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***Call for input: Future of local energy institutions and governance***

Dear Victoria,

Thank you for the opportunity to respond to the recent *Call for Input* considering the future of local energy institutions and governance, issued in May 2022.

**Who we are**

As the Electricity System Operator (ESO) for Great Britain, we are in a privileged position at the heart of the energy system, balancing electricity supply and demand second by second. We keep the lights on and the electricity flowing directly to where it's needed across society. But that's not all we do.

As the UK moves towards its 2050 net zero target, the ESO has a vital part to play. We want to operate a zero-carbon electricity system by 2025 so we're collaborating with global industry experts to facilitate a low carbon energy future. We play a central role within the energy industry, looking at what the future may bring and how the market needs to adapt to deliver a greener future. We are facilitating the journey to net zero by collaborating with others, sharing insights and analysis, and running world-first innovation projects.

**Strategic context – the creation of a Future System Operator**

On 6 April 2022, BEIS and Ofgem published their decision on the Energy Future System Operator consultation, the culmination of a number of years of strategic thinking and industry engagement on how best to support the energy transition. The decision confirmed the creation of a new, independent Future System Operator (FSO) founded on the existing roles and capabilities of the ESO. This organisation will drive progress towards net zero, deliver value for consumers and support energy security. As well as the existing roles of the ESO, the FSO will assume responsibility for new and enhanced industry roles crucial to the transition to net zero.

One of the areas discussed as part of this consultation and decision process was the role the Future System Operator will play in coordinating with Distribution Network Operators (DNOs). Many respondents strongly agreed that the FSO should coordinate with DNOs to ensure optimal system-wide planning, with calls to clarify and formalise these accountabilities. There were a range of views about the FSO taking greater responsibilities in Distribution System Operator (DSO) areas at this stage.

### Existing ESO work and thinking on the DSO transition

The ESO is actively facilitating the DSO transition by taking a leading role in workstreams under the *ENA Open Networks*<sup>1</sup> project. For example, we lead critical DSO product development in contractual arrangements for flexibility services, service coordination rules with DSOs and processes for settlement and dispatch. We also lead key whole system elements of the Open Networks project including its whole energy system workstream and the development of the whole system cost benefit analysis.

We have implemented new initiatives such as *Regional Development Programmes*<sup>2</sup> - programmes of work which identify areas of development between transmission and distribution networks in areas with large amounts of distributed energy resources, aiming to introduce new and innovative tools and resources to manage system coordination and constraints.

In 2021, we published our *Enabling the DSO transition* consultation<sup>3</sup> outlining our proposed approach and activities to support the DSO transition, with a specific focus on coordinating activities between the ESO and DSOs. This piece of work was followed by extensive stakeholder engagement to shape our plan, and we have established and lead a monthly joint forum with all GB DSOs to get their input into DSO facing projects we are undertaking. All of this work has informed our response to this *Call for Input*.

### A whole energy system approach to achieving net zero at all levels

We believe it is critically important to approach the delivery of net zero at the subnational level, as at the national level, from a whole system perspective to ensure holistic coordination of activities at least cost.

As well as considering interactions with electricity distribution system functions, the FSO's future strategic gas roles will provide a necessary cross-vector, whole energy systems perspective that could coordinate across Gas Distribution and Transmission Networks and better understand interactions with electricity systems to provide true whole energy system-wide planning outcomes. We anticipate that further development of whole system approaches, expanded to include potential new energy vectors and sectors, will be needed at both the national and sub-national levels to drive towards net zero at pace.

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<sup>1</sup> <https://www.energynetworks.org/creating-tomorrows-networks/open-networks/>

<sup>2</sup> <https://www.nationalgrideso.com/research-publications/regional-development-programmes>

<sup>3</sup> <https://www.nationalgrideso.com/document/190271/download>

## Key messages from our response

We broadly agree with the issues highlighted in the Call for input that consider current governance issues in market facilitation, system operation and sub-national energy planning.

However, we would argue that in considering this area, governance concerns are only one part of a much broader picture in thinking about how sub-national energy activities need to change to meet net zero. Further clarity is required on the activities within each of the three energy system functions, and how these need to evolve to ensure delivery of net zero. Potential gaps beyond these functions also need to be clarified, particularly in key enabling activities such as data and digitalisation.

We have undertaken thinking in this area as part of our *Enabling the DSO transition* work and participation in the *ENA Open Networks project*. Based on this thinking we consider some key activities and gaps within each of the three energy system functions and highlight suggestions for governance arrangements for these, including the possible role and coordinating activities of the Future System Operator. We elaborate further on these in the body of our response, particularly the tables in pages 10 to 12.

In the **market facilitation** space, we believe that a strategic, whole energy system approach to sub-national markets is needed to meet net zero. More consistent local markets for flexibility, that are coordinated with the national flexibility market, should lead to more liquidity with greater participation and clearer incentives. The proposed whole energy system market design role for the Future System Operator could take on these strategic activities, with consideration also of synergies across fuels. Sub-national market operation could remain with DSOs, suitably ringfenced from network operators, or be moved to another body if the Government and regulator ultimately consider conflicts of interest to be unsustainable in the longer term.

With regard to **real time system operation**, we believe there is a role for a body to consider resilience and emergency management at a strategic level and across fuels. The proposed FSO Office of Energy Resilience and Emergency Management could play this role. However, we see value in network operation sitting with DSOs, potentially suitably ringfenced from with network owners, to ensure the use of local knowledge of assets and more local and closer interaction with distribution customers.

Considering **energy system planning**, there is a critical need at the sub-national level, as at the national level, to consider the whole energy system if we are to meet net zero at least cost. This is likely to require some level of institutional change so that an organisation with a whole energy system mandate can have clear accountability and resource for this important role. The Future System Operator will not have the local intelligence and stakeholder relationships to be able to build local plans but could play a key facilitation role to ensure local planning is aligned with national strategy, as well as identifying the implications of local decisions across boundaries to ensure a holistic approach.

We would welcome the opportunity to further work with Ofgem to continue to clarify DSO activities and, in particular, their interaction with Future System Operator roles, as well as help identify suitable future governance arrangements as we drive towards net zero. Further detail is given in our response to the Call for Input questions below.

We look forward to further discussing these issues with Ofgem, and in the first instance, please contact Head of Transformation, Colm Murphy ([colm.murphy@nationalgrideso.com](mailto:colm.murphy@nationalgrideso.com)).

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Kayte O'Neill', written over a horizontal dotted line.

Kayte O'Neill

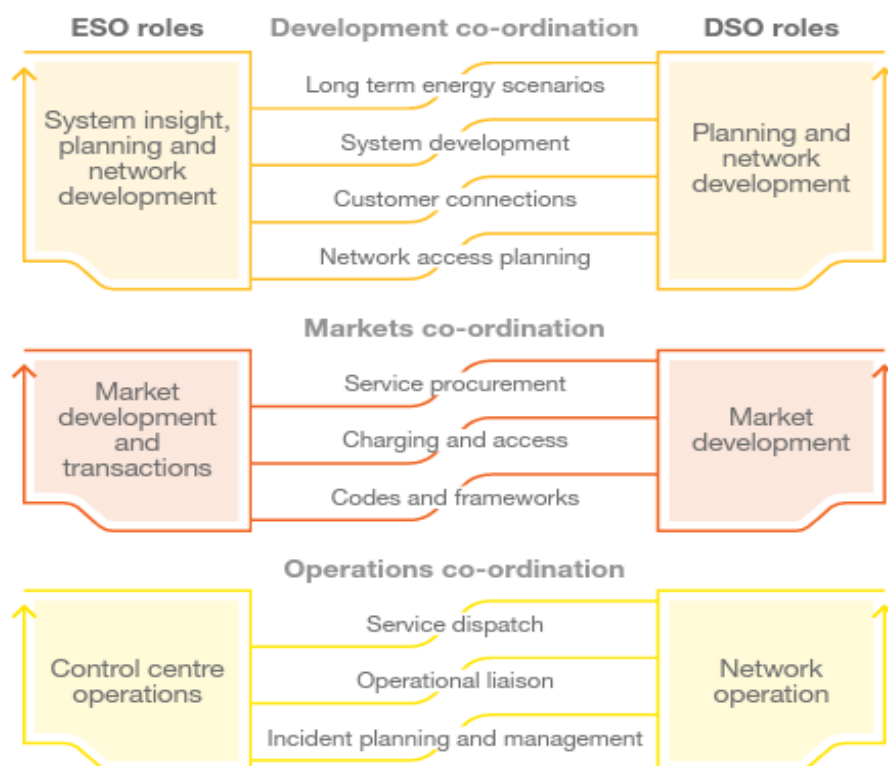
Director of Transformation, National Grid Electricity System Operator

## Response to *Call for Input* questions

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?

We agree that these three energy system functions are key areas to be focusing on to address the delivery of net zero at the sub-national level, and these broadly align to functions at both the transmission and distribution levels. However, in focusing on these functions, there is value in clarifying exactly what activities fall under each of these areas, including how such activities may evolve and where accountability is already clearly assigned.

In our *Enabling the DSO transition*<sup>4</sup> consultation (April 21) we explored these areas, but with a primary focus on the coordinating functions between the ESO and DSOs:



**Figure 1** Co-ordination between ESO and DSO roles

We believe it would be helpful to further review at an industry level the definition and scope of activities that fall within each of these roles, to enable clarification of activity ownership and to identify effective coordination opportunities. We have seen many examples of coordination activities leading to significant benefits in the last few years – for example aligning embedded capacity numbers in scenario planning and the development of regionalisation work in the *Future Energy Scenarios*.

As the *Call* also notes, other activities are key enablers of these three functions, notably data and digitalisation. It is crucial that these areas are effectively developed and resourced in order for the three identified system functions to progress and evolve to meet net zero.

<sup>4</sup> <https://www.nationalgrideso.com/document/190271/download>

Furthermore, as the energy system transforms, new activities may need to be added – for example a direct consumer engagement role as part of the market facilitation area, as consumer behaviour becomes an increasingly important aspect of system flexibility. It will be important to clarify responsibility for such new activities quickly to minimise duplication of effort and cost.

The energy system today, its governance, roles and functions can be siloed and not always designed to best deliver an increasingly complex decarbonisation agenda. The roles outlined are critical, but they need to be considered in their broadest sense. There are multiple pathways to net zero, competing technology, market and network solutions that may vary on a region by region basis; therefore, it is vitally important to drive a collaborative whole energy system approach through alignment and consistency with clear boundaries and accountabilities across Government, national, regional and local authorities; planning; markets; system operation; regulation; and to do so on a whole energy system basis for both electricity and gas (natural and hydrogen) and other emerging sectors.

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

The *Call for input* notes several criteria to assess the benefits of change; accountability, credibility, competence, coordination and simplicity. We agree with these points but note that they are fairly tightly focussed on a governance perspective, in particular assessing whether an actor is best placed to undertake an activity.

We believe that alongside this there is a more fundamental question to be answered - how sub-national activities and roles need to evolve to meet net zero – and that to begin to answer this question, higher level principles need to be reflected when assessing potential change:

- What is the impact on delivery of net zero? Any change needs to help accelerate progress towards decarbonisation goals and be deliverable alongside wider industry transformation.
- Do the benefits of change outweigh the costs? There needs to be a clear increase in consumer value in the broadest sense for any activities undertaken.
- What is the impact on day to day operation and security of supply? This should be carefully managed in light of the scale of change across the energy industry.

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

We have answered questions 3 and 4 jointly as the issues we discuss are interrelated and hence it is difficult to extract or pinpoint a specific 'biggest blocker' to the realisation of effective energy system planning and operation at sub-national level.

We broadly agree with the governance issues highlighted in the *Call for Input*, notably that there can be a mismatch between existing sub-national accountabilities and required skills or resourcing, possible perceptions of conflicts of interest, and the potential for conflicting actions from different organisations. We therefore agree that current arrangements present challenges to achieving the most cost-effective decarbonisation outcomes. However, we would also make some further



additions to these issues identified, noting that governance concerns are one part of a broader picture in evaluating the issues and need for change at a sub-national level:

- There are significant regional variances in approaches to delivering sub-national energy functions. There is inconsistency today in what activities look like across regions, as well as differences of opinion in how they need to evolve to meet net zero. Some of these variations can be justified given the distinct challenges and infrastructure differences in geographic areas. However other variations may not be so clearly warranted. Further clarity as to the appropriate activities that lie within each function, and their necessary evolution, needs to be agreed to better support any decision being made regarding the appropriate governance model(s) to best support these functions. We have previously explored this in our *Enabling the DSO Transition* consultation and give further detail in our response (see table below in response to question 9).
- The lack of clarity as to the remit and activities within each of the three energy system functions compounds the lack of accountability for delivery. If we are not clear what needs to be delivered, it is all the harder to work out who is best placed to be delivering it, and to design the most appropriate enabling and coordinating activities to support.
- Linked to this point, some of the issues within the case for change are interrelated. For example, the potential scale of conflicts of interest is dependent on how certain activities evolve.
- Alongside the above, there is a need for some level of central coordination and delivery planning to meet net zero at a sub-national level but the accountability for such a role is not clearly delineated.
- The *Call* notes that some institutions may not be well placed to deliver energy system functions due to a lack of skills. Whilst we agree with this view, we would note that a further aspect to consider is that workforce skills and capability to meet net zero is an industry-wide challenge and not limited to one institution. Moving an activity to another institution may not be enough to address a skills gap.
- We would add that in addition to the points on skills and resourcing for local authorities, local authority boundaries do not always align well with functional network areas. It is therefore difficult for local authorities to have the mandate to make meaningful decisions on energy options that impact networks. There may therefore be benefit in an entity, such as the FSO, co-ordinating local requirements with national strategy.

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

From an electricity perspective, we are supportive of the functional synergies that have been identified. However, we note that some of the synergies and weaknesses identified across the three functions are much less applicable to gas than electricity. For example, given the distinct nature of how balancing takes place on the gas network, the market facilitation role looks very different for this fuel, leading to lesser synergies with other roles. The *Call for Input* also mentions heat networks, where the three energy system areas and their respective synergies could potentially look quite different than for electricity and gas.

For this reason, we believe that a different change and governance approach is likely to be needed depending on the energy system function being considered. We expand further on this in our detailed table in response to question 9.

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

As discussed in our key messages and question 3, clarification and greater consistency of DSO activities, as well as agreement on their necessary evolution for net zero, is a key step. We further discuss these areas in response to question 9.

Alongside changes to governance, consideration will need to be given as to how the regulation of DSO activities may need to evolve as they change and are potentially transferred to other actors.

The benefits of coordination between national and sub-national level, although mentioned in the document, are not specifically called out in the opportunities of change. For efficient decisions to be made in reaching net zero, there is a need for a consistent, agreed understanding of 'whole energy system' to be applied in energy related matters, as well as an industry agreed definition of net zero that accounts for all sectors. Without this clarity there are complications and risks of incompatible decisions across industry and policy. Any change should consider how it enables or indeed hinders effective coordination between national and sub-national level.

We also strongly believe that data, digitalisation and information sharing activities need to receive significant attention and resource, as these areas act as key enablers of the 3 energy system functions discussed.

*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?*

We broadly agree with the risks and potential costs discussed in the *Call for Input*. The backdrop of industry change (and associated learning costs) is a key consideration, and capability and resourcing across a number of organisations will be needed to deliver any of the changes identified.

There is a risk of not considering a manageable sequencing/phasing of change leading to ineffective outcomes from each of the functions. The proposed implementation timetable is ambitious given wider industry change, and it may be that some aspects of change can be taken forward more quickly than others (see response to question 9, 'impact of change' column).

The capabilities and resourcing point should also consider the amount of governance required to regulate any of the proposed models as well as the ease or difficulty to unwind any of the changes if significant foreseen or unforeseen consequences materialise.

*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?*

As noted previously, some of the synergies and weaknesses identified, and hence the ensuing assumptions, across the three functions are much less applicable to gas than electricity.

For this reason, the assumptions are likely to be more or less valid depending on the energy system function being considered, and it is likely that distinct models/approaches will be needed for the various functions. We expand further on this in our detailed table in response to question 9.



*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.*

It is difficult to assess the proposed models from the *Call for Input* against each other without additional detail, particularly for some options where many variants are possible.

Consequently, we believe that a helpful approach would be to first consider and clarify the activities and necessary evolution of work for each of the three identified energy functions (and additional roles), before considering which governance model and appropriate regulation would best facilitate this.

In order to help review each function holistically, the table below considers activities and issues today for each of the three DSO functions, how these may need to evolve for net zero, and the governance implications that follow, including potential role(s) for the Future System Operator.

## Market facilitation

Current issues	Need for change to meet net zero	Current activities <sup>5</sup>	Potential role(s) for the FSO	Governance implications
<ul style="list-style-type: none"> <li>Inconsistency in local markets today means that participants may face incoherent or unclear incentives that are not coordinated with the national flexibility market <b>or</b> may be unsuitable for new technologies.</li> <li>Some concern that a perception of a conflict of interest on behalf of DNOs is holding back development of local markets.</li> <li>Increasing synergies between the gas and electricity markets.</li> </ul>	<p>Building on Open Networks progress, see a need for greater consistency across local markets, as well as coordination with national markets. This should lead to more liquid markets with greater participation and clearer incentives.</p> <p>Consideration of interactions across fuel markets needed in market design.</p> <p>Potential greater separation needed between DNO and market operators.</p> <p>Continued work to develop data sharing, including across fuels where appropriate.</p>	<p>Service Procurement Charging and Access Codes and Frameworks</p>	<p>Proposed whole energy system market design role for the FSO could consider consistency between national and local markets, and synergies across fuels.</p> <p>This could include a strategic overview role for framework structures initially through development of arrangements between DSO(s) and other parties (FSO, DNO, and service providers). In the longer term this could require development of rules for whole energy system coordination.</p> <p>Extension of net zero market reform work into distribution networks.</p>	<p>FSO market facilitation role could be developed via ongoing FSO creation therefore minimal additional change impact as FSO already has whole system and national mandate.</p> <p>Greater separation between DNOs and market operators may be required to address conflict of interest concerns. This will need to be considered in light of scale of local markets and whether the Totex Incentive Mechanism is deemed sufficient to drive lowest cost solutions for consumers.</p>

<sup>5</sup> See Enabling the DSO transition <https://www.nationalgrideso.com/document/190271/download>

<b>System operation</b>				
<b>Current issues</b>	<b>Need for change to meet net zero</b>	<b>Current activities<sup>6</sup></b>	<b>Potential role(s) for the FSO</b>	<b>Governance implications</b>
<ul style="list-style-type: none"> <li>• Conflict of interest concerns that current mechanisms incentivise asset solutions over other solutions in market dispatch (electricity).</li> <li>• Increasing synergies between the gas and electricity markets.</li> <li>• Increasing levels of distributed generation (electricity) changing system flows at both distribution and transmission level.</li> <li>• DNO functionalities being developed by individual DNOs, therefore risk of inconsistencies.</li> <li>• Lack of visibility of assets and data including across the transmission and distribution boundary.</li> </ul>	<p>Close coordination between national and regional system operators is and will be required in the transition to net zero to ensure issues in one area do not lead to issues/conflicting instructions elsewhere.</p> <p>Information and data must flow across the whole energy system for electricity and gas operation, particularly in emergencies, with need for greater digitalisation as appropriate.</p> <p>Actions taken in system operation need to be transparent and explainable</p>	<p>Service dispatch Operational liaison Incident planning and management</p>	<p>Developing the standards and operating protocols for common functionality including dispatch mechanisms, coordination rules and processes.</p> <p>Potential for distribution system operation (gas and electricity) to coordinate with the proposed FSO Office of Energy Resilience and Emergency Management.</p>	<p>FSO role could be developed via ongoing FSO creation therefore minimal additional change impact.</p> <p>Do not appear to be enough operational synergies to merit moving system operation for electricity and gas into one organisation.</p> <p>There is likely to be value in distribution system operation continuing to be sited at a more regional level as knowledge of local assets is key. To minimise conflict of interest concerns, structural change to ringfence ownership and operation activities in company structure and regulation could be implemented at distribution level.</p>

<sup>6</sup> See Enabling the DSO transition <https://www.nationalgrideso.com/document/190271/download>

## Energy system planning

Current issues	Need for change to meet net zero	Current activities <sup>7</sup>	Potential role(s) for the FSO	Governance implications
<ul style="list-style-type: none"> <li>• Inconsistency across local energy action plans between regions.</li> <li>• No clear way for local and national plans to feed into one another.</li> <li>• Unclear mandate for the stakeholders involved in local energy planning.</li> <li>• Current [electricity] design and connection functions not designed for net zero, and some reviews of these processes currently underway.</li> <li>• Whole System Planning and Network Development not currently considered with gas and electricity planned separately.</li> </ul>	<p>Need for greater strategic planning to deliver the infrastructure growth needed for net zero.</p> <p>Need for whole energy system approach to system planning as energy vectors develop.</p> <p>Need for regional and local knowledge, including of smaller local assets, to be fed into local planning.</p> <p>Need for whole electricity system processes and frameworks for system design and connections functions to ensure efficient solutions that connect parties quickly.</p>	<p>Long-term energy scenarios</p> <p>System Development</p> <p>Customer Connections</p> <p>Network Access Planning</p>	<p>Strategic design of whole energy system infrastructure needed to meet net zero</p> <p>Coordination of local and/or regional energy plans with national policies</p> <p>Continuation of <i>Future Energy Scenarios</i> regional FES work with close liaison between FSO and planning body/bodies and local stakeholders.</p> <p>Sharing learning from network planning review and offshore coordination work, and development of proposed whole system network planning role.</p> <p>Network access planning could remain with DNOs.</p>	<p>To take a more holistic approach to sub-national planning, it is likely that institutional change will be necessary to give a suitable organisation or network of organisations the right resources, skills and a whole energy system mandate at the sub-national level.</p> <p>Some elements of activities could remain with DNOs e.g., Network Access planning, elements of customer connections etc.</p> <p>FSO role could be developed via ongoing FSO creation therefore minimal additional change impact.</p>

<sup>7</sup> See Enabling the DSO transition <https://www.nationalgrideso.com/document/190271/download>

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

Ultimately, implementation challenges will be dependent on the scale of change pursued in both governance and the development of new activities at the sub-national level

In considering the implementation of the Future System Operator we identified several key implementation challenges/risks, as well as accompanying mitigating actions. We believe some of these are also applicable to implementation of change at the sub-national level.

Potential risks and challenges include:

- Lack of a clear, common understanding of purpose, roles and accountabilities throughout implementation - leading to delays or failure to deliver on commitments.
- Delayed implementation of reforms leading to i) greater uncertainty for employees across organisations ii) greater uncertainty for stakeholders, resulting in postponement of investment and projects and impacting delivery of net zero and iii) increased implementation costs.
- The subsequent stretch on industry resource and capability, as well as learning costs for impacted organisations
- Coordinating reform activities with other key industry transformation programmes that directly impact DSO activities (see response to questions 12 and 13).

Potential actions that could mitigate these challenges could include:

- A phased delivery approach with early clarity on the key principles and direction of travel – this will allow progress to be made early on no-regrets activities, detailed and robust plans to be put in place and employees across impacted organisations to be reassured and be engaged with, and a part of, the transition from the beginning.
- Clear definition of purpose, funding, legal basis and roles for institutional change and new accountabilities.
- Enablers (people, data, systems, business capabilities and assets) in place ahead of time to allow a focus on transition and new roles, while delivering existing commitments.
- Working with stakeholders in a transparent manner to ensure the development of consistent and aligned processes across industry and to ensure greater clarity on changes as they progress.

*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)?*

As noted previously, the scale of conflicts of interest in the energy system, and therefore the degree of separation or ringfencing required, is dependent on other choices.

The legal separation of the ESO within the National Grid Group was the right model for its time, enabling the organisation to promote more competition, coordination and innovation across the electricity system, while addressing any potential conflicts of interest. The high levels of checks and balances under the existing system operation ownership model have ensured that no perceived or

real conflicts of interest have been acted upon. We believe lessons could be learned from this activity and that implementing measures such as separate DSO/DNO business units with clear delineation of staff, separate reporting and regulation of activities and costs, and greater clarity in codes and frameworks regarding DSO activities, would all be valuable activities.

*12. Are there other key changes taking place in the energy sector which we have not identified and should take account of? / 13. What do you consider to be the most important interactions which should drive our project timelines?*

We have answered questions 12 and 13 jointly as the areas we discuss are interrelated.

A number of industry transformation programmes are underway that could directly influence DSO activities. In our view there is not one most important interaction, but rather some key activities that will need to be accounted for in planning the next stage of reform:

- Implementation of the Future System Operator
- Transmission and distribution charging reform (particularly Distribution Use of System charges which could impact the scale of local flexibility markets and likely necessary work in the consumer facilitation space)
- Electricity Transmission Network Planning and the Offshore Transmission Network review (impacting any eventual changes to sub-national system planning)
- Interactions with RIIO-2 and ED2 determination timings
- Upcoming key policy decisions on heat
- The Government's upcoming comprehensive Review of Electricity Market Arrangements (REMA) with high-level options for reform to be set out in summer 2022.