

Reference

Future of Local Energy Institutions

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Head of DSO Governance

By Email:

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The Cadent logo consists of the word "Cadent" in a bold, orange, sans-serif font.

Your Gas Network

Future of Local Energy Institutions and Governance Consultation

We welcome this consultation as it is extremely important to consider what institutional framework will best help deliver Net Zero. Given the importance of local planning; considering for example the balance between infrastructure for electricity supply and gas (most likely in the form of hydrogen), this consultation is very timely.

A whole system approach to planning

We are encouraged by the references to a whole system approach throughout the consultation. Cross-vector whole system planning will be critical to delivering the best outcomes to customers in the long term. We acknowledge that by necessity the focus currently is on electricity interfaces between transmission and distribution and the imminent power decarbonisation targets. It will be important however, to ensure that institutions and process are set up for success to deliver the greater longer-term challenges of areas such as heat decarbonisation which will require significant co-ordination and a much greater planning interface between gas and electricity, and with households and businesses.

In Cadent's response to the Call for Input last year we stated our belief that it is critical in developing whole system solutions that:

- a. the development of the sub-national process is **coordinated and developed together** with the national process and not done in isolation;
- b. more focus is placed on the **integration of whole system issues beyond immediate electrification needs** such as for long-term heat, power and transport energy vectors; and
- c. the **scope of the planning functions** required to deliver the desired outputs is defined.

The consultation explicitly recognises the first of these points and we support the establishment of Regional System Planners (RSPs) that can work closely with the energy networks and the Future Systems Operator (FSO) to develop an effective and value adding function.

There is unsurprisingly considerably more work to be done on the detailed design of the arrangements to ensure there is a truly whole systems approach, with the appropriate design of the planning functions (i.e. our second and third

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5000419 (01/13)

Page 1 of 9



key points above). We believe gaining a fuller understanding of the whole systems requirements should therefore be the immediate focus area for work on local energy institutions going forward. We would be very keen to support this work and once completed will help provide a clearer picture for some of the questions the consultation raises.

The important role of DNOs and GDNs

We believe that the bulk of planning can and should be undertaken by the Distribution Network Operators (DNOs) for electricity and the Gas Distribution Networks (GDNs) for gas/hydrogen, but there is a need for significant co-ordination across the two entities. This is where some form of regional planning is therefore required. Given the very likely and real trade-offs between electricity and gas network capacity, particularly around domestic heating, there will be a significant demand for local system co-ordination and planning.

Further work will be required to define the detailed scope, roles, responsibilities, and outputs for the RSPs, and to identify where skills and capacity currently sit, such that a resourcing and capability strategy can be quickly put in place to fill any gaps. This would best be done in partnership with the industry as a whole and the distribution networks, where a lot of this expertise currently resides. To deliver a functioning RSP as soon as possible, it is vital this process is done with the networks and not done in a vacuum.

The scale of local planning

The significant scale of change required for the decarbonisation of heat should not be underestimated. The expanded interfaces required to develop true cross-vector regional and national planning that fully integrates both electricity and gas solutions (both the existing natural gas network and greener gas such as hydrogen and biomethane) must be accommodated in the new framework. In addition, there is a much greater task in developing processes for strategic planning of heat which requires domestic property changes to be part of solutions rather than power decarbonisation which does not affect infrastructure within the home. This raises the question of how changes in the home are coordinated from one form of heat to another; what choices consumers have; and over what timeframe. In essence, there are a huge additional number of parties impacted by the desired outcomes, and whether heating solutions are 'done to them', or whether there is real consumer choice to go down a particular path.

The most critical action therefore is to fully define the process that is required to develop whole system regional plans for all vectors (such as heat) and not to design the arrangements and organisations solely based on the existing electrification challenges.

The strategic planners will need to consider the range of different pathways for heat decarbonisation and be able to gather all the necessary information and plans to facilitate and maintain a strategic plan. This is against a likely backdrop of evolving energy and industrial policy and evolving customer sentiment and behaviours.

Co-ordination between national and local planning

We see merits in minimising interfaces by having a core organisation such as the FSO ensuring join up between national and regional planning and developing the capabilities of data management and effective facilitation of the different inputting parties.

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Heat decarbonisation will require a nationwide highly detailed transitional plan built up household by household with these local demands fed by energy production and storage across transmission and distribution, and across gas and electricity. The multi-decade whole energy system transitional plan will be built on local requirements but will have extensive national and regional components, including new infrastructure and potentially the decommissioning of any redundant assets. Local requirements feeding into the transitional plan are likely to include a process for how customers opt in or out of a conversion pathway, and a hydrogen conversion plan will drive the construction of new production and storage, as well as the street by street switch-over.

These detailed transitional plans, driven by and driving household by household, building by building engagement, would need to be considered in the processes being developed by the FSO and RSP. This needs to be factored into the design and impact assessment completed for Future of Local Energy Institutions and Governance.

We set out below in Annex 1 Cadent's responses to the specific consultation questions. We have also included in Annex 2 some additional important observations not directly related to the questions. We would be happy to discuss any of our comments further if useful, so please do not hesitate to contact us.

Yours sincerely

Stuart Easterbrook
Head of Net Zero Energy Frameworks, Cadent



Annex 1

Cadent's responses to the Consultation Questions

Q1. Do you agree with our proposal to introduce Regional System Planners as described, who would be accountable for regional energy system planning activities? If not, why not?

Yes, we support the proposal for the creation of Regional System Planners. but note there is very little detail on the roles, responsibilities and inputs and outputs. As a critical next step, we are extremely keen to work with Ofgem, and the other network organisations to develop this detail, understand the role we can play to support this key strategic activity and assess the impact on our operations.

Until there is greater clarity of the nature of all of the inputs, analysis and outputs required and expected from a Regional System Planner, it is difficult to be definite on the precise model for implementation. We believe it important that regional system plans are connected to national system plans, however there may be different ways in which this could be achieved.

We note the scale of interactions and inputs to be considered is significant and more complex when considering heat and the interaction with domestic customers' properties alongside businesses, schools, hospitals and industry. Hence it is unlikely that one organisation or model will be able to determine a strategic plan. We think therefore it will be critical to create an iterative process of taking different information sources with a continuing need for DNOs and GDNs to provide significant inputs to the planning process alongside the Local Authorities. The RSP role could be more focussed on facilitating common assumptions being used, coordinating developments, and managing a framework for whole system plans to emerge.

Q2. What are your views on the detailed design choice considerations described?

We support the need to ensure any regional plans are developed consistently with any national strategic energy plan particularly given the scale of challenge in delivering Net Zero across numerous sectors. We acknowledge that a national body with regional branches is one model that could deliver this and could allow a coherent and coordinated approach with national and regional strategic planning under one organisation.

However, as highlighted in our response to question one, there are multiple inputs and interfaces to consider in strategic energy plans for domestic and industrial heat and hence we believe it more critical to develop the detail of what the planning process is required to be before making definitive decisions on the institutional structure. We believe this is the logical next step of developing the proposals and we are keen to be involved in this activity with the industry.

Q3. Do you have views on the appropriate regional boundaries for the RSPs?

Whilst the specification of the regions is important, this may be more of an issue for the internal operation of the RSP and may not need to be visible to external organisations. A nationwide business may have regional delivery centres, but it is all seen externally as one entity. A Local Authority could cover three to four distribution networks, but is likely to want to manage one local energy infrastructure interface. As networks, allowing LAs to provide and maintain one set of information will be hugely more preferable than managing multiple overlapping sets potentially updated by different people at different times.

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5000419 (01/13)

Page 4 of 9



Operating as a single entity but with stakeholder boundaries managed internally would allow flexibility to change how regional planning is managed. This would seem a valuable design feature bearing in mind the significant level of uncertainty regarding the future transition of the energy system.

The key driver in considering the geographical structure should be the provision of an efficient and effective service to stakeholders and the quality of the outputs.

The overall practicalities of this approach can be considered when we have more detail on all the inputs and outputs that might be required from a regional strategic plan.

Q4. Do you agree that the FSO has the characteristics to deliver the RSPs role? If not, what alternative entities would be suitable?

We believe the FSO could take on the role of the RSP, due to the need for a coordinated and coherent whole system approach to energy system planning. The bulk of the change to the energy system in recent decades has been at the large transmission scale, with little change to the size or location of peak demand. Going forward the primary challenge to the decarbonisation of the UK will be from changes required in homes, schools, hospitals and businesses. With this move to bottom-up driven change, regional planning will be critical, but it must also fit coherently into a secure, economic and efficient national energy system. The FSO is well placed to take on that role, and having a separate entity or entities delivering Regional System Planning could be less efficient and create additional hand-offs and delivery risks.

However, the additional scale of regional strategic planning and the strategic planning of heat is vast compared to the activities the existing Electricity System Operator has been undertaking and the initial start point for the duties of the Future System Operator. The task is unlikely to be able to be delivered by creating a single model or simple economic analysis and instead will require iteration and multiple inputs and outputs with many other organisations. Hence we think it would be sensible to further develop these processes to enable an understanding of the skills and capabilities required to perform the Regional Strategic Planner task.

The FSO is initially largely being resourced from the Electricity System Operator and hence is likely to be hugely dominated by electricity and transmission resource and capability. Once a process has been completed to confirm the detailed scope, roles, responsibilities, and outputs for the RSPs, which must be mindful of where skills and capacity currently sit; a resourcing strategy must be quickly put in place to fill any gaps. This must be done in partnership with the distribution networks where a lot of this expertise currently resides. To deliver a functioning RSP as soon as possible, it is vital this process is done with the networks and not done in a vacuum.

The key objective for creating the independent entities is to ensure that it must be designed, resourced, and governed so that it can deliver unbiased high quality robust whole system decisions. There will be inevitable biases against areas where knowledge, understanding and confidence are lower. Systems, policies and procedures must therefore be in place to safeguard against this. We suggest creating a comprehensive set of Test Case Studies that can be used to assess the capability of the organisation to make effective whole system decisions. For example, one such challenge would be making a robust decisions on whether high pressure hydrogen pipelines or offshore or onshore electricity transmission represent the optimal solution for UK plc and/or the local regions being considered.



Q5. Do you agree with our proposal for a single, neutral expert entity to take on a central market facilitation role? If not, why not?

Q6. Do you agree with the allocation of roles and responsibilities set out in Table 2? If not, why not?

Q7. Are there other activities that are not listed in Table 2 that should be allocated to the market facilitator or other actors?

Q8. What are your views on our options for allocating the market facilitator role?

Q9. Are there other options for allocating the market facilitator role you think we should consider? If so, what advantages do they offer relative the options presented?

Our combined response to Q5-9

With the focus of flexibility services on the electricity network, other organisations, including our electricity network colleagues are much better placed to respond to these questions. We would note however that we are broadly supportive of the proposals which seem sensible and pragmatic. We have not identified any major issues or concerns with the proposals.

One observation we would like to share is on the interaction with the DSO. As we understand it the FSO would be procuring services that the DSO would then dispatch. It wasn't entirely clear how the DSOs requirements were fed into the procurement processes to ensure the FSO delivered services the DSO would value and utilise. This should be done in the design of the services, and with feedback from the effectiveness of services previously procured.

Q10. Do you agree that DNOs should retain responsibility for real time operations? If not, why not?

Yes, we support the retention of the DNO as the real time network operator. We believe the future of an effective efficient energy system will be with huge levels of decentralised production, energy storage and flexible demand. Whilst managing this high level of impacting parties will be a significant undertaking for a local system operator, we do not believe it is feasible or desirable for the organisation accountable for national strategic system operation, to also undertake a local role.

We would note however that the need for a national system operator in electricity in part is driven by the requirement for second-by-second frequency control which impacts the whole electricity system. This is not the case for the gas network where there is greater scope to manage and balance local networks independently. Whilst this is not the position currently for the gas networks, should the gas network be repurposed for hydrogen, the early stage of the transition is likely to require discrete independent networks operating regionally. These could merge longer term into a single national system, but there may be a stronger case to retain regional markets and operation. At this stage, all future options must be kept open.

Q11. What is your view on our proposed approach to the undertaking of an impact assessment as outlined in Appendix 1?

Given that the articulation of the impact assessment approach is high-level and as the proposed models are also high-level, it is very difficult to provide a detailed view. This will be much easier when a more detailed design is available. However,

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5000419 (01/13)

Page 6 of 9



we do have a set of initial views on key principles of the approach to be taken. We would be happy to engage further with Ofgem as they develop their approach.

Firstly, as the RSPs and Market facilitator roles are each being considered to solve different issues and drive specific benefits, Ofgem should segment any impact analysis between the two proposed reforms. Given thoughts set out in the consultation are more mature on the latter we would suggest Ofgem focus on progressing its impact assessment of the Market Facilitator role and instead seek to define RSP roles in more detail as currently it is unclear how they would be assessed given the level of detail described.

Secondly, as the reforms set out in the consultation are enablers of changes to bring about net zero, it is likely that the indirect benefits they will generate may be significant, and outweigh direct benefits (e.g. through enabling a faster, more coordinated energy transition). To ensure these benefits are sufficiently captured we would suggest Ofgem consider taking a 'decremental' approach in determining the precise methodology to apply – i.e. asking without these reforms whether current arrangements can achieve net zero objectives in the counterfactual, and if not attributing this as the indirect benefits of the reforms.

Thirdly, the consultation suggests Ofgem will leverage pre-existing analysis of benefits quantified to estimate benefits of the reforms. Should this be the case, there needs to be a clear understanding of underpinning assumptions on institutional structures inherent in these analyses to appropriately estimate the incremental benefits (or not) to these reforms. In addition, it is important that Ofgem takes a wide scope to the impact assessment, both in:

- (i) *time*: using a long time frame is used to assess impacts given the intent of reforms; and
- (ii) *'catchment' of benefits/costs*: ensuring all impact pathways are assessed, irrespective of whether they have been analysed in pre-existing work.

Q12. What is your view on the most appropriate measure of benefits against the counterfactual?

Precise detail needs to be set out on the assumed institutional arrangements as of today to be included in the counterfactual assessment. Importantly this should also include information on whether and how net zero objectives could be met under existing structures, or not. This can then form the basis for quantifying the benefits of each of the sets of reforms (particularly under a decremental approach). The detailed articulation of the counterfactual also needs to go beyond just considering electricity-based issues as the energy planning reforms in this consultation have impacts on cross-vector performance to reach net zero. For example, it should consider how current arrangements could manage different types of heat policy role outs following the Government direction on heat (e.g. further electrification, hydrogen roll-out, centralised, decentralised etc).

Q13. How should we attribute these benefits between the governance changes in the proposed option, and other changes required to achieve the benefits? We particularly welcome analysis from bodies that have undertaken an assessment of benefits, specifically how those benefits might be attributed to different policy reforms that are required to achieve those benefits.

When apportioning indirect benefits an assessment can be made of what would happen if these reforms were not put in place and an apportionment made on this basis. For example, If not implementing them would slow down the transition you



could assess the value of delivering wider net zero goals, but at a delayed pace and then use the difference as an estimate of benefits of the reforms.

Many Government departments have dealt with similar issues when establishing new markets and reforming existing sectors. For example, most recently in the UK Space sector to develop the market in small satellite launch capabilities, and in rail as part of the Williams-Shapps review of alternative industry structures. We encourage Ofgem to engage with Government Departments where similar issues in impact assessment have arisen (e.g. DBT/DfT) to leverage experience and employ consistent and tried and tested approaches.

Q14. What additional costs might arise from our governance proposals? We welcome views both on the activities that may arise and cause additional costs to be incurred, as well as the best way to estimate the size of the costs associated with those activities.

As the largest gas distribution business delivering energy to homes and businesses in the UK, we are keen to play a key role in designing, developing, and implementing the new Regional System Planning arrangements. We would want to ensure we had scoped all the impacts on our business in terms of one off and enduring costs for resources and systems required to establish the new RSPs as well as the FSO itself. There is very little detail on the role of the gas networks at this stage and we are keen to support Ofgem in developing the requirements further

Until there is detailed design of the RSP function, with clear scope, roles, responsibilities, liabilities as well as the outputs and deliverables, we cannot assess the impact in detail at this stage. We note that in the recent RIIO-ED2 proposals significant resources were identified and funded by Ofgem for the Electricity Distribution Network Operators to develop regional plans (for example in UKPN's business plan). Given the need for whole system plans across vectors, we would envisage that a similar scale of regional planning resource will be needed in the gas distribution networks and indeed this may be even greater given the likely need to be considering natural gas and hydrogen requirements simultaneously

We therefore propose the next stage of detailed design, a small number of case studies are identified so we can start to consider and estimate the impact, and any constraints we may have on delivery timelines. We are investigating whether we can partner with a Distribution Network Operator to develop such an example.

Q15. What additional costs may arise from sharing functions with several interacting organisations? We welcome views on set up cost, lost synergies, and implementation barriers.

There will be extra costs to ensure coordination between actors and additional set up costs for multiple organisations. There could potentially be duplication of resource and implementation would be longer to develop several organisations.

Without further detail and a greater articulation of the regional system planning process required, it is very difficult to comment at this stage. We believe this could be effectively considered as part of the next stage of more detailed design.

Note: Annex 2 below

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Annex 2

Further comments not directly related to the consultation questions

A further point for consideration, which is likely to be fundamental to the effectiveness of Regional Planning, is the question of: 'Who Pays'? We support the high-level proposal to establish RSPs and that these will provide the channels for Local Authorities to feed in their requirements. It is unclear however what legal duty the RSP will have to take account of the LAs requirements. If the RSPs are obligated to meet the LAs stated needs, then there is a high risk of inefficient or even stranded investments, unless there are consequences in some shape or form on the Local Authority. Without this, there is little at risk from over or optimistically specifying the local needs. One way of addressing this would be to make the LA liable for an appropriate share of the stranding risk such that the burden is not left solely with the networks customers from decisions taken by the Local Authority. Such a liability could help drive the right behaviours.

There is a similar issue with customer charging when considering consumer protection and 'Who Pays'. If a Local Authority defines a requirement to achieve net zero 10 years earlier than the UK target of 2050, the charging methodologies must ensure that all acceleration costs are born by the region that has taken that decision. For example, it would not be appropriate or drive the right behaviours if a decision by a regional body in one local authority resulted in consumers in other cities in the same distribution network paying higher energy bills.

In summary, if there is a legal duty for the RSP to recognise a Local Authorities' requirements, then network charges and asset liabilities must be cost reflective to drive the right behaviours.

In Section 4 – Market Facilitation of Flexibility Resources, it is stated in 4.8 that cross-vector flexibility is not at a meaningful scale at present. We would note that there are current large interactions given the significant levels of power system flexibility provided by the gas network. The lack of visibility of this may be caused by the requirement of the regulated networks to charge cost reflectively. As gas system flexibility is largely a 'free' feature of a large methane gas system, it is very hard to identify a specific cost and therefore a charge.

However, if the requirement to be cost reflective was removed, the market would drive a commercial charge for gas flex that broadly aligns with the cost of the next best option – which would be far from free. Whilst we are not advocating removal of the duty to level cost reflective charges at this time, the role of the gas network in providing cheap flexibility must not be underestimated. It is worth noting that the cost of designing flexibility into a new hydrogen system, will be much more obvious and separable and therefore likely to be charged directly to those requiring the service.

With regard to the potential interaction between electricity and gas network operation, it is noted in 5.8 that GDNs and DNOs would be expected to share operational insights to support effective planning. It would be helpful if further work is done to clarify the scope to share operational insights between GDNs and DNOs as well as between the distribution networks, the FSO and the RSPs.