

By email only flexibility@ofgem.gov.uk

07 June 2022

Dear Jonathan,

Call for input: Future of local energy institutions and governance

Thank you for the opportunity to provide feedback into your call for input on the future of local energy institutions and governance. This is a welcome publication, as we recognise the importance of making sure institutional arrangements best support the delivery of Net Zero at the lowest cost.

We agree with Ofgem's framing of the strategic energy context and the case for change.

- Delivering Net Zero at the lowest cost is imperative; the current geopolitical context amplifies the need to go further and faster to address the challenges of climate change, energy costs and security of supply.
- Our own analysis of past performance indicates that change is needed to ensure that network investment decisions are always taken in the interests of customers. Examining historic spend per customer shows significant variation over the last three price controls; UKPN is an outlier, tightly managing costs over successive price controls with a 7% drop in RIIO-ED1 compared to DPCR4 (15-year time horizon). This compares to an average 19% increase across other GB DNOs.
- Similarly, we have seen peak demand fall by 12% over the last 6 years and only c.20% of the forecast low carbon technologies materialise. Yet again, UKPN is an outlier both in terms of underspending its Load Related Expenditure (LRE) allowances by the highest amount above the 20%¹ threshold – above which all underspend is returned fully to customers and being the only DNO currently forecasting to return money to customers. This is despite seeing almost a third of all EVs registered in our regions.
- Our stakeholders see this and when combined with sale premiums of 50%+ on RAV, rightly question if it is the case that “the more you spend, the more you are rewarded?” and therefore, conclude that DSO independence should be imposed on DNOs as an additional control.
- Focusing on the future, we know that the anticipated growth of EVs and heat pumps is likely to lead to a doubling of demand by 2050. We need to learn from the past and avoid the risk of over investment or mistargeted expenditure resulting in consumers bearing unnecessary costs. The RIIO-ED2 business plans have revealed totex investment increases of between 17%-50% across the DNOs compared to RIIO-ED1. Again, UKPN is the outlier with the lowest totex increase compared to RIIO-ED1 actuals, in part by deferring £410m of network reinforcement through flexibility and including over twice the amount of investment in flexibility than all the other DNOs combined.
- Reform is needed to ensure that the approach that we take to manage our business – both commercially and in the interests of customers – is institutionalised across the industry. Our

¹ Source: UKPN analysis; RIIO-ED1 Annual Report 2020-21 Supplementary Data File



DSO proposals for RIIO-ED2 are designed to do exactly this and will deliver significant value for all customers if replicated across GB.

Any governance reforms must be focused on the outcomes that we are trying to achieve to guide the trade-offs to be made.

- 1. We need to maintain public support for Net Zero.** The reality today is that most households do not understand the changes required and associated costs, especially for decarbonised heating. 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. Through our engagement with local government, we have learned that the energy system is an enabler and needs to be considered in the context of wider needs – housing, jobs, transport, improving air quality etc. Therefore, Net Zero planning needs to consider the trade-offs between how costs are allocated between these priorities and across energy vectors. The trade-offs between asset and non-asset based solutions for energy system planning are of second order importance in this customer context.
- 2. We need to deliver Net Zero at the lowest cost to customers.** Once the pathways to Net Zero are clear at a national and then sub-national level, the focus then needs to turn to how we achieve this at the lowest cost. For the energy system, this means removing the bias from asset-based solutions and looking at the full breadth of innovative solutions. Digitalisation and data, as well as being open to new innovations are crucial at this stage. It also means that we need the ability to assess and minimise the overall whole system cost and having the frameworks that compensate those that facilitate the lowest cost solutions. We undertook analysis with the Carbon Trust and Imperial College that identified between £780m to £2.6bn of wider systems savings in our regions. However, more work is needed to develop the regulatory frameworks to unlock this value.
- 3. We need to avoid slowing down progress.** The ban on the sale of petrol and diesel vehicles is only seven years away. The Government's target of deploying 600k heat pumps per year is less than six years away. Any reforms that are undertaken cannot risk slowing down progress to enable customers to connect to the networks without delays. We need a mindset to perform whilst we transform. The two cannot be mutually exclusive. We need to do both at the same time.
- 4. We cannot dilute accountability for keeping the lights on.** The recent events during Storms Arwen and Eunice provide a salutary reminder that society's acceptance of multiday outages is extremely limited. As we transition to electric vehicles, heat pumps and a decentralised power generation system, security of supply will be even more critical given the impact it will have on customers' lives. Reforms should not dilute accountability for security of supply at national and local levels. We strongly believe that DNOs should continue to be accountable for keeping the lights on.

As part of our RIIO-ED2 business plan and ongoing engagement, UK Power Networks has developed a model to achieve these outcomes

We have evaluated our model against Ofgem's 4 models and compared the relative merits using the criteria that Ofgem has set out in its Call for Input. In our detailed response, we also describe additional criteria that should be considered by Ofgem.

We believe our model:

- Addresses the need for joined up and effective Net Zero planning at a sub national level;
- Delivers lowest costs by dealing with the conflict-of-interest concerns through DSO independence from the DNO in a pragmatic way. Based on the savings in our RIIO-ED2 business plan and the wider system savings we are helping the ESO deliver, we have high confidence that our DSO will deliver a net benefit (benefits generated less the DSO costs) of £560-670m out to 2040 on a NPV basis;

- Avoids diluting accountability for keeping the lights on which remains with UK Power Networks group at a local level; and
- Avoids creating a bureaucracy of duplicative functions with unclear accountabilities which could slow down progress to Net Zero.

Our proposal includes:

- **Establishment of Net Zero Regional System Planning (RSP) functions.** The purpose of these is to assist local government in determining the optimal pathway to Net Zero for the local region. Practically, this means:
 - Supporting local government, where required, with technical analysis to determine what decarbonisation technologies should be deployed, how may, 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.

These RSP functions will require technical and economic skills and could assume responsibilities currently undertaken by DNOs, such as development of local future energy scenarios in an impartial way. This would enable the Future System Operator's (FSO) national future energy scenarios to be better aligned with bottom-up local insights. The RSPs would provide independent advice to local government without any vested interests and would most likely need to be a public body. The strategic level cost-benefit analysis undertaken by the RSPs could then be handed to the DSOs to develop the detailed solutions and costing as described below.

We recognise that implementing changes to introduce RSPs may take time. To not lose momentum in the meantime, most DNOs have proposed the establishment of Local Area Energy Planning (LAEP) teams in their RIIO-ED2 business plans. Hence these teams could help to fill the gap in the interim and possibly could be consumed into a broader RSP function in the future. Given the local knowledge, volume of interactions and distribution expertise needed to perform these roles meaningfully, we believe it is more likely that the RSPs are distinct to the FSO which is positioned for transmission level expertise at a national level.

- **Establishment of an independent and legally separate DSO business unit.** The DSO takes this regional plan and advises on how the electricity distribution network needs to be prepared to achieve the objectives at lowest cost. The DSO ensures that 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. This arrangement means there is an effective layer of independent review, in addition to Ofgem's scrutiny, to ensure network capacity is required and delivered cost efficiently.

By retaining the DSO under the same ownership group as the DNO, one maintains the healthy tension of keeping costs down whilst not jeopardising security of supply. Responsibility for keeping the lights on remains with the DNO and under a single ownership group. 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 us 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.

To ensure that this arrangement counters the risk of unnecessary RAV building, legal separation needs to be accompanied by meaningful governance and reporting arrangements. We see this akin to the model that operates for pensions trustees. A trustee is a person or company, acting separately from the employer. They have clear legal duties to act in the best interests of the scheme beneficiaries, to act impartially, prudently, and responsibly. This level of separation is meaningful; trustees are accountable for ensuring that the pension scheme funding is maintained for members, independently of the company, even though the company funds any required deficit repair contributions. The DSO should be governed in a similar way, including:

- An independent Supervisory Board with decision making rights on investments;
- Clear and separate licence obligations to act in the interests of customers;
- DSO articles of association that enshrine the purpose of the organisation and responsibilities of the directors; and
- Reporting requirements enshrined in the licence to ensure transparency of decision making and compliance with the DNO-DSO Operational Agreement.

The DSO's purpose is to ensure that the electricity network is not a barrier to decarbonisation by ensuring that electricity capacity is delivered at the right time, at the right place at the lowest cost. It is not accountable for delivering Net Zero or making trade-off decisions between energy vectors for which you need a broader view and democratic mandate to make such trade-offs.

In addition to these governance arrangements, DSO Key Performance Indicators (KPIs) should be introduced to enable Ofgem and stakeholders to compare performance and hold the DSO to account. These KPIs should be accompanied with sharp incentives and penalties to drive high performance. Based on evidence of how customer service and reliability have improved dramatically with high powered incentives, Ofgem should be confident that this approach works.

Comparison of UKPN's proposed model with Ofgem's 4 models

	Model 1 (Internal separation of the DSO)	Model 2 (DSO under separate ownership)	Model 3 (Regional planner and system operator)	Model 4 (Interacting organisations)	UKPN's proposed model *
Clear accountability	●	◐	◐	◐	●
Credibility to deliver	●	◐	◐	◐	●
Competence to deliver	●	◐	◐	◐	●
Effective co-ordination	◐	◐	◐	◐	●
Simplicity	●	◐	◐	◐	●

* UKPN model – Regional System Planning Function and independent DSO under same parent group)

The RIIO-ED2 price control offers the opportunity to make significant inroads in addressing the challenges without changes to primary legislation.

To make the changes happen, Ofgem should:

- Ensure that the totex increases requested by DNOs do not foreclose on flexibility alternatives and create the environment for DSOs to succeed. Totex should be calibrated on a similar basis to UKPN's business plan to include only high confidence investments with uncertainty mechanisms as appropriate;
- Mandate legal separation of the DSO under the same ownership group as the DNO together with the governance arrangements that UKPN has described;
- Establish consistent DSO KPIs to compare performance and back these up with a sharp incentive and penalty regime to drive high performance.

In parallel to this, wider reforms should be undertaken to:

- Establish Net Zero Regional System Planning functions, supporting local government with impartial strategic input to determine the optimal pathway to Net Zero for a region;
- Develop the frameworks to unlock whole systems value, specifically to enable those that enable that value to be fairly compensated;
- Assess how these changes should be aligned with wider reforms of wholesale markets and network charging to ensure that the interlinkages and dependencies are fully understood and monitored on an ongoing basis.

We look forward to engaging with Ofgem on our proposals which we believe ensure that the DNO always acts in the interests of customers and represents the next evolution of monopoly regulation to be fit for the 21st century.

Yours sincerely



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Our responses to the call for input

Question 1: Are the three energy system functions we outline (energy system planning, market facilitation of flexible resources and real time operation of local energy networks) the ones we should be focusing on to address the energy system changes we outline?

Ofgem has identified three energy system functions, or roles, as the focus for addressing the energy system changes outlined in the consultation. Whilst we agree that the functions outlined above are useful, we believe that it is too complex to disentangle these functions from each other, without learning more how this could work in practice through RIIO-ED2, and it is not the optimal way to approach the challenges faced.

- **Energy system planning:** We agree with Ofgem that this will be a critical function to ensure that the local energy system is fit to enable the changes needed to meet Net Zero. We agree that distribution network planning will need to inform and be informed by wider energy planning activities. There is a need to enable more strategic planning and active engagement around local strategic plans. We believe there is a need for a step-change in the amount and quality of data being shared between institutions. There is a need for more coordinated national and local policy-making. We also anticipate a more coordinated and strategic approach to planning, with collaboration between local authorities, network companies and other interested parties to ensure that plans can be sufficiently ambitious (in the context of Net Zero) whilst being robust and deliverable.
- **Market facilitation of flexible resources:** We agree that the availability of flexibility will be key to realising the benefits associated with DSO. It is therefore important to ensure that the right arrangements are in place to facilitate flexibility markets that come from a diverse range of sources, and with sufficient depth to ensure availability and reliability when required. We recognise that as well as the DNO the ESO has experience in market facilitation, however, given the strong interdependencies with using flexibility and maintaining reliability of distribution networks, we cannot see how at this stage these roles can be separated without significant risks and costs being added.
- **Real-time operation of local energy networks:** The ability to manage flexibility in real time will be fundamental to the secure operation of the network. We agree, therefore, that this is a key function. We would note that the entity with responsibility for identifying network needs and dispatching flexibility (or deploying other network solutions) will have an impact on the reliability of the network.

Our starting point is that reliability cannot be compromised and therefore clear accountability is needed on this. This means we should avoid trying to split the three roles and instead focus on ensuring responsibilities sit with the appropriate party. We have developed illustrative Case Studies, for example, that show how different roles may need to interact under different situations, and the way that some critical outcomes – and reliability in particular – can cut across these functions and the institutions that might be tasked with carrying them out.

We agree with Ofgem that digitalisation, and the ability to share data between decision-making entities, will be essential if local network planning and operation is to be carried out efficiently and securely. The availability of high quality, up-to-date information will be important regardless of the institutional arrangements. It becomes particularly important if it needs to be shared across entities with functional and shared services separation, and may require a degree of replication of skills and systems to allow those entities to verify and act on the available data. However, even where data is only used within a single entity, there is a need for transparency around how that entity makes decisions – both for Ofgem and for the wider flexibility market.

In addition to the above, we would highlight the following areas that require additional focus:

- **Rapid connections:** Regardless of the institutional model, Net Zero requires the rapid connection of large volumes of Low Carbon Technologies. There needs to be a focus on ensuring that the entity or entities that are able to design and issue connection offers are enabled, incentivised and accountable for delivering this activity at pace.

- **Network charging:** Improving the utilisation of existing network assets is one of the central objectives of the DSO transition. We believe that tariffs have a significant role to play here, and have already carried out work to understand the extent to which novel tariffs can better align consumption to network capacity (see for example our Shift innovation project²). We anticipate, therefore, the increased use of more locational and more time-varying tariffs. There will need to be a coordinated effort to understand the impact of such tariff reforms on network utilisation at all voltage levels to ensure that the optimal whole system outcome can be achieved.

Question 2: Do you agree with the criteria we have set out for assessing the effectiveness of institutional and governance arrangements?

Whilst we do not disagree with the criteria that Ofgem has set out, we would emphasise that these criteria should be seen as a means to an end – that end being an energy system that is compatible with Net Zero in the timescales required, that maintains public support for Net Zero, that maintains existing levels of reliability, and that is focused on delivering customer benefits most notably affordability. Any institutional or governance arrangements should therefore be assessed against their ability to deliver a Net Zero compatible, reliable and low-cost system, as well as having a strong customer lens.

On the criteria themselves, we broadly agree that **accountability**, **credibility**, **competence**, **coordination** and **simplicity** are all important. In addition to these, we would include:

- **Transparency:** This relates to the coordination criterion, but goes wider. The decisions taken around network planning and operation need to be transparent to the broader market in order to provide confidence and enable investment by third parties. This will increase liquidity in flexibility services, increase competition and reduce costs for customers. This is also about more than making data available; data and decisions need to be understandable (and ideally replicable) by third parties in order to instil confidence that decisions are being taken in a fair and robust way.
- **Cost effectiveness:** Whilst we anticipate there to be significant benefits associated with enabling DSO activities, making these changes will require both upfront and ongoing costs. Where there are differences in cost between the different Models, these need to be weighed up against the additional benefit that they are expected to bring.
- **Implementation risk:** As noted, there are costs associated with any change. Ofgem needs to ensure that the institutional arrangements are not only optimal in the medium to long-term, but do not create undue disruption in the short-term given the volumes of activity anticipated in the next price control period, and do not lead to transition risks in areas such as reliability and resilience. These changes will be potentially taking place in parallel with other major market reforms such as the Reform of Electricity Market Arrangements (REMA).

Question 3: Do you agree with our assessment of how far the current institutional arrangements are, or are not, well suited to deliver the three key energy system functions?

UKPN has been at the forefront of DSO related developments for the best part of a decade now and through our engagement with regulators and network companies across the world we can confidently say that the UK is demonstrating leadership in this area. Our RIIO-ED2 Business Plan includes strong ambition for DSO-enabled outcomes, with significant associated reductions in load-related expenditure. We believe that the totex regime has been, and can continue to be, a strong basis for delivering the required innovation and cost savings associated with the DSO transition.

² <https://innovation.ukpowernetworks.co.uk/projects/shift/>

We recognise that there are concerns around the transparency of data and decision-making associated with DSO. In order to create trust in the DSOs' ability to operate market functions independently of DNOs' network activities, customers expect a high degree of transparency in how the DSO will operate. In our business plan we set out our proposals for a ring-fenced and legally separate business unit, within the UK Power Networks group of companies, from the start of RIIO-ED2. UK Power Networks was the first DNO to commit to creating a legally separate DSO organisation, supported by clear stakeholder feedback and driven by a clear strategy; our objective is to facilitate Net Zero in our regions at the lowest possible cost by using competition and flexibility services, whilst ensuring that any changes do not threaten reliability of service or delay the energy transition for our customers.

We believe that this approach will deliver the vast majority of the benefits of transparency through legal separation, whilst avoiding unnecessary duplicative costs of systems or shared services separation, and, importantly, it does not dilute accountability for keeping the lights on or slowing the pace of the Net Zero transition.

There may be additional benefits that can be achieved through the further separation of the DNO and DSO activities. Achieving this, however, would involve additional up front and ongoing costs. The reality is that there is no precedent or rule book at distribution level that we can review and learn from internationally. Therefore, we believe that our DSO proposals will not only deliver significant customer benefits, but will also provide evidence and data into the practicalities of the interactions between DNO and DSO functions, and the costs associated with additional forms of separation. The DSO KPIs planned for RIIO-ED2 will also provide quantitative evidence of the benefits of DSO activities, which can then be used to justify – or not – deploying additional investment in order to undertake further separation. In short, delivery in RIIO-ED2 enables Ofgem, network companies and stakeholders to gather evidence and data to inform further reforms.

One area where we believe that the current institutional arrangements are lacking is that of whole system planning and operation. There need to be strong incentives for licensees to make decisions that are in the best interest of the system as a whole and to be remunerated for the additional value that they unlock. When we review analysis from The Carbon Trust and Imperial College, it is clear that the benefits they highlight include things like the avoided cost of new generation from operating the distribution networks more flexibly and intelligently with demand side response. To add this capability will result in greater costs downstream in the energy system but avoids much higher costs upstream. The regulatory mechanisms need to be reviewed to be able to quantify these value pools across the energy sector and set appropriate remuneration mechanisms for those that enable this value to be realised. Furthermore, stronger accountability is needed in order to deliver more regional coordination, along with a clearer link between national policy making and local policy and planning. That is why we are proposing a Regional System Planning (RSP) function to address this gap.

Question 4: Overall, what do you consider the biggest blocker to the realisation of effective energy system planning and operation at sub-national level?

The Government has set ambitious but critically important Net Zero targets at a national level. Whilst the optimal pathway is not known at this stage, we do know that much of the change needed will be delivered at a local level (e.g. heat networks, electrification of heat and transport, etc.). National strategies, therefore, need to be translated into local strategies if they are to be delivered successfully.

Regardless of governance, there needs to be recognition that decarbonisation will depend on policy support and consumer engagement and acceptance of interventions that will be necessary.

There is also a gap in expertise in terms of joining together the different whole system elements, but this goes beyond energy, and requires a coordinated approach across housing, transport and other local government strategies.

We believe that Ofgem needs to think about two separate aspects of institutional and governance reform, and not to conflate these:

1. **DNO-DSO separation:** This relates to the extent to which the DSO requires separate ownership from the DNO to aid transparency and confidence of independent decision making. We believe that a significant proportion of the benefits of separation can be achieved through UKPN's proposed model for functional and legal separation. The benefits of full ownership separation will need to be weighed up against the additional costs of shared service duplication, and the risks of any dilution in accountability for reliability through separate licensing.
2. **Regional system planning and joined-up policymaking:** There is a disconnect between local and national policy and decision-making, which is concerning as a lot of the change required must happen at the local level. Uncertainty around national strategy (e.g. heat decarbonisation), and pace of change required in different energy vectors is magnified when translated to the local or regional level. Tighter coordination between policy, strategy, and network and system planning is needed to ensure Net Zero can be achieved in a cost-effective way.

We see the DSO as a key body to facilitating Net Zero, by ensuring the lowest cost pathway is identified and delivered. However, we do not believe it is appropriate for the DSO to be making decisions on what is the optimal decarbonisation pathway from a whole system perspective for different localities. These decisions require a democratic mandate with purposeful engagement with the electorate. We recognise that this is the critical gap that needs addressing, but we see this as a broader role which sits above electricity distribution system planning and operation, and which is best done by public bodies. We also support a role for Ofgem's Net Zero Advisory Group in helping to coordinate local and national objectives. There are also notable parallels with the decision BEIS took to transfer the gas transmission planning role to the FSO but not the gas system operation role, which will stay with National Grid.

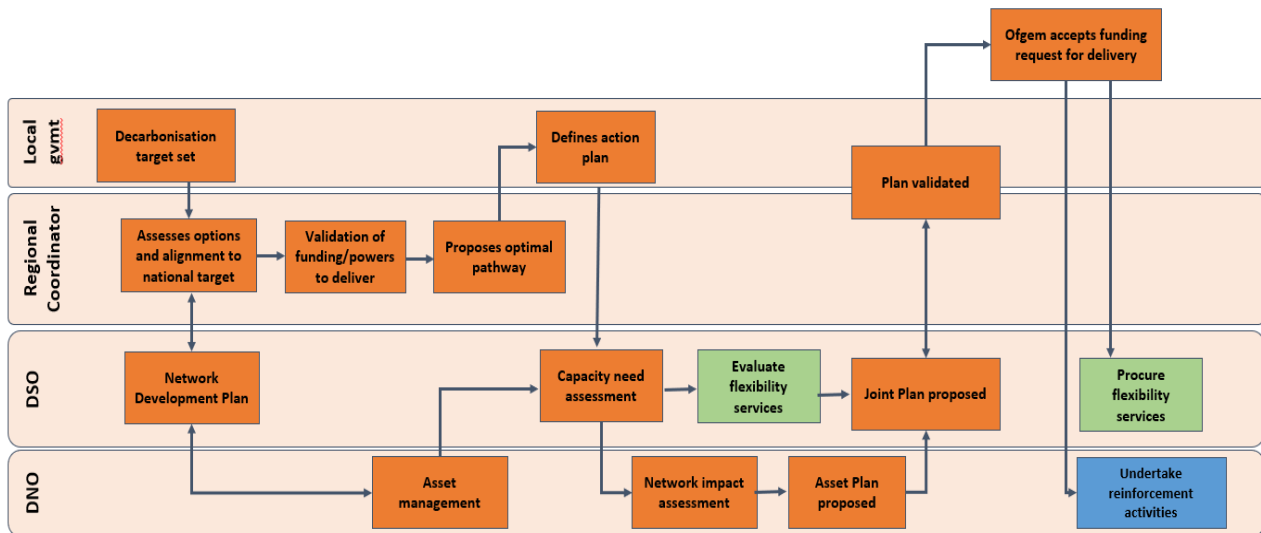
Question 5: Do you agree with the opportunities of change we outline and the potential benefits they may create?

As has been demonstrated by DSO-related activities to date, and by the DSO ambitions outlined in our RIIO-ED2 Business Plan submission, there is significant potential for DSOs to deliver benefits for customers and for the system as a whole. A large proportion of those benefits are dependent on there being a mature market for flexibility, with large numbers of participants offering a diverse range of flexibility solutions. In order to achieve this, third parties need the confidence to be able to invest in new technologies and to develop credible customer propositions.

We believe that greater transparency and clear accountability around DSO-related activities are both critical for developing confidence amongst market participants. We believe that significant levels of transparency can be delivered by establishing legally separate DSOs, similar to our plans for RIIO-ED2. A commitment to the open data and clear communication around the decision-making process can give the market confidence that decisions around network planning and operations are being made in a robust, fair and consistent way.

We strongly believe that there is a need for more regional coordination. If this can be achieved, it could enable a range of innovative approaches to the delivery of energy services to local communities. As the Climate Change Committee (CCC) notes, the delivery of carbon reductions to date has not required significant behaviour changes. However, over 40% of the abatement in the CCC's scenarios to 2035 involves at least some degree of change from consumers. Local and regional authorities are going to be key players in supporting local consumer action. This will take collaborative working at a local level, with comprehensive understanding of the local energy and

transport networks, as well as building stock to develop appropriate decarbonisation action plans. We know this because we have led the industry in co-developing a framework with regional authorities to unlock network investment consistently and quickly. As a result of this collaboration, we have committed a specific team within the DSO to support all regional authorities in our region as part of our RIIO-ED2 business plan.



Question 6: Are there additional opportunities for change and benefits that we have not set out?

- **Greater signalling through tariffs:** More locational, more time-varying, and potentially more dynamic tariffs would increase the utilisation of the existing network. Whilst this could be achieved under any of the institutional models outlined by Ofgem, our work on Project Shift has shown that price signals need to be set in such a way that they reflect both local network constraints and wider system needs. Price setting needs to account for current and future constraints, and needs to ensure that consumers are incentivised to use the network and system efficiently. Tariff setting reforms, such as those that may be considered as part of Ofgem's DUoS SCR, therefore, need to be aligned to whole system planning and the development of local energy strategies. Our view is that the benefits of greater DSO separation are contingent on the extent of the DSO role, and until we know more about how effective network charging can be in influencing customer behaviour, it is very hard to quantify the benefits of greater separation.
- **Degree of reactivity vs proactivity, role of anticipatory investment:** Net Zero requires rapid electrification. Whilst we can get better at responding to needs as they arise, in some cases it would be better to be more proactive, engaging in anticipatory investment when appropriate to unlock whole areas for rolling out LCTs quickly. In order to do this without creating the risk of stranded assets, a more joined-up policy, strategic planning and network investment approach is needed.
- **Demand reduction:** There is a tendency to focus on the flexibility opportunities that arise from the DSO transition. However, we would also note that energy efficiency presents a significant opportunity: as well as directly reducing costs for consumers because, it is a critical part of achieving Net Zero, and

simultaneously reduces the load on the network. Institutional and market arrangements need to be defined in such a way that energy efficiency can be appropriately encouraged and recognised for the value it brings.

- **Reduced disruption:** Reinforcement activities can lead to disruption for customers and for the local area (e.g. roadworks, noise, etc). As the pace of change increases, this disruption would be expected to increase, particularly as levels of electricity demand trigger more significant reinforcement works than can be readily accommodated by the existing infrastructure. The use of flexibility, and a more coordinated planning and operations approach, should reduce such disruption, bringing wider benefits for customers and wider society. In general, there is a need to engage more with consumers and to raise awareness to ensure there is buy-in.
- **Retail reform and consumer engagement:** Significant reforms are underway in the retail sector. With innovative suppliers and novel tariffs being introduced – and finding increasing interest from consumers – there may be additional opportunities to elicit demand-side flexibility, particularly at the lower voltage levels. Retail market reforms could also lead to new institutional arrangements, such as regional coordination (e.g. for deployment of energy efficiency and energy services), which could have synergies with the reforms that Ofgem is considering for this consultation response.
- **Community Energy and District Heating:** The right institutional arrangements – including coordinated policymaking and planning at the local level – could help to unlock a much larger number of community energy and district heating schemes.

Question 7: We set out a number of risks associated with change. Do you agree with these risks and the potential costs they create? Are there additional risks of change and costs that have not been set out?

Ofgem has identified a number of risks that can be categorised into two themes:

1. Risk to the pace of change required to deliver on the UK's Net Zero ambitions
2. Risk that DSO functions are not sufficiently well defined and distinct from DNO functions (in contrast to the ESO-TO distinction), meaning that separation could introduce ambiguity, weaken accountability and lead to the duplication of resources and costs

On the first point, we agree that there is a risk that institutional reform could result in slowing the Net Zero transition, at least in the short term. This is particularly true for the DSO operation and planning roles, for which UKPN has put in place ambitious plans over the course of RIIO-ED2. However, we would argue that there is a near-term justification for establishing a Regional System Planner role, who would be responsible for engaging with Local Authorities, the FSO and the DNO/DSOs and GDNs. Currently, DNOs are required to develop their own scenarios ('DFES') by engaging with Local Authorities, local stakeholder groups and large energy users, before translating those scenarios into network plans. The task of producing whole system energy scenarios, aligned to national and regional policy, we believe could be the role of the Regional System Planning (RSP) functions. We see little risk in separating out this role, and the creation of a clear needs case by an independent body would aid transparency and arguably make network planning easier for the DSO.

On the second of Ofgem's risk themes, we acknowledge Ofgem's observation that there is not currently a clear internal separation of DNO and DSO functions (in contrast to how the ESO role was distinct from the TO role). As such, there is uncertainty around how separation would work in practice. We have designed a new operating model with full functional separation between the DSO and DNO, but with some shared services. Experience of operating under this model will inform what improvements are required to the organisational design and DSO:DNO Operating Agreement. There is some risk, but we have plans in place to mitigate those.

UKPN's proposed approach is to implement the separation of its DNO and DSO functions and to propose clear and separate licence obligations for the DSO. This ensures that there are clearly

defined DSO obligations distinct from the DNO and guides the DSO Supervisory Board and directors on what is important to be able to demonstrate to wider stakeholders, Ofgem, the Government and customers. These changes will need to adapt to provide opportunity to learn and improve based on how these interfaces will work in practice.

Question 8: For each model, we have set out the key assumptions which need to be true for the model to offer the right solution. Which of these assumptions do you agree with?

We comment on each of Ofgem's key assumptions in turn below:

Model 1

- i) Three DSO roles are inextricably linked and must be performed by one electricity body

We agree and believe that the DSO roles listed are tightly linked and, as discussed in our response to question 1, there are strong synergies between them.

- ii) Potential conflicts mitigated by internal governance measures

We agree that separation of the DSO from the DNO is important to mitigate potential conflicts of interest – or at least the perception of conflicts of interest. We have taken actions as part of our RIIO-ED2 Business Plan to implement functional and legal separation, and to do so in a way that attempts to maximise consumer benefits whilst minimising risks and costs.

- iii) Coordination takes place between institutions

We strongly support the notion that there should be more integrated planning across energy vectors at the sub-national level. We note, however, that it is possible to have planning layers with a Regional System Planner that establishes the needs case for investment across different energy vectors, aligned to national and local policy objectives. This body may make recommendations on coordinated plans, but does not actually undertake the detailed planning or operation of the energy networks. This is potentially more akin to the proposed FSO role in gas.

Model 2

- i) Some or all DSO roles are inextricably linked and must be performed by one electricity body

Yes, as stated above

- ii) Independence of DSO from DNO is necessary to mitigate potential conflicts of interest

Until legal separation has been tested it would be premature to make any decision on further separation. Nevertheless, we are open to discussions around whether full ownership separation would deliver additional net benefits for consumers and for wider society (by facilitating the pathways to Net Zero). Experience of operating under our proposed ambitious DSO model in RIIO-ED2 we believe will be key to informing that benefits case. Also, this model will impact the DNO's ability to keep the lights on as you are adding another layer of complexity.

- iii) Coordination takes place between institutions

See above

Model 3

- i) DSO roles need to be carried out by a separate body to manage potential conflicts of interest

We disagree. We believe in the context of DSO Ofgem has the toolkit to manage conflicts of interest i.e. through licence conditions and incentives. We also note that it may be too complex to disentangle these functions from each other, without learning more about how this could work in practice through RIIO-ED2, and it is not the optimal way to approach the challenges faced.

- ii) There is a case for integrating planning across energy vectors at a sub-national level

As noted above we do see a potential role for a Regional System Planner when material cross-vector decisions are being made. However, this is dependent on policy decisions by central government on the future of gas networks and how heat decarbonisation will be funded.

Model 4

- i) Roles are most effectively delivered when within-function synergies are maximised, and assigned to the institution(s) with the competencies to deliver them

We agree with this statement. Network reliability is a key example of where existing synergies are enabling us to continue to make progress; since 2011 we have reduced the number of power cuts by 49% and we have reduced their length by 59%. We are experts of our networks and any reforms should make sure this expertise is fully leveraged.

Question 9: Out of the framework models we have developed which, if any, offer the most advantages compared to the status quo? If you believe there is another, better model please propose it.

We believe that it is feasible to select elements of each of the models in order to arrive at an institutional and governance arrangement that facilitates the transition to Net Zero without undermining the reliability of the system, and without imposing undue costs on consumers. We have done this as part of proposing our own model. We believe that the discussion around reform should be separated into two distinct parts that need not be conflated:

1. Is there a need for ownership level DSO separation and how would the complex interactions between the DSO and DNO be managed?
2. Is there a need for a regional planning function to sit within a distinct public entity?

Full DSO separation from the DNO

On the first issue, we believe that the DSO needs to have clear independence from the DNO in order to ensure the DSO is trusted as a market facilitator, and to demonstrate impartiality. This represents the biggest challenge since privatisation. Furthermore, we are currently exploring how the new DSO Supervisory Board will demonstrate independence in a similar way to our current Pensions Trustees, which act on behalf of pension members rather than shareholders. Under this arrangement we would avoid significant DNO/DSO duplication or introduce risk to reliability, or undermine the Totex incentive driver, which we believe is the best way to deliver a level playing field between assets and flexibility services. We want to accelerate the transformation and we welcome regular progress reviews by Ofgem.

We believe the model proposed in our business plan (legally separate DSO, with independent governance) can be implemented for the start of RIIO-ED2, and through experience of operating under that model, it may be possible to move to full ownership separation by the end of RIIO-ED2 via a DSO reopener, were the evidence to demonstrate that this would deliver net benefits to our customers and wider society.

We agree with Ofgem that the DNO should be accountable for maintaining network reliability. However, through its role in load forecasting, network planning and procurement of flex services the DSO is responsible for functions that impact on network reliability. To address this, we are proposing in our business plan an Operational Agreement that will set out the required performance levels between the parties. We have aimed to reduce the need for capability duplication by requiring both the DSO and DNO to sign off investment and operational plans, with an escalation route to the DSO Supervisory Board in the case of dispute. Full ownership separation introduces contractual relationships of a different nature and possibly greater capability duplication. It also dilutes accountability for keeping the lights on.

Our vision most closely aligns to Model 3, with efforts to achieve the benefits of transparency and credibility associated with DSO ownership separation, without the creation of bureaucratic burden, loss of synergies, and the duplication of resources.

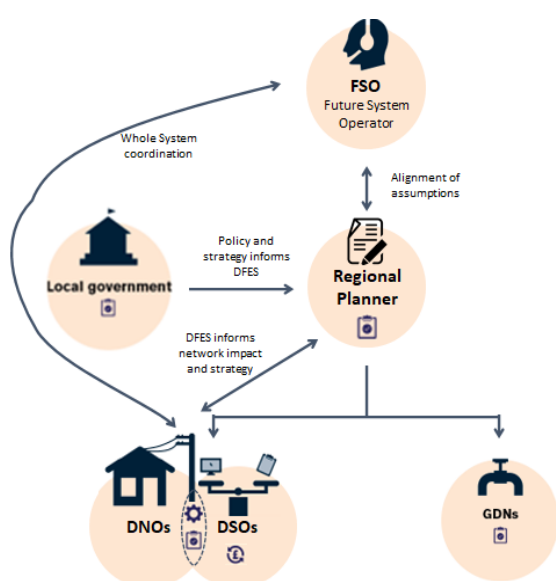
Creation of a Regional System Planning (RSP) functions

We see the DSO as a key facilitator to delivering Net Zero, but we do not believe it is appropriate for the DSO to be making decisions on what the optimal pathway is for different localities and across different energy vectors. We recognise that this is the critical gap that needs addressing, nevertheless, we see this as a broader role that sits above electricity system planning and operation and which is best done by public bodies; we also support a role for Ofgem's Net Zero Advisory Group in helping to coordinate local and national objectives.

Our view is that greater separation is needed between defining needs via a central planning scenario with the delivery of network capacity to meet these needs via network planning. This is because we do not believe it is appropriate for network companies to be leading on decisions around anticipatory investment and across energy vectors. Instead, once local or regional plans are in place the DSO can integrate these into its Network Development Plan that informs any associated funding requests assessed by Ofgem. This arrangement would avoid creating a conflict between the DSO making use of flexibility and investing ahead of need. It also means there are effectively two layers of independent review, whereas a public DSO involved in developing plans would only have a single Ofgem review, which would likely make it more difficult for Ofgem to reject calls, for example, around anticipatory investment.

We agree with Ofgem's description in Model 3 of the planning function taken by a new public body. However, we would have concerns about this entity taking on the network planning and operations roles given the importance of these functions to maintaining network reliability. We also do not think that the new public body should be responsible for facilitating flexibility markets as this is best done by the DSO and requires a different skillset. Our vision is that the new body would focus on being a Regional System Planner that supports Local Authorities in making the energy transition, whilst aligning to national policy. This Regional System Planner would also be well placed to help inform decisions around the use of Ofgem's Coordinated Adjustment Mechanism (CAM), which transfers outputs and funding between network licensees.

We have attempted to illustrate our vision for how the future model would work, building on Ofgem's framework:



- **Local Government** is responsible for translating national policy and strategies into local ambitions. This will be partially informed by discussions with the regional planner who may identify viable opportunities or potential blockers
- **Regional System Planner** is responsible for ingesting Local Government plans (and supporting their development) as well as working with the FSO to ensure consistency of assumptions (e.g. around EV usage profiles) and cross-vector solutions. Ultimately responsible for producing 'DFES'
- **FSO** works with regional planner to align assumptions, and works with DSO to ensure network investment and flexibility procurement plans are optimised for the whole system
- **DSO** responsible for translating DFES into a network impact assessment and intervention strategy and ultimately ensures network capacity is delivered cost efficiently. The DSO is also responsible for developing flexibility markets, and establishing and operating the platform(s) used for flexibility procurement and trading, as well as dispatching flexibility as required.
- **DNO** remains responsible for network reliability, resilience and security, and hence defines a network plan that meets these requirements. DNO is also responsible for operational planning and delivering all non-contestable works.

Question 10: What do you consider to be the biggest implementation challenges we should focus on mitigating?

There are a number of implementation challenges associated with transitioning the networks – and their institutional and governance arrangements – into a state that is aligned with the delivery of the UK's Net Zero targets. The 2035 Net Zero target is less than 13 years away, and any implementation timelines need to start delivering significant benefits early on. We need to consider not only the optimal governance 'end state', but also the pathway towards it.

It may be that the necessary reforms can be implemented quickly and without creating uncertainty and delay, but this is not guaranteed. Ofgem needs to view these reforms in the context of a transition pathway that can deliver quite radical reforms whilst not slowing the rate of LCT connections in the interim, and whilst ensuring that responsibility for network reliability is not diluted during this period.

Full ownership separation will require primary legislation, formal contractual relationships and/or new codes, greater capability duplication, and separate remuneration models and incentives. We believe that this is all possible but will take longer to implement, and the best route for achieving this will be informed through the operation of the DSO under UKPN's proposed model from the start of RIIO-ED2.

Given the current energy cost crisis and the impact that the war in Ukraine is having, Ofgem and Government are understandably focused on ensuring energy affordability and security of supply in the short-term. Alongside this there are a multitude of other reforms taking place under Ofgem's remit, some of which are listed in our response to question 12. It is therefore important that Ofgem appropriately prioritises and we are keen to work together to tackle these issues together as part of a deliverable forward work programme.

Question 11: Taking into account the varying degrees of separation of DSO roles from DNOs under framework model 1, do you consider there are additional measures we should consider implementing, in particular in the short term (e.g. changes in accountability etc)?

Under Model 1, there would be common ownership of the DNO and DSO, with potential conflicts of interest mitigated through governance. Ofgem notes that this model would still include internal separation of the DSO function (people, processes and systems), but could also involve a separate licence for DSO activities.

In the short-term, we believe that RIIO-ED2 can provide the right framework to facilitate the more ambitious DSO activities such as those outlined in our Business Plan. We already intend to deliver significant savings for our customers through our 'flexibility first' approach, and the totex regime, provides good incentives for DNOs to identify lower-cost alternatives to conventional reinforcement.

We believe that KPIs, and the DSO Output Delivery Incentive (ODI) more broadly, will be an important component for encouraging all DNOs to develop their DSO capabilities. Whilst DSO activities are nascent and uncertain, tracking these activities in a transparent and consistent manner will be important because it will drive the right behaviours, but also because it will provide valuable insights into how future reform might best be implemented.

With the right incentives we would expect DNOs to organise themselves to deliver against their DSO obligations. These KPIs would need to be:

- **Clearly defined:** there needs to be minimal ambiguity around how KPIs would be measured and how targets would be set;

- **Deliverable but ambitious:** Recognising that different DNOs have different DSO ambitions outlined today, the KPIs need to encourage DNOs to be ambitious in how they roll out their DSO capabilities;
- **Aligned to DSO roles:** The KPIs need at the very least to cover the three DSO roles (planning, operations, market facilitation), and also to be well-aligned to the behaviours that they are trying to incentivise.

UKPN's view is that the following KPIs would provide reasonable coverage:

- **Network Utilisation:** A KPI to ensure that licensees are only reinforcing their networks when required, and otherwise looking to flexibility or other options to avoid locking in capital expenditure that may not be needed;
- **Curtailment:** A KPI that encourages the efficient use of flexible connections to increase the rate at which LCTs connect to the network, whilst also encouraging DNOs to minimise the curtailment of those assets, deploying the full range of network solutions to reduce costs and timescales;
- **Forecasting:** A KPI that incentivises licensees to produce accurate demand forecasts so that they invest at the appropriate time, and so that third parties can have confidence in the future need for flexibility services;
- **LV Visibility:** A KPI ensuring that licensees have an accurate view of loading on the LV network, thereby driving more efficient use of reinforcement and flexibility; and
- **Flexibility:** A KPI focused on the use of flexibility itself, which could track outturn procurement or dispatch of flexibility, or could be more focused on the extent to which licensees exhibit the right behaviour around market engagement and market testing.

As discussed, we believe that our DSO Business Plan (a formulation of Model 1) provides a robust pathway to ensuring that DSO activities are built out in the short term. It also provides a test bed to inform future institutional and governance changes. We believe that Model 1 is a low regret approach that delivers strong customer benefits.

However, in order to ensure that electricity network planning is aligned to national and local policy, and is optimised across different vectors, we believe there is a need for more regional coordination. We would advocate for a regional planning role to be defined, and ideally assigned to an independent entity responsible for regional planning and coordination, i.e. the creation of a Regional System Planner. This entity would interact with local government, the FSO and the network operators to produce projections of needs for energy services (transportation, heating, etc.), ensure projections of technology uptake are aligned to national strategies (e.g. heat pumps, hydrogen, district heating), and standardise assumptions around how those technologies will be utilised (e.g. load profiles, diversity curves).

Question 12: Are there other key changes taking place in the energy sector which we have not identified and should take account of?

The most immediate change facing DNOs at present is the RIIO-ED2 process. There is a need for clarity around how the reforms being considered as part of this consultation would interact with the RIIO-ED2 timetable. We discuss this interaction in more detail in our response to question 13.

There are a number of other market changes and regulatory reforms underway that may also have a bearing on these discussions. Our general view is that there is a risk of thinking too narrowly about reform in one sector, and that there is a real need for joined up policymaking and regulatory reform. Some particular areas that need to be considered are:

- **REMA:** BEIS' Review of Electricity Market Arrangements (REMA) could result in significant changes in the way that electricity markets operate, which will need to be considered in the context of the possible reforms explored in this consultation;

- **FSO:** The operation of the Future System Operator (FSO) will have an effect on decision-making at the local level, with different interactions depending on the local governance model opted for by Ofgem;
- **Tariff reform:** Any change to tariff arrangements at the distribution level would change the justification for more active intervention by the DSO (i.e. flexibility procurement). More locational and time-varying tariffs, such as those that may be explored under Ofgem's DUoS SCR, would not displace the need for DSO reforms, since setting such tariffs would require significant improvements in network visibility and modelling, but it would impact on the scope and scale of the DSO role, and hence the benefits case for different governance arrangements;
- **Access reform:** Ofgem's SCR on network access has now reached a decision, but there is still uncertainty around the impact that this will have on DNOs' business plans, and in particular around the cost and rate of new connections, and the levels of curtailment;
- **Retail market reform:** A number of changes are underway or being considered in the electricity retail space, including modifications to price caps and rules around customer switching. Whilst these may not have a direct impact on the DSO transformation, we anticipate that DSO functions will require much more active engagement with innovative suppliers, and the development of novel retail tariffs and services. The ability of suppliers to engage with their customers in innovative ways has a bearing on the DSO transformation;
- **Speed of decarbonisation policy:** At a high level, there is uncertainty around the speed of decarbonisation being targeted at a national level, uncertainty around which vectors would be sharing the burden of decarbonisation (electricity, heat, gas, hydrogen, etc), and how each national pathway would translate into local energy plans. Until a more joined-up strategic cross-vector approach is taken across national and local policy levels, the optimal design of DSO frameworks is likely to remain uncertain.

Any one of the above market changes represents a significant source of uncertainty. Taken together, there are significant unknowns around the best way of coordinating the different actors in the energy system in order to deliver Net Zero in a cost-effective way. These local governance reforms need to be made in light of that uncertainty. That is not a justification for inaction – rather, it demands that we identify a way forward that allows us to move at pace, but with minimal regret regardless of how these other sources of uncertainty play out.

Question 13: What do you consider to be the most important interactions which should drive our project timelines?

As mentioned in our response to the previous question, the RIIO-ED2 process represents the most important interaction with the reforms being considered as part of this consultation. It is not clear to us how Ofgem sees this interaction occurring. The consultation notes that the intention is to arrive at conclusions on these reforms in early 2023, at which point – depending on the resulting conclusions – the work would enter its implementation phase. Over this same period, Ofgem will be issuing its RIIO-ED2 Draft Determinations (DD) in June 2022, its Final Determinations (FD) in December 2022, and RIIO-ED2 will commence in April 2023.



We would assume that the results of this consultation, therefore, will not be reached until both Draft Determinations and Final Determinations have been made by Ofgem. Whilst we do not know the details of those determinations, we do anticipate that they will include allowances for expenditure associated with DSO-related activities, and the specification of DSO-related incentives.

If the outcome of this consultation represents a significant change to the way that DSO roles and responsibilities are assigned, this needs to be reconciled with the RIIO-ED2 delivery plans. A number of questions arise:

- The DSO-related plans outlined by each DNO vary considerably in their scope and ambition. They could be viewed as representing the range of possible design choices encapsulated by Model 1 in this consultation. Does Ofgem intend to steer DNOs towards a common approach to DSO implementation within RIIO-ED2, or will it allow DNOs to follow different paths? How would such variation be reconciled with more fundamental reforms outlined in Models 2, 3 and 4?
- Will DNOs be expected to modify their DSO-related investments early in the RIIO-ED2 period in response to these reforms and, if so, how will such a deviation be instructed and funded?
- Would Ofgem use the mid-period reopener to release additional funds required to enact the additional levels of separation implied by Model 2 (e.g. the separation of Shared Services) and, if so, how would those additional costs be determined?

As discussed earlier in our response, making changes to primary legislation represents a slow and uncertain process. Even if Ofgem put in place a clear plan that, for example, made use of the mid-period reopener, there is a risk that these timetables became misaligned. DNOs need confidence in order to invest in new systems, process, people and capabilities, so uncertainty about whether such investment will be required in the medium-term risks undermining that investment in the short-term.

Fundamentally, it is not possible to know with certainty the optimal end state for institutional and governance arrangements around DSO. The detailed DSO roles are not yet sufficiently defined, the areas of overlap between functions have yet to be tested at scale, and there are significant wider market reforms in flight that may affect the way that entities interact with each other. The UK Government's 2020 Energy White Paper called on DNOs to *"open up their networks to flexibility technologies while mitigating real or perceived conflicts of interest"* but also indicated that it would retain the option of legislating *"should DNOs fail to make sufficient progress"*. Our DSO plans are ambitious and have the potential to surpass the Government's expectations in this area. We would hope that by delivering against our plans across RIIO-ED2 the need for additional intervention can be shown not to be needed. However, as well as being ambitious, our plan leaves open the option for more fundamental reform should Ofgem and the Government decide that it is needed.