

Ofgem call for input: Future of local energy institutions and governance
Response from Project Local Energy Oxfordshire ([Project LEO](#))

The following response is on behalf of Project LEO, a consortium implementing a nationally significant demonstrator project addressing how to accelerate the UK's transition to a zero-carbon energy system, through smart local energy systems.

The LEO (Local Energy Oxfordshire) Project is submitting a response to this consultation with collaborative input from Oxford City and County Councils, SSEN, University of Oxford, Oxford Brookes University and The Low Carbon Hub.

Firstly we welcome the consultation and agree that governance needs to change to realise the potential for local, fair, low carbon transformation of the energy system and putting into the context of being a crucial element of the overall National Transformation we need to get to a net zero energy system.

As the LEO consortium has become embedded, and a common shared language has been an ongoing output from the project which involves those for whom energy is not their primary business, we would have some opening points that are not covered by the questions. Some time needs to be spent defining terms more clearly through stakeholder workshops, eg. region, local, least cost, accountability, value, consumer. Even 'market' is a term that would merit discussion, along with discussion of 'market failures' that the institutional architecture will need to be equipped to address.

We note that P2P services not being covered and the need to design the local institutions and governance taking the potential importance of those into account, and they are the ones that will generally be closest to the point of connection. We would welcome further understanding of Ofgem approach to this in future consultations and/or addressing it in workshop discussions.

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? (See p9 onwards of consultation document)*

We agree these three energy system functions, plus with digitalisation as an enabling function are the right energy system functions to focus on at a high-level. However, while the functions are fine at a high-level, the next layer of detail in terms of definition, scope and interactions is unclear especially given the broader context of the Call for Input.

Energy System Planning - Our local authority partners in Project LEO have stressed the need for a supportive planning framework and strong policy context to enable them to develop strong local plans and policy for smart local energy systems. Supportive governance also drives pro flexibility decision making amongst businesses and householders. For example, we have found in Project LEO that a supportive policy and regulatory context is critical in communicating the sense that investment in smart technologies is futureproofing the home, business or organisation. Net Zero policy (enshrined in regulation) gives confidence that these changes are coming to all and that being a first mover will not lead to stranded assets and wasted resources.

Project LEO has identified the potential of LAEP to scale up or down according to need and therefore could give integration right through the energy system scales that would enable variable local governance architecture to emerge at need according to different geographic, administrative and socio-economic contexts.

DER level	Distribution network level	Democratic level
	DNO area, eg SEPD	National
Utility scale DERs	Bulk Supply Point/Grid Supply Point	Upper tier: Counties Metropolitan Counties London Boroughs Unitaries
Large scale DERs	Primary substation	Lower tier: Districts Metropolitan districts
Small scale DERs	Secondary substation	Lowest tier: Parish Councils Town Councils Parish Meetings (<200 voters) Ward councillors
Behind the meter DERs	Feeders MPANs	Voters

The critical importance of energy efficiency (as well as demand flexibility) has also been repeatedly emphasized by Project LEO partners. Well controlled energy efficient systems are a pre-requisite for successful delivery of net zero and flexibility making everything else easier to achieve. Yet this domain is often not adequately resourced or incorporated into system planning. Therefore, we find that policy should not be predicated solely on high-demand scenarios. Government has a crucial role to play with policy for investment on the demand side (building efficiency, active mobility etc) and integration of energy planning with land-use planning for coordinated infrastructure

For the purposes of this consultation, an emphasis on demand reduction and efficiency in system planning means that new actors must understand the techno-economic opportunities and social dimensions of building retrofit.

Through Project LEO, we further note that local networks cannot operate in isolation from the transmission network. Through the experience of developing our DSO systems (the “Whole System Coordinator” and “Neutral Market Facilitator” platforms we find there are opportunities to develop systems which coordinate ESO and DSO. New governance should ensure that DSO actors have this capability.

In project LEO, we are trialling the capabilities of a local area energy mapping approach (called LEMAP) that can provide spatial intelligence to DNOs for energy system planning, but also help in engagement with local energy project developers, local community groups and residents. LEMAP provides a coordinated energy planning approach for local areas, combining technical aspects of energy system planning along with engagement with local stakeholders. It adopts a spatio-temporal approach for planning smart local energy initiatives while engaging community groups and residents. (See: Gupta, R, Jimenez-Moreno, P, Donastorg-Sosa, A and Devine-Wright P (2021) Spatio-temporal mapping of local areas for engaging communities in the planning of smart local energy initiatives, Proceedings of ECEEE 2021 summer study (virtual), 6-11 June 2021)

Market facilitation of flexible resources. Our first comment would be around baselining. How do you verify that a flex event has been delivered? Baselining is non-trivial for many users, and exceptionally challenging for complex users. If we want to be effective in the use of capital, then we need to engage assets at the household level. Applying scales to Oxfordshire demonstrates how big the combination of small things is at the sub-secondary scale. We would add that we need to engage the people as well and so institutional architecture needs to be designed to enable that, or

to empower other actors to do it and have the access to propose new solutions and new projects into the energy system. How do you co-ordinate large numbers of place-based flexible assets where the marginal value of the provider of each event is small. Incentivising low-margin benefit engagement will be key. i.e. an owner of a household battery or EV. The markets also have to deal with temporal uncertainty over different timescales. Half-hourly markets may be insufficient, and there is a question as to whether the second and third system functions suggested should be integrated.

We also note that there is only a single reference to energy equity in the proposals here (a need for 'fair' rules is identified). But as access to DERs and the knowledge of how to benefit from them becomes more and more important for system participation (including technical, ICT and legal know-how) - including via local markets for flexibility, there is the prospect of many people and organisations being left behind. This needs to be addressed at the outset; local authorities and NGOs are well-placed to inform policy here and to take action, if adequately resourced. New governance arrangements need to ensure that principles of fair transition are built into organisational DNA. We would add that the institutional architecture needs to enable, even incentivise, 'learning by doing' in real places with real people and real kit where BAU teams can work with innovation teams to explore new ways of working and so be in a position to both 'fail fast' what doesn't work but also 'deploy fast' what does.

Real time response. There is the need to consider communication delay, perhaps overcome by decentralised approach. But must consider what signals are necessary to act on and the reliability of those. We would suggest that Real time operation of local energy networks becomes Real time operation of local energy systems: We think replacing 'network' with 'system' better reflects the broader nature of the function. This includes efficient dispatch of flexible resources as well as operation of the 'wires' through activities such as fault and outage management, and routine end of life asset replacement activities. There is also a very important need to understand when real time operation is required, and how it could be phased-in across networks in an efficient manner.

2. Do you agree with the criteria we have set out for assessing the effectiveness of institutional and governance arrangements? *(See p16 onwards of consultation document)*

The criteria outlined are useful as a starting point, but the list needs to be more specific to the challenges faced at a local level. Further the criteria appear only qualitative and it will be essential that a robust quantitative cost benefit analysis is undertaken on potential new governance and institutional arrangements. We are concerned about the use of the term 'least cost' throughout the paper. We agree that any analysis needs to focus on benefit very clearly too. For a national transformation of the sort these institutional arrangements will need to support, we would prefer to think about appropriate cost, or to define the benefit required and then derive the cost.

LEO consists of a wide consortium and we would like a clear definition of the terms and this could perhaps be addressed in discussion through the workshops. So, in new governance arrangements what accountability do we need to whom, for what, and by whom? We note that the paper makes reference to democratic accountability throughout but isn't clear about why that is important or how it could be achieved; we think it is fundamentally important to give legitimacy to the institutional architecture that we need to govern the magnitude of the national transformation required. In addition, the arrangements, and the decision-making processes need to be transparent and visible to stakeholders.

We would also ask that Ofgem makes explicit reference to security of supply in the 'Accountability' criteria. Testing the clarity of roles and responsibilities must include a reasoned assessment on whether customers are likely to face detriment to the level of service currently experience on interruptions and minutes lost because of any change.

To further expand on the criteria, with accountability we need a clear definition of the term and may find that there are multiple accountabilities that need to be properly balanced across DNOs, Local Government and Ofgem.

Credibility is about the extent to which someone is trusted to do something. We would like a common acknowledgement that voters and the general population have little trust in energy suppliers or the energy system. Can this be reversed satisfactorily if a key underlying criterion is 'least cost'?

Competence is about the skills and knowledge to take action. Our activities in Project LEO have revealed a general lack of skills available to achieve reliable competency, whether within DNOs, or contractors, or local authorities, or building managers. In terms of doing new things, Project LEO has identified a clear gap in terms of the technical skills required to make DERs capable of delivering flex services, and in the data and comms skills required to develop a real-time balanced energy system. This is not to criticise anyone, the issue is both wide and deep, but does need addressing in ways that are not just about the institutional architecture.

Coordination needs a careful articulation between the realities of the energy system geography and administrative and socio-economic geographies, so the institutional architecture will need to allow different geometries and scales to emerge in different localities

Simplicity is the criterion LEO is most sceptical about given that it can morph readily into a desire for ease of implementation. We think the solution we need will be a complex (rather than complicated) but elegant articulation between the energy system and the local governance system.

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? *(See p18 onwards of consultation document)*

Energy system planning: Ofgem broadly define the challenges as: (i) competence - skills gaps in local authorities; (ii) credibility - perceived conflicts of interest in decision making by DNOs; (iii) accountabilities and coordination - limited democratic accountability for strategic whole system coordination on large scale net zero delivery.

We agree with (i) and (iii) in the round. Significant progress has been made by DNOs working with local authorities and devolved government to standardised approaches to coordinate local energy planning. There are however limits to the capacity and capability of local authorities to engage, coupled with a lack of local energy and transport strategic coordinators to fulfil a role which goes beyond that of DNO/DSOs. Many local authorities have a high willingness to engage with the energy transition, but there is no consistency in aspiration level or financial backing to implement. We often find a common barrier exists in that capacity and capabilities of local authorities to participate in detailed examination of need in their areas is limited, which is unsurprising given that they have no mandate to play this role. We believe that coordination and cooperation across electricity and gas networks, as well as Local Authorities and all other players in the energy sector, will be fundamental to achieving Net Zero. As recognised in the Smart Systems and Flexibility Plan, coordination across markets will be critical to operating an efficient zero carbon system. LEO notes that flex services are geographically bound and so the interaction is one customer to many providers (a monopsony)

rather than a free market where many customers and many providers compete. We don't think that the ability of providers to stack revenue across different customers amounts to a true market

We disagree with (ii). It is correct to say that DNOs face choices between asset solutions and DERs; and there is a perceived risk they favour asset solutions they deliver. However, the design of the price control framework provides important mitigations on any incentive for DNOs to favour their own solutions. Importantly the use of TOTEX incentives provides a crucial mitigant to any DNO incentive to favour asset solutions over DERs.

Real time operation of local energy networks: Ofgem define three perceived challenges: (i) competence – DNOs will require significant investment in skills and resources to integrate complex software systems of multiple parties (e.g. aggregators); (ii) Credibility – DNOs could be conflicted in performing efficient dispatch; and (iii) Coordination – risk of inefficient or conflicting market signals from the ESO and DSOs.

We agree with (i), but believe the onus sits with Ofgem to ensure sufficient investment is allowed by DNOs, rather than this being an institutional or governance issue. On (ii) and (iii) we believe the issue here will only arise because of a failure of regulation and licence requirements rather than a failure of institutional arrangements and would like to see change speeded up.

As part of LEO, SSEN is at the forefront of developing markets for DSO Procured and DSO Enabled Services, providing innovation market orchestration arrangements, developing close to real time forecasting strategies and demonstrating the skills required to facilitate these markets in the future.

LEO has found that DNOs are having to learn a new set of skills and capacities as they transition to DSO. These are primarily:

- Developing advanced data science and data analytics capabilities
- Understanding energy markets and how to facilitate them.

Facilitating markets for flexibility at the local level in particular requires skills and capabilities that are new and outside the historic scope of a DNO but can be developed through projects. Through LEO there are perceived conflicts of interest that could arise, where a DNO is implementing market rules for procuring flexibility from third parties which deliver services which could also be provided, via reinforcement. Mechanisms such as TOTEX are highly complex, and specific to regulated industries so these perceptions persist, although through close collaboration and knowledge exchange overall understanding is increasing creating an extremely well informed community of people in Oxfordshire.

LEO welcomes the significant reference to the role for local authorities in energy planning. Ofgem note that local government institutions have 'a democratic mandate to carry out energy planning'. However, we suggest that the current level of local authority engagement in energy planning is overestimated.

- The majority of local planning authorities include policies on energy use and renewable generation in the Local Plans and will engage directly with DNOs and GDNs to complete infrastructure delivery plans for new developments.
- In addition, LAs may provide data on planned housing growth to the local DNOs to feed into distribution level future energy scenarios.

- beyond that, our understanding is that direct engagement with energy systems planning is limited to a small number of local authorities formally doing LAEPs - and those that do are primarily doing so through involvement in innovation projects with the benefit of additional funding.

We suggest that the local authority engagement with energy systems planning cannot be assumed and a clear mandate to do so - set out with identified roles, responsibilities and governance to take it forward - is needed to begin to address resourcing and skills gaps correctly identified by Ofgem. The appropriate 'level' for doing this needs to be considered in two tier authorities and resourced accordingly.

We also want to emphasise the importance of people and place in local energy planning – with emphasis here on 'local' and recognising the diversity of communities and the energy challenges they face even within a local authority area. Whilst the local authority can provide a strategic view, communities will play a key role in the energy transition and need to be involved in the decisions that guide and enable it. With this in mind, the role of neighbourhood planning should be recognised and fully supported, with local authorities resourced and enabled to support energy planning at this scale. This includes a mandate for local authorities to engage fully with residents and businesses, with training programmes and resourcing available to support this additional role.

4. Overall, what do you consider the biggest blocker to the realisation of effective energy system planning and operation at sub-national level? *(See p18 onwards of consultation document)*

Project LEO finds that planning an energy system achieving net zero goals in a fair way and with support of all relevant stakeholders requires highly granular understanding of the low voltage network – both technical dimensions and the socio-economic characteristics, priorities and capabilities of the households, businesses and other organisations connected at the grid edge. We also find that existing governance arrangements are a clear barrier to this kind of system planning.

At present technical knowledge of the distribution system is held within the DNO whilst knowledge of the needs, characteristics and development goals of neighbourhoods is held within local authorities. We have also found that sharing energy system information between DNO and LAs is largely confined to infrastructure planning for new developments and that the right sort of governance that facilitates planning a path to net zero in **existing** neighbourhoods is absent.

The needed actor would have the capacity to integrate deep technical knowledge of grid operation both now and in the future with understanding of the social, economic and technical capability of a neighbourhood to progress down a net zero path. For plans to be actionable and supported they must also nest hyperlocal (secondary substation level) analysis within larger geographies. It is also critical that plans are developed with inputs from the local community and that the co-development process is ethical and inclusive.

The Local Area Planning Process recognises and attempts to address many of these issues and LEO is testing some LAEP approaches as well as developing tools (such as LEMAP) that are designed to integrate with the LAEP framework. Our experience thus far is highly supportive of LAEP and we recognise Ofgem's desire to put in place governance that would create an actor with a clear role to deliver LAEPs across UK.

The community energy sector remains unsupported by current policy and governance despite evidence of the social and economic benefits (see recommendations of environmental audit committee.) New governance arrangements should be supportive of community energy in order to grow this potentially important source of net zero energy projects. BEIS has now reconstituted the dormant Community Energy Contact Group with one of the Project LEO partners invited to join. Over the 12 years since the introduction of the Feed-in Tariff, the community energy sector has grown to a scale where it can reliably produce community benefit profits that could make a significant contribution to producing 'hyper-local' LAEPs and to developing projects and new business models suggested by them.

To help with energy system planning in neighbourhoods in a smart and fair manner, LEMAP tool in Project LEO is trialling an approach that aims to bring together public, private and crowd-sourced data on energy demand, energy resources, building attributes, socio-demographics, fuel poverty and electricity networks within the ESRI ArcGIS platform. The socio-temporal tool has been organised around technical and engagement elements to enable local area energy planning in a fair and inclusive manner. The tool is being trialled in two Smart and Fair Neighbourhood projects, one at the secondary substation level and one at the primary substation area level. These two neighbourhoods in Oxfordshire – Rose Hill (approx. 2,500 households) and Eynsham (over 5000 households) are aiming to adopt local roadmaps to achieve net zero.

Energy planning tools such as LEMAP can also be combined with domestic energy mapping tools such as DECoRuM that are increasingly being used for area-based targeting of energy efficiency measures at property-level. This will ensure energy planning combines energy flexibility with energy efficiency. (See: Gupta, R. and Gregg, M (2020) Domestic energy mapping to enable area-based whole house retrofits, *Energy and Buildings*. 229, 110514, DOI: <https://doi.org/10.1016/j.enbuild.2020.110514>)

For energy system planning –

- Communication - Achieving Net Zero requires improved, two-way engagement between the DNO and multiple (non-technical) actors, including households, businesses and local authorities. This needs to be done clearly, proactively, quickly, in plain language and with clear, consistent advice about costs and timescales. In the absence of this, accelerating the transition to Net Zero at the lowest possible cost, will be extremely challenging, given the scale of electrification, the impact of delays and budget increases, and need to find innovative solutions to minimise the need for costly grid upgrades.
- For the councils there is resourcing (staff time and costs), lack of relevant skills (as no clear mandate for detailed energy planning) and therefore lack of engagement with DNO to bring forward local area energy plans.
- Planning time frames for DNOs and local authorities are very different - Local plan cycle takes time to complete and looks out over longer term; DNO investment and long term planning looks out only over 5 years.
- Availability of network data / constraints eg to enable connections for projects, is being improved through a number of current projects (including the energy mapping work being done in LEO, NERDA, RESOP and the recently launched SSEN connections tool), however, need to ensure that the new approaches are linked through to business as usual, eg to the connections process.
- Clarity needs to be provided to stakeholders about the reasons behind connection decisions, to enable innovative solutions. This includes a clear cost breakdown of the physical works

required for upgrades and why these works are necessary, setting out ways in which reinforcement could be avoided (e.g. through flexible, innovative solutions).

- Support should be provided to Local Authorities to strategically plan for energy infrastructure. This requires sharing data regarding grid constraints, to enable changes to the phasing and locations of projects to minimise impact/ need for reinforcement.
- Data should be provided to stakeholders setting how much connection capacity might be available for a project from the outset and proactively recommend ways in which the capacity could be reduced (e.g. P2P trading, better insulation etc.) including funding sources and guidance for delivery of the additional measures.

Participation in flexibility markets –

- Whilst local authorities (along with local communities and businesses) have the potential to contribute (significantly) to a local flexibility market, the practicalities of doing so are challenging (metering, BMS not set up for this purpose, etc). Operation of a future local flexibility market needs to offer appropriate support to enable wider participation

The DNO is extensively developing its capabilities as a DSO to further unlock the significant value potential at a local level. To date the greatest need for coordination has been on the higher voltages of distribution grids (e.g. 33kV and above) where because of the penetration of DER the resultant local network constraint impacts have been greatest. Extending system coordination to lower voltages (e.g. 11kV and below) to enable the huge value potential from technologies like vehicle-to-grid is a challenge of significantly greater magnitude than higher distribution voltages. With the significant expected volume and widespread coverage of electric vehicles, all parts of the lower voltage network will be potentially impacted, compared to only localised constrained areas for higher voltage levels. Similar challenges will also be true for heat electrification. To scale the DNO's ability to deliver system coordination the biggest potential barriers to face include:

- The potential for a lack of agile regulatory allowances and incentives
- Continued policy uncertainty on institutional arrangements and potential fragmentation of DSO governance arrangements
- Limited capacity and capability of local authorities to engage and lack of democratically appointed local energy and transport strategic coordinators
- Limited and/or conflicting incentives on the wider value chain participants (e.g., not price control regulated entities) to coordinate on the achievement of common goals

5. Do you agree with the opportunities of change we outline and the potential benefits they may create? *(See bottom of p25 onwards of consultation document)*

LEO notes that the geography of the network and therefore the geography of network constraints does not correspond to political geography – a DNO will manage a network that straddles local authority areas and a constraint at higher voltage point in the network such as a primary substation or a bulk supply point serving hundreds of thousands of end users may affect system users in different local authority districts or even Counties. Also, constraints can occur at all voltage levels from the Bulk supply point level down to low voltage secondary substation level. So, tackling some types of network constraint can be achieved working at the Bulk Supply Point level but the approach to do so will differ to that needed for working at lower voltage levels. Clearly, the approaches developed under the LAEP framework are less relevant to BSP constraint mitigation - at BSP level the socio-economic and technical characteristics of a neighbourhood or “place” are not a significant consideration. However, at secondary substation level “place” is clearly critical.

Also, from the perspective of a local authority or community energy group trying to galvanise local community support for an innovative energy project, “place” is important in creating social factors which influence how the project is received, such as levels of trust in external agencies, or community identity.

Therefore, we find that governance for networks needs to create actors that are skilled in developing strategies and plans that are appropriate at all levels of the network and which can coordinate information, expertise and data from multiple local authorities as appropriate. This suggests a regional approach to coordinating and nesting local area energy plans could be appropriate.

LEO also finds that the DNO should be involved in planning net zero projects from as early in the planning process as possible and that the LAEP process with its emphasis on inclusion of all relevant stakeholders at the right moment in the plan development helps with this. For example, the Local Area Energy Plan approach with DNO involvement from the outset, would help remove the possibility of projects having connection or capacity requests refused late in the development process. LAEPs should also ensure that the best solutions are designed into the project from the outset. But critical to this approach is the availability of key datasets – e.g. information about network constraints and available capacity on specific parts of the network.

LEO has found that that involvement of locally embedded individuals, groups and organisations is critical to development of workable, supported and fair local area energy plans. Also, that experts are needed to help communities to use planning tools and to develop the projects. Also, to help with sourcing funding, provide technical support and accessing other skills and resources needed (e.g. project management and finance skills). Therefore, new governance should create an actor with capabilities for working with communities in this way. The role will require deep understanding of the technical and socio-economic characteristics of a place and the development of long term trusted relationships between the community and the external party. To be credible and trusted the actor must be seen to have a presence and a stake in the development of the neighbourhood. At present, energy system governance does not create actors with these capabilities – able to work in hyperlocal way over the long term. There needs to be support for long-term governance and evolution of LAEPs.

LEO is trialling that local area energy planning approaches can be co-created in an engaging and inclusive manner. As part of LEMAP trial in Rose Hill, a community energy group, social enterprise and local authority in Oxfordshire were trained to use LEMAP to plan for energy management at neighbourhood level.

The trial and feedback from the user groups is underway looking at possible improvements before being scaled up to the county level and rolled out to other communities for planning and delivering new initiatives. Geospatial mapping tools such as LEMAP can help District Network Operators (DNOs) to overlay network constrained areas with areas that have the potential for deploying distributed energy resources to support local grid balancing.

- We welcome the recognition that ‘no one size fits all’ and the importance of local drivers. The Local Authority will have key role here in defining and identifying these and the key stakeholders that need to be included in the energy system planning functions.
- This offers opportunity to consider and identify appropriate roles, responsibilities, and governance for local energy planning – in consultation with key players in the local energy system.

- Availability of DNO energy planning support is needed from the outset to enable the engagement and two way flow of information needed to support local area energy planning but the question arises will the funding asked for as part of ED2 meet the need?

We agree the functional synergies described albeit defined at a very high- level, and their benefits are those that need to be maximised; but we note that these are all functional synergies that are being delivered today, and are striving to continue to maximise within the current institutional and governance framework. There are strong incentives and licence conditions for DNOs in place today to drive these functional synergies and we believe there are better and more efficient options available to Ofgem and/or BEIS, other than full reform of institutional and governance arrangements suggested by this Call for Input, which would unlock full value from these synergies and overcome the barriers

6. Are there additional opportunities for change and benefits that we have not set out? *(See bottom of p25 onwards of consultation document)*

The benefits of Smart Local Energy Plans are that LAEPs as an opportunity to bring together all relevant stakeholders to tackle fuel poverty and other social and economic development goals for a community. LAEPs are also an opportunity for increasing economic activity in an area and can be used in business planning. Those facilitating the LAEP should also have the skills and networks to interface with the finance community and the local business community. These are skills that are often found in local authorities.

Although at the very beginning of learning about Peer2Peer flex services, Project LEO finds that their potential to unlock new ways of working locally is likely to be of importance in developing smart local energy systems. We would like this consultation to have addressed them explicitly and would suggest that future local energy institutions and governance should be developed bearing in mind their potential.

We also need to consider energy efficiency and the role actors other than local authorities can play in this to enable wide uptake of retrofit incentives in constrained network areas.

There are synergies in planning with other whole system vectors, such as transport, that have not been outlined and are important to capture as areas for maximisation. It is critical a whole system approach is taken to planning and synergies are maximised with on the deployment of electric vehicle charge points and heat electrification. Further, synergies across energy system vectors (e.g. electricity and gas) need to be called out more clearly.

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? *(See bottom of p25 onwards of consultation document)*

Any changes to institutional or governance arrangements entails significant costs, including one-off and on-going costs, as well as losses of synergies from operating the DNO and DSO separately. Further the significant difficulties, time and resources required for both for companies and the regulator, would also interfere with achieving net zero. We agree with Ofgem's high-level listing of some of the risks of change identified in the Call for Input, including impacts on delivery of net zero, the impacts of significant change potentially required through industry (e.g., introduction of new codes), one off and ongoing cost implications of change, and the loss of operational synergies.

The risks of not acting quickly enough need explicitly to balance the risks of acting at all. In this regard, it may be valuable for the stakeholder workshops to include a facilitated 'back-casting' session that attempts to describe the energy system of the future and the institutions and governance it would require, ie what the benefits are of transitioning. The question could then be asked what the institutional and governance route map would then need to be to get from here to there, and what costs would be required to achieve those benefits.

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? *(See p31 onwards of consultation document)*

Comments on the models as follows

- Models 1 and 2 assumes all DSO functions sit with one organisation and that there is consistent and clear coordination with other parties. This is essential in any model taken forward and needs the associated lines of communication, governance and accountability in place to succeed.
- Equally important is the 2 way flow of information between local authorities and other actors – this is only set out in model 4.

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. *(See p31 onwards of consultation document)*

Frameworks. We find there are some serious flaws with each of the models in isolation, however we can see strength in combining several of the frameworks proposed into a three-tier model.

Firstly, we believe that maximum responsibility must be given to the group which has maximum agency in specific energy vector. This implies that the DNO and DSO are kept as the same organisation as they need to maintain and efficiently operate the infrastructure. Similarly for gas and heat networks.

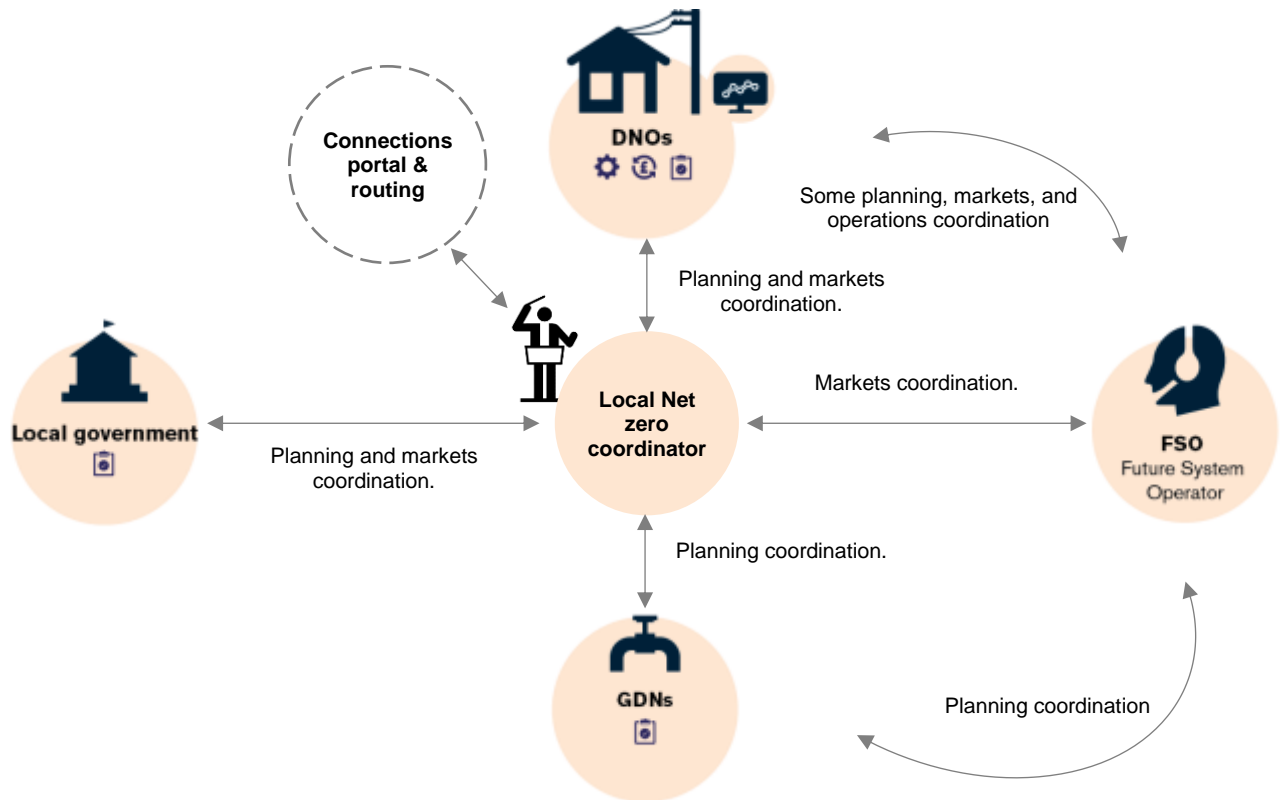
Secondly, however, as the system changes, there will be increased interactions across the different vectors. Therefore, a regional system planner (not operator) would be required to ensure the long-term plan is appropriate (technically) and just (socially) for the region. When there is conflict between groups this body must have authority to resolve those conflicts. The regional system planner must plan, co-ordinate and enforce the long-term plans of all energy vectors including the energy, gas and heat networks. They will need to work in close conjunction with local authorities to ensure that the energy transition is just.

Thirdly, above the regional system planners, there will need to be a national co-ordinating body (ESO, FSO, ISO) to balance national and regional energy requirements. They would also have responsibility for long-term national planning.

To emphasise, the details need to ensure that the agency is placed at the right organisation.

It is vitally important we consider the blockers to the realisation of effective energy system planning and operation at sub-national level. It requires industry collectively to coordinate together to overcome challenges and blockers. This means it is important we evolve the status quo model in a balanced and sensible way which protects consumers from excessive cost and lost synergies. Below

we propose an alternative model. This is a variation on model one, but which leverages key features from other models and focuses on the most critical barriers.



We think there is merit in formalising the process and methodology for Local Area Energy Planning (LAEP) in England and Wales into a new Local Net Zero Coordinator (LNZC) organisation. These publicly funded not for profit bodies would be formed based on the Local Enterprise Partnership (LEP) regions in England and Wales. They would have accountability for delivering the local net zero plan and change control. They would undertake cross vector coordination in planning and markets, including administering an online connections portal routing service that acts as a standardised for local market participants on network connections and energy market participation. They would be accountable for producing local scenarios used by DNOs and GDNs, as well as inputting into business plans as a stakeholder, including representation on the Customer Engagement Groups and any DSO incentive stakeholder panels.

DNOs and the ESO would provide a mixture of full and part time seconded resources to support full time LNZN staff on coordination activity and the DSO Director of the local DNO would be appointed as a special advisor to the LNZN board but without voting rights to preserve independence.

Only one of the four Framework Model Options shown in the call for Input (Model 4) shows a two-way relationship of coordination between local authorities and other electricity system institutions with the relationship in the other three models being one of local authorities informing network planning. A two way flow of information is needed to ensure that local energy planning is owned / acted on / monitored / and reviewed at regular intervals.

Alongside this, these diagrams need to be overlain on administrative boundaries of local government to understand how to turn any of them into a complex but elegant solution that properly articulates the development planning, service planning and local net zero leadership with energy network development and operation.

Whatever the agreed institutional architecture is, it needs proper funding and resourcing to be effective.

10. What do you consider to be the biggest implementation challenges we should focus on mitigating? *(See p31 onwards of consultation document)*

- Setting up appropriate governance with clearly defined roles and responsibilities – including very clear channels of communication between the different organisations
- Ensuring open data available to support LAEP (LEO – and RESOP - is doing this through the mapping tools)
- Ensuring mandate for local authorities to participate in energy system planning is clear – required and resourced
- Resourcing for the DNO to take part in local level, as close as possible to the community
- the LAEP should not just be done at one scale but needs a ‘nested’ approach with communities being able to take part in exercises analogous to neighbourhood planning. Longterm resourcing and governance of these plans is also important so that they can take proper account of what will inevitably be a very fast-moving transition.

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)? *(See p31 onwards of consultation document)*

We welcome Ofgem’s decision to consult on this and their recognition that sub-national institutions and governance are going to be vital in reaching Net Zero. However, we need to drill down further than ‘sub-national’ level and focus strongly on what is happening at grid edge - the appropriate institutions and governance processes to enable Smart Local Energy System activity there while safeguarding citizens from potential harms and losses. So, in Table 1, ‘interacting organisations’ looks the most promising, with its stress on functional synergy and competencies, but does not go far enough in the direction of locality. Need to recognise the realities of substation management and the need to support and develop capability in local government and at grid edge. In Figure 1, local government is presented in terms of ‘system planning informs network planning’ - it needs to be emphasised that ‘system’ includes the built environment and non-energy infrastructures. So, the role of Local Government as housing, planning, and transport authorities need stressing as this has huge implications for the scale and timing of demand. This means:

- (a) making the most of demonstrable public support for renewables and climate action.
- (b) recognising that a great deal of this has already taken place bottom-up
- (c) putting in place governance and resources that connect national priorities with local action and support both.

Enabling net zero at lowest costs requires stakeholders to trust the decisions of the DSO. DSO is centred on being a neutral market facilitator, with fully transparent decision making.

12. 12.Are there other key changes taking place in the energy sector which we have not identified and should take account of? *(See p31 onwards of consultation document)*

We are very rapidly moving to a position where the general public expects to be able to take part in the transition by buying and installing DERs, offering flex services either individually or collectively, replacing cars/bikes with EV versions, and ideally also being able to buy renewable energy directly from local services. We find that this consultation still assumes a centralised ‘command and control’ mode of operation – we wonder how long that can hold. Our institutions need to evolve quickly to take account of these realities.

13. What do you consider to be the most important interactions which should drive our project timelines? *(See p43 onwards of consultation document)*

If this question is about the process of conducting the consultation, we would like to see this initial consultation response being used as a clear basis for the subject matter and design of stakeholder workshops. We think there is also an evidence-gathering strand that needs to underpin this process, so that there can be a clear basis for the recommendations going forward. This process might be helpfully supplemented by undertaking a ‘back-casting’ exercise that identifies the benefits we seek, the institutional structure that is best able to ensure those benefits are achieved, and therefore the resources required to put and keep those structures in place for the long term.