our proposals to introduce measures to enable network companies to finance their activities whilst ensuring they receive a fair return.

Investors require a return which reflects the risks that they bear. In general, investors assess the required return by comparison with those available from investments of similar risk. Many investors in regulated utilities make investment decisions on a global basis and compare returns available in the UK with those available overseas. The returns for a regulated network company also need to be assessed over the long term, up to the life of the asset looking forward.

We believe that the allowed rates of return set for ED1 constituted a fair return for the period in question and will serve as a useful starting point when assessing the required allowed return during the ED2 price review.

Customers benefit when a stable and predictable regulatory regime enables licensees to finance long-lived infrastructure by raising debt and equity at reasonable cost. Care must be taken when making

²² Ofgem's Future Insights series: Overview paper

changes to the regime to address any short term concerns so as to not undermine the stability and predictability of the longer term regime.

There will be risks present in the distribution sector during the ED2 period associated with the uncertainties surrounding the energy system transition, embedded generation, the uptake of EVs, along with the adoption of more flexible solutions in the network. Ofgem's Open Letter acknowledges the changing nature of the distribution sector (and energy sector more widely) given its ambitious scope and demand on electricity distribution networks. It is therefore critical that the changing demands and risks are taken into account when considering the financeability of the distribution sector. There are also currently considerable risks related to economic, geopolitical and policy uncertainties; one overarching issue for the foreseeable future will be the uncertain consequences associated with the outcome of the UK's exit from the EU.

Accurately predicting the future is an impossible task, therefore, the future RIIO-2 price controls require 'flex' in order to ensure that companies remain funded to finance their licensed activities in the wake of volatility from Brexit and ensure that network licensees are protected from regulatory and political risks. We believe that price control re-openers, logging up mechanisms and Mid Period Reviews are appropriate means of addressing this risk to a certain degree.

In general it is appropriate to allocate risk to the party best able to manage it. And although risk, at least to some degree, may be transferred among stakeholders, it cannot be ignored – there is only so much risk that can be allocated away from companies and uncertainty measures available. The above risks, in some degree, will undoubtedly have to be reflected within the allowed return.

46. We are interested to hear from stakeholders on how they believe we should set allowances for the cost of debt, particularly around the method of recalibrating the index.

During previous Price Controls we have supported indexation of the cost of debt allowance. The Trombone mechanism introduced in ED1 was an enhancement on the approaches in T1.

Full indexation of the cost of debt allowance requires that appropriate weight is given to companies' existing or embedded debt, i.e. the cost of debt allowance must allow companies' to recover the interest costs of their embedded debt. Under an indexation approach the recoverability of these debt costs may be uncertain over the course of the price control period as network companies have limited ability to manage the costs of any fixed rate embedded debt. If embedded debt was taken on at times of relatively high market rates of interest, and current interest rates fall over the course of a price control period, there is risk that the updated cost of debt index does not sufficiently fund network companies' debt costs.

Indeed, the recent history of the index does not reflect the longer term nature of network companies embedded debt. Networks Companies RAV additions are amortised over long periods, e.g. 45 years, therefore long term debt is raised with varying maturities to avoid refinancing risk. We believe it would be in customers' interests to replace the current indexation approach used in ED1 with a pass-through allowance in ED2 which will ensure low risk long term debt management strategies and appropriately recognise network companies embedded debt portfolios.

Pass-through would remove any incentive to adopt short-term financing decisions simply to match or outperform the cost of debt index, for example, by raising debt with a shorter maturity than would be optimal for long-lived assets or using complex financial engineering or ownership structures that may introduce greater risk to customers and pricing in the longer term. Setting a pass-through allowance that matches the cost of debt to each company would eradicate debt outperformance or underperformance from price controls. It would be a simplification of arrangements which offers

protection to both consumers and companies from forecasting risks and promotes the adoption of debt policies that promote stability and are in the best longer term interest of the sector.

There are arguments that a pass-through approach would be associated with weaker incentives for companies to lower debt costs, however these could be strengthened by conducting an efficiency assessment of the company's existing debt.

We agree there are some challenges in quantifying the actual cost of debt to network companies and/or whether it has been efficiently incurred. We believe that the onus should be on companies to demonstrate that debt costs are accurate and efficient through regulatory reporting. There are existing mechanisms that ensure that pass through costs are efficiently incurred. Currently companies are required to submit evidence that Business Rates have been challenged adequately before Ofgem will allow a pass through for such costs. It is our view that an approach of accurately measuring companies' efficient debt costs should be developed by network companies and Ofgem.

In addition, whatever approach is adopted for the cost of debt, there will need to be stress testing of financial ratios and overall financeability, including assessment for a range of interest rate scenarios.

47. We also welcome views on our proposed approach to setting allowances for the cost of equity, as well as our proposal to move away from RPI.

We agree with Ofgem's proposed approach of using the Capital Asset Pricing Model (CAPM) as the basis for setting the allowed cost of equity for ED2. As it is especially challenging to estimate the parameters of the CAPM in current market conditions, it is essential to cross-check the cost of equity derived from the CAPM against alternative forward-looking approaches, such as the Dividend Growth Model.

However, as expressed in further detail within our various consultation responses during the T2 price review, we have concerns with the methodology Ofgem has applied for estimating the various CAPM components, which we believe has led to understated values for the Total Market Return (TMR) and the measure of systematic risk (i.e. beta). This has resulted in Ofgem estimating an allowed equity returns proposal that is incorrect and does not adequately reflect the risks faced by equity investors when investing in the energy sector.

It is our view that the methodological issues highlighted throughout the RIIO-2 price review process have not been properly addressed and should be corrected for setting the baseline allowed returns for the ED2 price control. We will continue to work with Ofgem and other stakeholders during the price review process towards developing a more appropriate approach for the ED2 price control.

In regards to indexation, we can see merits in moving away from RPI in ED2 as this is the common view held by the Office for National Statistics (ONS) and many statisticians, as well as being decided for the T2/GD2 price controls. It is crucial that a transition to an alternative inflation index, such as CPI or CPIH, is present value neutral. In principle any change in the inflation index used for price setting purposes should be revenue neutral (i.e. it will not affect the present value of expected revenues charged to customers). This would happen if the "real RPI" allowed rate of return is adjusted upwards by the difference between RPI and CPI(H) inflation such that investors earn the same nominal return. Importantly, all other elements of the price setting formula must be appropriately adjusted to reflect the new inflation index (e.g. forecast totex allowances are appropriately adjusted for real price effects relative to CPI(H) to ensure nominal costs will be recovered).

As long as the same inflation index is used to calculate the real cost of capital and to index the RAV over time, the choice of inflation index used for regulatory purposes should have no impact on the present value of revenues charged to customers. However, the inflation index determines the balance

between the amounts recovered within period versus those deferred into the future and as a result affects the profile of bills over time.

Ofgem should not underestimate the complexity in moving to an alternative inflation index. Any change will be challenging to apply and explain to stakeholders. Such challenges include:

- The relationship between the single nominal cost of capital and separately stated real returns must be clear and transparent to all stakeholders to ensure they understand the full impact of the move to CPI(H) and are fully briefed on its NPV neutral nature.
- The need to minimise the impact on financing of the existing RAV, which was financed under RPI based price controls.
- Existing RPI index-linked debt is fully financed for its duration.
- The avoidance of “credit-negative misjudgements which could undermine companies’ returns”²³.
- The treatment of pensions adequately allows for the liabilities of the pension schemes which have RPI linked benefits.

We do not offer a view on whether the alternative index should be CPI or CPIH. Although CPIH is the measure of consumer price inflation preferred by the ONS, it is not yet clear whether the inflation measure will gain wide acceptance as the preferred measure of inflation – the Bank of England’s inflation target is set in terms of the CPI. Also, the RPI remains in wide-spread use: UK index-linked gilts issued by the Debt Management Office as well as substantial amounts of pension fund liabilities are linked to the RPI.

There is also little back history available for CPIH, so there is little evidence on its volatility or its correlation with network companies’ costs, potentially making the predictability of network charges challenging. Furthermore, there are little prospects for the issuance and liquidity of gilts and corporate bonds linked to the CPI or the CPIH, indeed there has been no indication that the Debt Management Office intends to issue CPI or CPIH indexed-linked gilts.

In addition, few independent forecasts are made directly of CPIH, as opposed to making adjustments to CPI forecasts to derive a projection for CPIH. This CPIH forecasting issue is crucial to ensure value neutrality of the RPI/CPIH switch as the calculation of the wedge using CPI will not deliver the stated outcome as CPI and CPIH are not equal over time – historically the difference has been around 12bps but has been as large as 80bps. Consequently this could result in a switch that does not deliver value neutrality as the other elements of the price control settlement will move with CPIH inflation index which will not be fully compensated by the substitute CPI based wedge.

We would only support a move to CPIH indexation of the price control settlement as long as it can be demonstrated in practice that the process would result in a price control settlement that would be NPV neutral for both consumers and investors alike. Further work is required to ensure that value neutrality can be fully satisfied.

48. Finally, we would like to hear stakeholders’ views on our proposed introduction of a ‘sculpted sharing factor’ in instances of high out- or under-performance, or whether an alternative mechanism could be more effective.

²³ Moody’s: Adoption of CPI will impact UK water and energy networks, reshape index-linked debt market, 14 January 2016

We do not believe a Return Adjustment Mechanism (RAM) is necessary for ED2 if the overall price control package is calibrated appropriately. There is a risk that the adoption of a RAM would work against other incentives in the package.

Notwithstanding the above, if a RAM is to be adopted, we consider that Ofgem's proposal of a sculpted sharing mechanism is better than the alternatives in the RIIO-2 SSMC²⁴. It provides some downside protection for companies and investors, since a greater share of underperformance beyond the pre-defined threshold is shared with consumers (rather than being borne exclusively by investors). The mechanism is specified ex-ante, thus negating the exercise of the ex-post review in order to apply it and can be predicted by network companies and their investors. It resembles existing mechanisms deployed by Ofgem and so should be relatively more straight-forward to implement compared to the other mechanisms considered. It also does not depend on the performance of other network companies, so should be relatively predictable and transparent.

However, the sculpted sharing factor will still weaken the incentives for companies to become more efficient and have a negative impact on incentives as it reduces the reward for network companies from outperformance.

It is essential that any sculpted incentive mechanism applies to totex element of RoRE only (i.e. exclude output incentives) rather than RoRE in its entirety. Applying the RAM to RoRE would undermine the upper limits set against the individual incentive mechanisms that form part of RoRE. DNOs would never know the true upper value of individual output incentives and may therefore hold back on delivering service quality or output improvements beyond baseline levels where the reward is uncertain.

Ofgem must ensure that it cross checks any decisions in this area with the wider ED2 measures which it introduces.

²⁴ <https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-consultation>