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Dear Jonathan

Future Systems and Network Regulation

Thank you for the opportunity to help shape the future of energy network regulation and in particular future network price control review processes. We believe that the UK has been at the vanguard of developing networks regulation which has delivered significant benefits to consumers over the last 30 years. We are hugely supportive of Ofgem's challenge and continuous improvement drive to ensure that the UK's regulatory model continues to be world leading by adapting to address the challenges of decarbonisation, energy security and affordability. Some of our recommendations in this paper may run counter to prevailing industry narratives, but we have always been steadfast in promoting what we genuinely believe is necessary to ensure network companies continue to deliver in the best interest of customers.

Given the raft of consultations issued by Ofgem recently, we feel that it is important that decisions regarding future systems and network regulation should be considered in the context of the overall suite of reforms being proposed by Ofgem (e.g. local energy institutions and governance). This is crucial to understand potential interlinkages and avoid any unintended consequences resulting from potentially disjointed design of reforms.

To enable this, we described the framework below in our response to the local energy institutions consultation which articulates our understanding of the outcomes that Ofgem is seeking from the overall suite of reforms being proposed.



Figure 1: A summary of the outcomes that are being targeted by different reform areas

In this consultation response, we focus on the Networks Price Control pillar. We believe that the starting point to shape the future of networks price controls should be a clear understanding of what constitutes “good regulation”. We believe there are eight key characteristics of good regulation based on our experience. We summarise these in figure 2 and describe them in the following paragraphs. The degree of shading for each circle represents our assessment of how well the current RIIO-ED2 framework achieves these characteristics and the boxes below briefly explain our reasoning behind this.

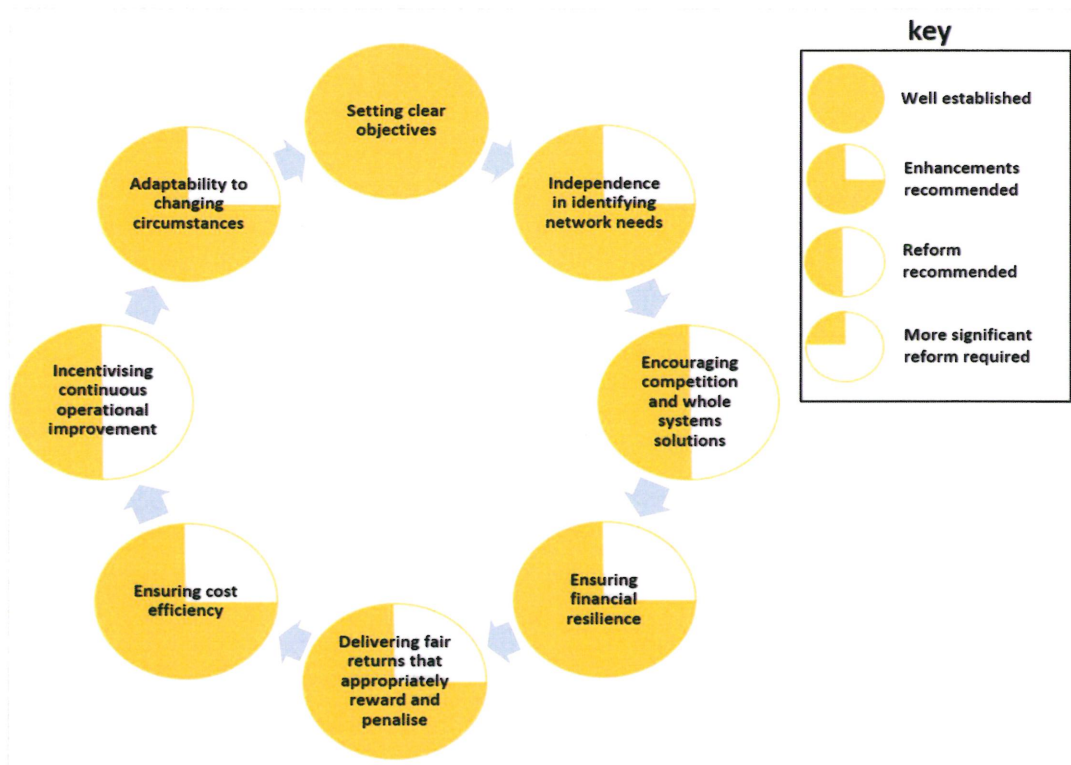


Figure 2: Key characteristics of good regulation

1. **Starting with clear and unambiguous objectives that define what network companies must deliver** – Measurable and enforceable objectives that are properly supported by evidence of customer needs and societal expectations is crucial to ensure regulation continues to deliver on what is important. Objectives should be small in number and highly important to customers. Clear objectives enable regulators to set clear roles and responsibilities for network companies. The public backlash towards the water industry driven by river and sea pollution is a key example of the importance of staying in tune with customer and societal priorities and being very clear on objectives for the industry.

We believe that Ofgem has set clear objectives under RIIO that cover customers' interests today and in the future – going forward we do not, for example, support calls that dilute focus on cost efficiency.

2. **Independence in identifying network needs** – Regulation should incorporate appropriate independence and verification for investment needs to ensure that only what is needed is built and that the lowest cost options are always taken forward free from any asset-based bias (i.e. DSOs for electricity distribution are an important part of protecting against any asset-based bias). This is crucial given the quantum of investment required to facilitate the energy transition.

Good progress has been made in RIIO-ED2 with the establishment of a new DSO incentive. We recommend that as well as establishing Regional System Planners (RSPs), Ofgem explores mandating UK Power Networks' approach to separating the DSO function, which would provide greater confidence to flexibility providers.

3. **Encouraging competition and whole systems solutions that deliver outcomes at lowest cost for customers –** Working collaboratively across the whole value chain (network companies, local authorities, consumers and consumer groups, retailers, technology firms, etc) to speed up connections and delivering low cost, secure low carbon electricity to our customers.

Network companies should face competition from others who may offer to provide outcomes at lower cost and better quality. This should include work that is currently non-contestable on a case-by-case basis. Network companies should also continue to be subjected to comparative detailed benchmarking in the absence of competition to ensure all GB customers benefit from the frontier performance that is revealed.

Aligning the electricity transmission price control to electricity distribution would be advantageous to whole system planning. Similarly, if government policy mandates decarbonisation of heat through heat pumps and district heating, aligning price controls with gas distribution would also be beneficial. To really embed whole system optimisation, we believe stronger regulatory incentives would drive a step change in this area.

4. **Ensuring financial resilience of companies –** A stable regulatory approach that delivers a cost of capital sufficient to attract the necessary capital from both equity and debt investors and ensuring responsible levels of gearing. This is paramount especially during a period of high uncertainty and required investment.

It will be critically important that the roles, responsibilities, and accountabilities of the FSO, RSPs and the DNOs are defined to allow effective operation and regulation of the new arrangements and that there are no grey areas regarding responsibilities which inadvertently change the risk profile of network companies.

5. **Delivering fair returns that appropriately reward and penalise network companies –** This would mimic competitive markets to ensure high performing companies have the potential to earn double the base allowed cost of equity and conversely, poor performers that are not delivering on the objectives set should possibly earn no equity returns at all.

The introduction of Return Adjustment Mechanisms (RAMs) provide a way to simplify price controls if network company returns are significantly higher than anticipated at the time of setting price controls. We recommend that RAMs are calibrated to allow high performing companies the potential to earn double the base allowed cost of equity by delivering outstanding performance for customers.

6. **Ensuring cost efficiency –** Sharp totex incentives should reward high performing companies that exploit innovation, data and technology to reveal new efficiency performance frontiers, benefiting all GB energy customers. The benefits of putting forward an efficient and ambitious business plan (i.e. a business plan reward and higher sharing factor) should outweigh the benefits of a company putting forward an average plan (i.e. unnecessarily high totex) that it can then more easily outperform against.

Price controls should continue to focus on ex-ante incentive regulation and the totex mechanism, which avoids any bias between capex and opex. Any reforms in this area should focus on sharpening the business plan incentive to ensure it incentivises the right outcomes.

7. **Incentivising continuous operational improvements, not financial engineering –** Companies do not become high performers overnight. Sustained great results depend upon building a culture full of self-disciplined people who drive continuous improvement in operational performance in line with the company goals and are rewarded distinctly as compared to poor performing companies. Incentive based regulation has a huge impact on achieving this. Setting stretching, but realistic targets on key incentive measures encourages continuous improvement cultures in companies to thrive. It encourages operational excellence rather than financial engineering which also makes companies less resilient.

In RIIO-ED2, the ratcheting of incentives to impossibly high levels in places have diluted the effectiveness of output incentives, which we believe needs to be rebalanced going forward. Incentives should continue to evolve and reinforce the objectives for network companies based on what is of high importance to customers.



8. **Flexibility to adapt to different decarbonisation pathways as they emerge** – Through uncertainty mechanisms and price control re-openers that enable network companies to react swiftly to new requirements and not become blockers to decarbonisation.

A key success of RIIO-ED2 is the implementation of automated uncertainty mechanisms that allow networks to deal with the area of largest uncertainty. Focus should now be on improving what has been implemented as we learn. In addition, developing a common energy scenario through the FSO/RSPs would also help to address concerns about conflicts of interest regarding the specification of future network needs.

By reviewing these characteristics, we have drawn the following key conclusions about the evolution of the RIIO regulatory model. We have grouped the conclusions under the five areas of investigation that Ofgem outlines in its future systems and network regulation consultation.

1. Strategic Planning: Critical enablers and regulatory options

- 1.1. **Planning the Net Zero transition is broader than energy system planning.** The reality today is that most households do not understand the changes required and associated costs of the energy transition, especially for decarbonised heating¹. Therefore local/sub-national decision making on how the Net Zero transition should occur requires a democratic mandate coupled with strong engagement with the electorate to maintain public support for Net Zero. It will require trade-offs to be made and how costs are allocated across wider needs – housing, jobs, transport, improving air quality etc.
- 1.2 **The establishment of RSPs to assist local government in determining the optimal pathway to Net Zero for the local region is crucial.**

Practically, this means:

- Supporting local government with technical analysis such that they can determine what decarbonisation technologies should be deployed, how many, where and by when?
- Ensuring that the pathway takes a whole systems approach to understand and incorporate dependencies on transport, housing, and other societal needs;
- Assessing the economic costs impartially and doing so across energy vectors to provide local government high quality information to base local policy decisions on; and
- Identifying the quantum of funding needed to realise the plans, recognising that this will be much broader than network investment costs alone.

RSPs enable Ofgem to address the issues that impacted RIIO-ED2 – namely, ensuring a coherent approach and strong evidence base for decarbonisation scenarios and addressing any concerns about conflicts of interest regarding the identification of future network needs driven by decarbonisation.

Consistency in how the RSP role is delivered would be better achieved under the responsibility of a single entity such as the FSO, provided that the FSO is resourced correctly, and its capabilities are significantly enhanced from what is currently the case under the Electricity System Operator (ESO). The level of change required should not be underestimated. It will be critically important that the roles, responsibilities, and accountabilities of the FSO, RSPs and the DNOs are defined to allow effective operation and regulation of the new arrangements and that there are no grey areas regarding responsibilities. If additional RSP responsibilities are placed under the stewardship of the FSO as expected, there needs to be a clear strategy, underpinned by targets and accountability placed on the FSO's management to ensure that progress in existing critical areas does not slow down; in addition to impacting decarbonisation, these reforms also impact economic development and security of supply. We would be happy to work with you on the specification of those roles and responsibilities. It will be important to identify the number and coverage of RSPs so that the number of interfaces between organisations involved in planning and delivery is well understood in advance of the arrangements being implemented.

- 1.3. **However, a regional system plan is not a substitute for a electricity distribution network development plan.** Distribution System Operators (DSOs) have a crucial role in taking this regional plan and advising on how the electricity

¹ Decarbonising heat in homes pg.41, BEIS Committee, 2022

distribution network needs to be enhanced to deliver the needs at lowest cost. The DSO ensures that distribution network investment decisions are taken in the interests of consumers i.e. the lowest cost options are always taken free from any asset-based bias. For DSOs to perform this task meaningfully, they require a thorough understanding of the loading on the asset base. Independence of DSOs is critical to address any information asymmetry between network companies and Ofgem. They provide an effective layer of independent review, in addition to Ofgem's scrutiny, to ensure electricity distribution network capacity is required and delivered cost efficiently to achieve Net Zero by 2050. We believe this distinction between a Net Zero plan and a electricity distribution network development plan is important. To ensure clarity of accountabilities, it may help to rename RSPs aligned to the core objective i.e. Regional Net Zero Planners.

- 1.4. **Retaining DSOs under the same ownership group as the DNO maintains the healthy tension of keeping costs down of network investment whilst not jeopardising security of supply. These remain key objectives for network companies.** Responsibility for keeping the lights on remains with the DNO and under a single ownership group, separation of the governance of the DSO within the group can manage any potential concerns regards conflicts of interest between the DSO and DNO. In the event of major incidents and severe weather events, single ownership provides single point accountability to customers, Ofgem and government for security of supply. For the DNO to continue to assume responsibility for keeping the lights on meaningfully, it must have full confidence in load forecasts, network planning procedures, and in the availability of flexibility services. This is what has led UK Power Networks to a joint sign-off approach for our proposed DSO model; our view is that this is a pragmatic approach which delivers customer benefits whilst avoiding excessive cost duplication. We do not believe that a third party such as the FSO can push into the design stage of distribution network reinforcement whilst preserving accountability for security of supply with DNOs.
- 1.5. **Open, coordinated, and frictionless national and local flexibility markets are vital to ensure customers and the UK economy can reap the significant benefits (estimated to be up to £16 billion per annum) of a smart and flexible energy system².** We agree that the FSO should take a key role in market facilitation aligned to the roles and responsibilities that Ofgem sets out in its consultation on local energy institutions and governance. However, we believe that there should be a formal way in which DSOs can influence the design of future flexibility products by the FSO such that they are fit for purpose for distribution level needs. It would be a mistake for the FSO to drive flexibility product development without a strong voice from the DSOs to ensure their needs are met. Similarly, DSOs will need to continue to engage with flexibility providers if they are to successfully contract with them and rely on their services. Ofgem's current RIIO-ED2 DSO incentive recognises this important point by measuring this area specifically.

Our view is, currently the FSO does not have the expertise to understand distribution level issues and distribution level flexibility markets are not at a level of maturity yet where DSOs can be relegated to simply identifying network needs and submitting requirements on a market platform. Reform in this area must reflect the realities on the ground today to drive successful change rather than slow down progress.

2. Alternative simpler approaches to incentive regulation

- 2.1 **The introduction of Return Adjustment Mechanisms (RAMs), if calibrated correctly, provide a way to hugely simplify price controls** if network company returns are significantly higher than anticipated at the time of setting price controls. Rather than regulating for a myriad of inputs, Ofgem could utilise RAMs to provide an upper return expectation that the very best companies can earn if they deliver efficiently and in line with customer expectations enshrined in stretching, but realistic targets. In RIIO-ED2, incentive targets have been ratcheted to impossibly high levels (e.g. UK Power Networks would need to deliver negative Customer Minutes Lost performance to maximise incentive performance for the LPN network) which has skewed the balance towards totex efficiency as a means for high performing businesses to try to perform better than the Ofgem allowed return on equity.

We think this balance needs to be corrected by Ofgem for RIIO-ED3 to put greater emphasis on delivering operational and service improvements related to changing customer needs as they increasingly rely on electricity to enable their transport and heating needs. We expand on this in 2.3 below.

- 2.2 **Ex-ante regulation and the totex incentive mechanism remain paramount to drive the private sector to deliver greater efficiencies using innovative solutions.** Taking a cost-plus approach or ex-post assessment of delivery significantly dilutes the focus of network companies to strain every sinew of efficiency from their operations utilising the latest technologies and solutions from the market. For example, UK Power Networks has been the frontier network in applying Artificial Intelligence (AI) to get a granular picture of capacity on our low voltage networks without having to implement widescale physical network monitoring. The totex incentive mechanism drives us to find the best way to deliver an outcome (widescale accurate network visibility coverage) at the lowest possible cost because we share the

² Flexibility in Great Britain, The Carbon Trust, 2022

benefit with customers. Given the quantum of future investment needed in the networks, Ofgem should be replicating the dynamics of competitive markets to incentivise and reward high performance not moving in the opposite direction.

2.3 We strongly believe that RIIO incentives should continue to evolve to reflect the outcomes and changing needs of consumers as they decarbonise their lifestyles. For networks to not be a blocker to decarbonisation, we believe that the customer service incentives should specifically measure low carbon technology connections and enquiries. This measurement should be underpinned by rewards or penalties. Similarly, as electricity will power more of our lives, the reliability incentives should be adapted to measure and reward reductions in momentary interruptions (less than three minutes). Ofgem should also be sharpening the incentive properties for the DSO to find and deliver the lowest cost solutions given the huge customer savings potential from a smarter and flexible energy system. A high performing system and network operator should be able to earn double the baseline return on equity within a Return Adjustment Mechanism threshold as the benefits to consumers should far outweigh the cost of a higher return to the companies.

2.4 Any large scale strategic anticipatory investment in networks must be demand led given the dynamics at distribution level. We recognise that there are a lot of voices from the industry calling for large scale strategic anticipatory investment to be allowed by networks. The reality is that all investment by its very nature is in anticipation of demand, otherwise we would experience unplanned power cuts due to network overloading and it would be virtually impossible to deliver 90% customer satisfaction. Therefore, we rationalise that commentators asking for large scale anticipatory investment are seeking the ability to make more speculative decisions about future network needs. The issue we have with this is that new demand from decarbonisation will not be spread evenly and there is no guarantee on when and where network constraints will occur. DNOs collectively have over 600,000 substations and 30 million network cables. Encouraging system-wide reinforcement without being demand-led would be catastrophic for customers' bills, it would jeopardise the benefits of a smart and flexible energy system (estimated to be up to £16 billion per annum) and would exacerbate already stretched global supply chains unnecessarily. Future price controls therefore must:

- a. Protect customers from unnecessary network investment by having robust and independent network needs identified by RSPs in conjunction with other local stakeholders.
- b. Deliver network capacity at the lowest cost by having independent DSOs determining the optimal solutions for capacity free of an asset bias and with a whole system mindset working closely with the FSO and other stakeholders.
- c. Ensure that large scale strategic network investment (i.e. £20 million plus schemes), when it is required, is delivered efficiently by DNOs and monitored by Ofgem using price control deliverables. We do not believe this creates an undue burden on companies or Ofgem given that this scale of schemes are quite targeted).
- d. Ensure effective whole system co-ordination between gas and electricity distribution companies, region by region, if government policy rules out the use of hydrogen for widescale heat decarbonisation.

2.5 Independence of DSO has the potential to unlock much greater value through increased competition. In addition to DSOs ensuring that reinforcement requirements are tested against non-build solutions such as flexibility, DSOs could also evolve into overseeing the competitive tendering of asset-build solutions that are undertaken currently by DNOs. For example, given that Ofgem's Access Significant Code Review (SCR) means that DNOs will be responsible for a larger proportion of the work associated with connections, UK Power Networks made a commitment in its RIIO-ED2 business plan to open up for competition at least £100 million of work drawn from non-contestable connections work, customer driven diversions and load related reinforcement. The DSO will ensure that the competition for this work is open to all qualifying potential bidders. Increasing competition also increases the pool of resources we can draw in to support us in delivering increased volumes of LCT connections and respond faster to customers' needs.

Ofgem should strongly consider how future network regulation hardwires competitive tendering, focusing on customer driven network reinforcement and diversions, which is where the largest increases are expected. UK Power Networks is already pushing ahead with this. The whole sector should also step up.

3 Maintaining a stable approach to risk and return in a period of transition.

3.1 The financial framework for future price control periods must produce a cost of capital that is sufficient to attract the necessary capital, both equity and debt, to deliver greater levels of investment in electricity distribution networks. To understand whether any changes are required to the financial framework, the first step is to understand if the risk profile and hence the obligations for network companies is changing under the different archetypes that Ofgem is consulting on. For example, under the plan and deliver archetype, Ofgem describes the FSO determining the investment projects that will be undertaken on the network and procure the delivery of those projects. However, Ofgem also states that the responsibility for maintaining quality of supply will still rest with the DNO. Currently, it is unclear how the DNO mitigates both the risk of the wrong investments being identified and the non or

substandard delivery of those investments which may impact on its obligation to maintain supply quality. This is one of the key issues that resulted in UK Power Networks establishing an independent and legally separate DSO under common ownership.

- 3.2 From an investor perspective the use of different costs of capital for different work activities is likely to add unnecessary complexity and reduce transparency with respect to the allowed returns.** Not only could this result in an increase in risk perception from investors which could increase the cost of capital for the sector, but such an approach would seem counter intuitive to reduce complexity and improve transparency. Furthermore, at a practical level it is unclear to us how Ofgem would establish an asset beta for each archetype given the lack of comparators it has for DNOs currently.

4 Designing the process for price review.

- 4.1 Periodic price reviews still provide the best balance to allow changes in the macro-economic environment and changes in government policy to be explicitly recognised in totex allowances, without diluting management incentives to drive performance improvements in efficiency, service, and reliability.** Even with significant growth expected in RIIO-ED2, less than 15% of DNOs' totex allowances are linked to load related expenditure³. The vast majority of totex expenditure can be benchmarked with frontier efficiency targets set based on actual revealed performance. We understand Ofgem's thinking that there may be exogenous changes happening in-between periods necessitating additional network investment, however we think a combination of strategic planning supported by RSPs and five-year price controls significantly reduces this risk for electricity distribution.
- 4.2 The incentives to produce high quality business plans (i.e. business plan reward and sharing factors) must be sharpened considerably to ensure network companies are ambitious and efficient.** In RIIO-ED2, UK Power Networks' business plan was regarded as one of the best with ambitious commitments that enabled Ofgem to set stretching targets for all DNOs benefiting all GB consumers. However, the distinction in sharing factors between the best and worst performing business plans was less than 1 percent. Similarly, the level of business plan reward from submitting an efficient plan was dwarfed by those companies putting in much higher totex increases and benefitting from the sharing factor on any outperformance. Ofgem needs to review how the business plan reward, sharing factor and level of allowed totex from benchmarking fit together into a more coherent package focusing companies to deliver in the interest of consumers. This should be to deliver efficient investment when it is needed, where it is needed and at the level it is needed rather than mass-scale anticipatory investment which is wasteful and inefficient.
- 4.3 The role of consumer engagement groups should be critically assessed, and their roles and responsibilities updated given the wider reforms being proposed by Ofgem.** The introduction of RSPs and regional plans would remove a large part of consumer engagement from the price control process. Material issues such as the trade-offs between current and future consumers would need to be wrapped up as part of the regional planning process including local authorities and other stakeholders. The voice of consumers in networks price controls would naturally therefore focus more on connections, reliability, and service delivery in the main. Customer engagement groups' terms of reference should therefore evolve accordingly to focus on the matters high on the customers' agenda and not focus on matters that are driven by legislative standards and regulations e.g. network asset risk modelling.
- 4.4 Price controls for electricity transmission and distribution should be aligned at a minimum to encourage greater whole systems solutions.** Given the greater dependencies and interactivity between transmission and distribution systems, aligning price control periods will enable a more effective approach to regional planning by ensuring that capacity is delivered in the lowest possible way for customers. Furthermore, if government policy determines that the decarbonisation of heat should be achieved through heat pumps and heat networks, aligning gas distribution with electricity distribution price controls also makes sense to enable a planned decommissioning of the gas distribution grids together with enhancements required to electricity networks on a co-ordinated regional basis.
- 4.5 Organisational resilience should be better defined and more formalised as part of the price control process.** Too often, we hear industry commentators simplify resilience to network investment and asset standards. We believe this view is too narrow. UK Power Networks has adopted the British Standard definition of organisational resilience which focuses on the *"capability of an organisation to be prepared for disruption and to adapt and thrive in a changing environment."* Adopting such a standard and then seeking independent assessment of our capabilities (i.e. by the Cabinet Office Emergency Planning College), has enabled our organisation to dramatically improve our service to customers when they most need our support such as in severe weather and cyber events. We are the only DNO to have undertaken such a detailed maturity review and submitted itself for independent external assessment like this. The experiences of Storms Arwen, Dudley, Eunice and Franklin reinforce the need for the whole sector to increase overall organisational resilience capabilities. Price control regulation should use the British Standard definition of

³ Data sourced from Ofgem's published PCFM, which contains DNOs' allowances for RIIO-ED2

resilience as the minimum standard, mandate that companies undertake regular external assessment and publish these results to drive competition amongst companies to continuously improve.

5 Digitalisation and its role in unlocking smart regulation.

5.1 We agree with Ofgem that making better use of energy system data and digital technologies has the potential to deliver a more efficiently planned, maintained and operated energy system. To turn this vision into reality, there needs to be specific focus on:

- **How digital technologies can improve network capacity visibility.** Network companies must be able to evidence that they are prepared to efficiently facilitate the Net Zero pathway set by the FSO/RSPs. Ofgem should then set network utilisation targets to incentivise companies to release network capacity at the right time and at the right locations i.e. when there is sufficient confidence of need. Visibility of the network and rates of change is crucial to making this happen.
UK Power Networks is already well advanced in developing machine learning models to predict asset utilisation. Complementing this, Ofgem should establish a streamlined process for licensees to receive allowances for well justified anticipatory investment.
- **Enabling network companies to utilise half hourly smart meter data at MPAN level.** To efficiently plan the network, identify where potential LCT clusters are forming and deliver capacity in time, the use of half hourly data from smart meters at MPAN level is crucial. It would enable network companies to have a high-definition view of what is happening on our low voltage networks to ensure we are not a barrier to decarbonisation. Half hourly load patterns can provide an invaluable signature for the types of low carbon technologies being connected to the network. Currently, network companies are prohibited from retaining any disaggregated half-hourly electricity consumption data from individual MPANs which relates to a period of less than one month. In the same way that energy suppliers have access to smart meter data to bill accurately, we believe that network companies have a similar legitimate requirement for such data to fulfil our statutory obligations to plan the network efficiently and ensure sufficient capacity to support customers transitioning to EVs, solar panels and heat pumps.

The next evolution of regulation will be pivotal to supporting the delivery of Net Zero at lowest cost. We therefore look forward to continuing to engage with Ofgem and the industry on our recommendations, which aim to build on the successes of the RIIO framework and unlock the full benefits of a smart and flexible system for customers and local communities.

Yours sincerely



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