

Response to Ofgem's consultation on the Future of local energy institutions and governance

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Introduction

Innovate UK is the UK's innovation agency, part of UK Research & Innovation. We help UK businesses to grow through innovation. Our mission is to help companies to grow through their development and commercialisation of new products, processes and services, supported by an outstanding innovation ecosystem that is agile, inclusive and easy to navigate.

Since 2018, UKRI's Prospering from the Energy Revolution (PFER) Challenge programme has invested £104 million in industry, local government bodies, not for profits and research to accelerate innovation in smart local energy systems. We have compiled the largest body of evidence on place-based net zero delivery ever in the UK, with 93 projects and 301 partners, and a co-investment of £783m so far from match and equity funding. All project findings, programme learnings & insights can be found on the [programme website](#)¹.

Our flagship projects include three demonstrators (LEO, ESO and Reflex) and 10 detailed design smart local energy system projects that are designing and operating smart local energy systems across the UK. All of these projects are working with local network operators (DNO/DSO, GDN, heat networks and private wires) as well as local authorities, communities and private enterprise to plan, design, deliver and operate smart local energy systems for towns and regions across the UK.

The programme also funded the EnergyREV academic consortium and the Energy Systems Catapult-led 'Energy Revolution Integration Service' (ERIS). ERIS is developing the local authority (LA) "Net Zero Go" toolkit and Local Area Energy Plans for regions as part of the programme. We are also funding over 20 data and digital projects and collaborating with Ofgem and BEIS (Department for Business, Energy and Industrial Strategy) as part of the Modernising Energy Data (MED) initiative.

The programme's "[Accelerating Net Zero Delivery](#)" report by PWC found that place-specific approaches to delivering net zero bring significant benefits (costs, energy savings, clean air etc.) and lower costs. Tailoring local net zero interventions to complement national action could save £130bn in investment costs and deliver an additional £400bn in benefits, when compared with taking national action alone. In addition to economic modelling of these scenarios across six city regions, the report also explores delivery frameworks for place-based decarbonisation.

¹ <https://iuk.ktn-uk.org/programme/smart-local-energy-systems/>

² https://www.ukri.org/publications/accelerating-net-zero-delivery/?_ga=2.37765799.546264948.1683565135-159873486.1643810437

In exploring the optimal approaches and potential benefits of local net zero delivery, the programme also has a focus on finance and investment. We partnered with the Green Finance Institute to tackle the structural challenges that exist when it comes to financing net zero delivery at a local level, and have work ongoing with PWC to explore alternative finance models for delivery of place-based net zero activity.

This broad portfolio of activity has provided great insight into delivery of net zero solutions across local and national scales, and the need for better institutional clarity and integration across geographic scales if we are to capture the benefits of a rapid and smooth transition to net zero.

Key Messages

We welcome this consultation and fully support the direction of travel. The £104m of public money invested in PFER has resulted in evidence about the opportunities and barriers preventing the place based low carbon transition, and this consultation starts to address some of the barriers.

The scope for benefits from better planning and coordination at the whole system level are significant. The net benefits range from £0.9- 3.2bn/year to £163-252bn over a 25-year-period³

The policy and regulation of our energy system (electricity, heat and transport), which affects markets and the grid are the biggest barriers to achieving net zero⁴. Most PFER projects were not able to connect new low-carbon generation to the grid and therefore have been thinking about alternative ways to take a whole system approach to enable delivery of net zero in places. They have been exploring the business models that could work to enable this and have consistently reported policy and regulation as the main barrier.

Our latest report [Enabling decentralised energy innovation – UKRI](https://www.ukri.org/publications/enabling-decentralised-energy-innovation/)⁵ outlines these challenges in detail and some potential solutions, including a government vision for place-based net zero delivery, that is optimised by whole system design.

The current system is not fit for purpose and needs to be more impact and mission oriented, to achieve net zero in a way that realises the opportunity of clean growth for citizens and not just shareholders. Effective governance arrangements are a critical enabler of the transition to a smart and flexible energy system, but the system should be focused on the impact it delivers to the people who use and pay for it, with the system designed to their needs rather than the other way round.

Our definition of whole system, is user centred across electricity, heat and transport, including multiple actors at local – regional – national scale, that is intelligently and digitally joined up. The system needs to be horizontally integrated (local – regional – national) in a non-hierarchical way. This is about much more than the narrow definition of transmission and distribution system integration, and about more

³ Benefits of Flexibility of Smart Local Energy Systems in Supporting National Decarbonisation, <https://www.energyrev.org.uk/outputs/insights-and-tools/benefits-of-flexibility-of-smart-local-energysystems-in-supporting-national-decarbonisation>

Also: Building a Governance Framework for Coordinated Local Area Energy Planning, <https://es.catapult.org.uk/report/governance-framework-for-coordinated-local-area-energy-planning/>

⁴ <https://www.ukri.org/publications/smart-local-energy-systems-policy-and-regulations/>

⁵ <https://www.ukri.org/publications/enabling-decentralised-energy-innovation/>

than the networks narrow definition of flexibility that doesn't currently support full demand side flexibility (see Reflex question to the innovation link about behind the metre optimisation).

For the whole system to be optimised, there needs to be greater recognition of the demand side and the potential to reduce demand, and balance supply and demand locally. The demand side also needs to be able to access all of the markets for which it can provide services. The demand side currently cannot access the value in these markets in a fair and accessible manner. Markets and price signals need to be coordinated in order to deliver whole system value, which currently they are not. We need a review of how local assets receive revenue from local and national markets and implement local markets across local balancing, flexibility, ancillary services, capacity and ANM. This review should also resolve interactions between markets, clarifying rights of different actors to utilise the same asset for various services⁶.

The key components of Ofgem's proposed package of reform:

- Energy system planning: Introduce new Regional System Planners ("RSP(s)") to ensure there is accountability for regional energy system planning.

Key questions - accountable to who and to what end? The system needs to work for the citizens it serves so they should be central to how it is governed, not just as passive consumers but so that they are able to realise the opportunity of system reform. Evidence from PFER indicated that local authorities are a critical convenor for whole system energy planning, they hold a democratic mandate and are thinking about what they need to do to deliver net zero in places. Local authorities should be embedded in the governance of any regional system planning function and be resourced to properly engage in the process. The RSP could also embed teams within local authorities so that the RSP is reminded of why the system needs to be changed, and better understand what communities need from the future system. ONS are embedding people in LAs to help them better use statistics, the FSO could take a similar approach.

The FSO is centralised with centralised mindset, and measures will need to be taken to counter this bias and deliver the best outcomes for people in places, and ensure a whole-system approach involving multiple stakeholders are equitably involved in energy system planning.

- Market facilitation of flexible resources: Assign a market facilitation function to a single entity with sufficient expertise and capability, to deliver more accessible, transparent and coordinated flexibility markets

Flexibility in its current guise is much too limited in terms of the outcomes it can deliver. The focus is on the system need, not what people using the system need. We have seen DNO flexibility markets that have incentivised more fossil fuel generation which also takes up valuable network capacity, delivering a double negative impact on people and communities who want to decarbonise and connect more low carbon generation onto an already constrained

⁶ <https://www.ukri.org/wp-content/uploads/2023/02/IUK-03022023-Enabling-Decentralised-Energy-Innovation.pdf>

network. Market facilitation should be focused on carbon reduction and realising opportunities for people using the system. See evidence from PFER⁷ on local energy systems that, if governed more democratically, can deliver a cheaper, more equitable system that delivers double the energy savings and three times the additional social benefit, including alleviation of fuel poverty.

Markets and price signals need to be coordinated across the board to deliver whole system value, recognising the complexities of a decarbonised and decentralised system.

Currently there is insufficient coordination of ESO and DSO flexibility markets. Coordination needs to go beyond just DSO and ESO flexibility markets, and include all market aspects that deliver price signals to consumers. For example, there are alternatives to DSO flexibility markets to avoid constraints such as dynamic network pricing. Market facilitation and coordination should include all aspects of markets and rules that deliver price signals, to ensure that the most effective combinations of arrangements are being used to decarbonise and deliver value to people, communities and businesses.

- Real time operations; Keep real time operations within the distribution network operators (DNOs), ensuring clear accountability for network reliability and safety.

We agree that much greater visibility of real time operations is needed and the networks could deliver this. SSEN have been providing granular network data as part of project LEO to enable greater local participation in flexibility markets. However, data must be open source, interoperable, and delivered in a way that is readable and useful to everyone who wants to interact with the system.

PFER evidence outlines how the system can deliver greater reduction in carbon, and social and economic benefits to people, but only if Ofgem are explicit that these are the aims (impact and mission).

Ofgem need to be much more explicit about the priority benefits we wish to see, for who and to what end.

3. Proposed governance reform: energy system planning

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?

We agree that embedding a regional but also local context within planning is key to ensuring we empower communities to realise their decarbonisation ambitions and achieve a fair and inclusive transition to net zero. The RSP proposal can help to clarify accountabilities for system planning if it is designed in collaboration and alignment with other institutions operating in this space – especially Local Authorities whose emerging role in local area energy planning is significant.

The need for a decentralised approach is clearly outlined in our [Accelerating net zero delivery – UKRI](https://www.ukri.org/publications/accelerating-net-zero-delivery/) report that quantifies the opportunity for including more local and regional solutions to the

⁷ <https://www.ukri.org/publications/accelerating-net-zero-delivery/>

decarbonisation of our energy system, making it two thirds cheaper, delivering double the energy savings and double the social benefit. This report also points to system governance as a key issue.

The RSP as described should be a regulated entity, and ensure that a place-based approach is at the heart of how the regional energy system is planned. The RSP should be responsible for developing and owning a regional energy system plan, but this should only be done with outcomes and impact in mind, and with the meaningful engagement of communities, local authorities (spatial planning) and network planning stakeholders. Additional support will be needed to properly engage communities, local authorities and spatial planners as they are less well-resourced and the 'playing field' is far from level in the energy system. There is a risk of this becoming a tick box exercise.

There is currently no mandated requirement for local/regional government to deliver local energy planning or spatial planning for net zero outcomes. Most local authorities are under-resourced to take a lead on these activities. The RSP could help bridge this gap if the governance is outcomes-focused for the benefit of citizens and achieving net zero. But LAs need capacity and resource to engage fully and fairly in this process⁸. To fully coordinate local delivery of decarbonised heat, power and transport, Ofgem and DESNZ will need to ensure local/regional energy plans are in place in all areas and integrate with DNO/DSO evolution. The methodology should incorporate resilience planning, rather than the current focus on forward capacity planning⁹.

There is a risk of an overly centralised approach to how this is delivered, so LAs need to be more than simply 'statutory consultees'. Instead they should have a formal governance role in how the RSP is run. LA needs to be a trusted partner that both FSO/DNOs buy into. This needs to be more than a centralised approach to regional system planning if we are to realise the opportunity¹⁰.

The proposed approach starts to address some of the barriers to decentralised energy identified in our latest report: [Enabling decentralised energy innovation – UKRI](#).

The barriers identified are structured around five key themes:

1. Limitations in realising value from SLES
2. Market rules and governance
3. Limitation in innovation support processes
4. Lack of attention on the demand-side
5. Regulatory uncertainty and lack of multi-level coordination

Grid access and capacity is one of the key things the RSP will need to address, particularly around fairness of access for place-based activity. Many of the business models considered or developed by PFER projects try to overcome this major barrier through alternative approaches. However, the challenges in revenue stacking affects all the business models in PFER, because there are issues with (multiple-) market access, especially for behind-the-meter assets, such as home batteries. There are also specific 'hard-stops' that prevent some projects from realising their ambitions. As an example, peer-to-

⁸ [The future of Local Area Energy Planning in the UK - Energy Systems Catapult](#)

⁹ <https://www.ukri.org/wp-content/uploads/2023/02/IUK-03022023-Enabling-Decentralised-Energy-Innovation.pdf>

¹⁰ [Enabling decentralised energy innovation – UKRI](#)

peer energy is difficult because the single supplier model makes it difficult for multiple peers to trade energy with one another as they may all be with different suppliers¹¹.

One of the PFER demonstrator projects¹², ESO, avoided the time consuming and expensive process of connecting to the distribution network by installing a private wire from the transmission network. The PFER Reflex and LEO demonstrator projects were unable to connect new capacity to the network and were therefore driven to make a whole system plan using alternative business models and solutions. This evidence ought to be able to influence the connections process that is not working currently and could work more effectively in future.

The RSP role should bridge between national policy decision-making and local delivery. For example, it would help set common approaches to difficult areas like Hydrogen use, ensuring that local delivery plans keep step with national policy and regulation-making.

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

Provided this identifies the optimal pathway for people who pay for and use the energy system, and to address climate change, then we agree with the approach described. The remit should look beyond the energy system, towards the impacts and opportunities the system can deliver for society. We have several examples of partnership arrangements or best practice coordination structures within the PFER portfolio including Manchester (GMCA), West Midlands (WMCA) and Oxfordshire. For example:

- GMCA has been at the helm of the GM Local Energy Market project which has done borough-level LAEPs and an overall GM integration plan. Off the back of all this work – and with strong mayoral leadership, they are starting to see significant results in investment and international delivery partnerships.
- Energy Capital in West Midlands, ran the Regional Energy System Operator project – which looks at the governance, ownership and operational models possible for a regional system. This aims to maximise the benefits from coordinated and owned energy assets in a region, working closely with investors to understand what the finance industry needed from this kind of approach.
- Oxfordshire County Council (Project LEO) has led interesting new approaches to local energy planning in the Local Energy Oxfordshire demonstrator project. They combined high-level county-level planning with hyper-local substation-level neighbourhood planning when thinking about delivery. Their view appears that these two scale are both needed to deliver the optimal outcomes.

Given substantial differences in potential approaches and structures of local systems currently, the RSP will need to be able to flex its approach to suit the needs of the areas it works with, able to help enable outcomes of different business models, approaches and market participation.

We agree the RSP will need expertise to model future supply and demand impact on networks, but also a focus on what society needs from the energy system. Stakeholder engagement skills will be vital and are severely lacking in the current landscape, partnerships with trusted intermediaries including local authorities and community energy organisations could be encouraged to bridge this gap. Clarifying roles, responsibilities and access for local and community organisations would be helpful. Owning data

¹¹ [Enabling decentralised energy innovation – UKRI](#)

¹² [Smart local energy systems: the energy revolution takes shape – UKRI](#)

standards, ensuring access permissions and ensuring consistent digitalisation is also essential but should be in line with the Energy Digitalisation Taskforce recommendations.

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

LAEP boundaries are different to DFES and GDN boundaries, that are different to LSOA boundaries, and transport crosses all of these. There is no ideal solution to this challenge but consistency of approach by RSP across regions could help. Boundaries need to be flexible in a way that meets the needs of individual places, and to achieve this DNOs and the RSP will need to work together with local authorities and others planning for net zero in places. Geographical democratic boundaries make more sense than technical network boundaries when considering outcomes for people. Boundaries shouldn't be network led.

Advanced Infrastructure Ltd have been funded through PFER to explore mapping and the boundaries issue from a user needs perspective. Custom maps using multiple data sets can be interrogated for different use cases including deployment of low carbon technologies and long-term energy planning. The LEO-LAEP+ map visualises a baseline of the current Oxfordshire energy system and opportunities to decarbonise. This includes gas network data, electricity network capacity, DFES as well as data provided for the project by Energeo Ltd and the Energy Systems Catapult¹³.

Regional boundaries become less of an issue when data and mapping tools can be used in agile and flexible ways for the specific user needs. All data should be produced in a way that it can be interrogated based on the user need and the boundaries relevant to them.

In terms of appropriate scale for RSP activity, further evidence from PFER would suggest devolution deal scale makes sense as this should be democratic boundary led e.g. GMCA combined authority. The top tier of local authorities including combined and unitary authority levels make sense for place based whole system planning. This tier of governance tends to have some capacity to work on whole system planning, and these authorities have the agency and decision-making power to implement plans. In addition, business models achieve an economy of scale, and investment is easier to attract at this level for delivery of plans.

The RSP should be supporting places to make the optimal decisions for how our energy system delivers low carbon/social and economic outcomes that our energy system has the capability to underpin.

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

The FSO doesn't yet exist so it is hard to judge whether it has the right characteristics. However, characteristics needed in the body overseeing RSP activity include:

- A collaborative mindset for engaging & coordinating multiple stakeholder partners
- A whole system approach that delivers optimal societal outcomes, rather than optimising 'network operation'
- An ability to take a multi-scale systems view from national to hyper-local
- A decentralised mindset

¹³ [Project LEO \(Local Energy Oxfordshire\) \(advanced-infrastructure.co.uk\)](https://www.advanced-infrastructure.co.uk)

- A recognition that engagement is more than a tick box exercise. Rather, active engagement of key regional partners is a critical step to successful system planning.
- A recognition that there is no 'level playing field', some stakeholders are much more well resourced to engage than others, and the customers on the end of the wires who pay for the system, and the local authorities who represent them, are the least well resourced of all to engage effectively, unless this is proactively addressed the energy system will continue to deliver major benefits to a few
- An open approach to data ensuring visibility and information flows across scales, and a requirement to implement the Energy Digitalisation Taskforce recommendations, particularly on standards and an enabling layer.

The FSO is developing from the TSO so has an inherent 'transmission networks view of the world' as its core capability has been to run the transmission network. The new FSO will be very good at planning the networks elements of the regional system, but won't have sufficient experience of planning the decarbonisation of places, taking a whole systems view across transport, heat and electricity, with better outcomes in mind for the people who pay for the system. The FSO will have an inherently centralised view of the world and we are trying to give it responsibility for decarbonising places, so a key question is how will it develop trusted relationship with places, and a whole system view, across centralised and decentralised systems? It is currently top down, but this needs to be horizontally integrated.

An advantage of this approach will be the RSPs ability to coordinate across transmission and distribution. However, we will only realise the full benefits if they can optimise locally and enable true demand side participation, which leads to national optimisation if we get this right. This only makes sense if local optimisation can be realised in the real sense. For this to be achieved we will need Ofgem to develop the RSP with whole system costing in mind. Taking a system view of local and whole system costs, managing the ESO/DSO relationship and ensuring visibility and information flows across scales, reviewing changes across the data and interoperability landscape, reform of final physical notification processes to focus on asset data transfer and visibility across scales¹⁴.

Ofgem will need to recognise institutional bias and a centralised mindset, as FSO 'institutional muscle memory'. The playing field won't be level until places are given equal power. PFER's Enabling Decentralised Energy Innovation report recognised centralised mindset as a significant barrier; to address this we need a power shift. "A linear, centralised logic pervades in the energy system. This logic permeates key decisions, such as the REMA programme and retail market reform, skewing them towards centralised and engineering solutions. The impact includes a lack of recognition of the benefits and role of distributed energy and a lack of valuation of demand-side solutions." The report recommends 'undertaking a fundamental reform programme to reorientate the structures of the energy system to focus on people and the demand-side. This would incorporate strategic direction setting and

¹⁴ <https://www.ukri.org/wp-content/uploads/2023/02/IUK-03022023-Enabling-Decentralised-Energy-Innovation.pdf>

market and governance reform. It would provide a clear vision and structure for other reforms to flow from.¹⁵

LAs could be statutory partners on the board of the RSP, but there might not be sufficient skills/resource within LAs, so LAs need significant funding into local democratic bodies to enable meaningful participation.

In summary, we consider it to be a significant challenge for the FSO to delivery RSPs well. However, for speed, scale and integration with existing network planning, we agree the FSO could succeed in overseeing set up of an independent RSP so long as specific requirements are set down to ensure the characteristics discussed above, and with clear review and steering mechanisms to ensure appropriate delivery.

4. Proposed governance reform: market facilitation of flexible resources

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?

Yes, but they must work collaboratively with local and regional institutions that already exist. They must be agile and flexible to the rapid development of grid-edge flexibility models enabled by open data & digitalisation and more local coordination.

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

We agree with the market facilitator role, the complexity sits with the market enabling infrastructure & platforms where there is uncertainty about specific institutions and these need to be clarified to enable the market facilitation role. We welcome the Future of Distributed Flexibility consultation and hope it will clarify this, which needs to be progressed in parallel.

The RSP may not have necessary skills for meaningful market engagement and Ofgem should clarify roles and support for local and community energy organisations who might be better placed to partner and provide participatory engagement, where they already have a trusted relationship with the community or customers. Underpinning all technical skills and responsibilities are “soft skills such as relationship building, convening and communication. Public and citizen engagement is particularly critical, given that the technologies involved are often new and require users to adapt their behaviours and perspectives”¹⁶.

Market oversight should be more accountable and democratic, the market facilitator could lead this process but local authorities and community energy organisations could be useful backstops to ensure markets are fair, accessible, and delivering the additional social and environmental outcomes that they

¹⁵ <https://www.ukri.org/wp-content/uploads/2023/02/IUK-03022023-Enabling-Decentralised-Energy-Innovation.pdf>

¹⁶ https://www.ukri.org/wp-content/uploads/2022/11/IUK-14112022-Smart-local-energy-systems_Skills_and_capabilities_final.pdf

could, for example if flexibility was procured for carbon reduction and social value delivery as well as network stabilisation.

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

The roles and responsibilities in table 2 seem to entirely focus on flexibility markets, and it's not clear if "product development" or "market oversight" include activities around price signals that are not market based. For example, there are a number of ways of tackling problems such as distribution network constraints, for which DSO flexibility markets are increasingly being used. Alternatives such as dynamic network price signals could alleviate some of these constraints without needing market based mechanisms. It is important that markets and price signals are coordinated to deliver whole system value and a coherent set of price signals to consumers. This broader oversight and coordination of price signals should be allocated to the market facilitator.

There is much more engagement and education needed, as well as data provision to support LAs as they plan for net zero delivery. This appears to be missing from Table 2.

Governance is a critical factor which also needs more consideration, see above.

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

There is a potential conflict of interest with FSO also buying flexibility as outlined in this consultation. Primacy can be resolved by digital applications that already exist.

This could be overcome with clear FSO governance, remit, rules and sufficient transparency as a publicly owned body.

There might be unintended institutional bias (see above), so Ofgem need to be mindful of this and ensure sufficient checks and balances to avoid this issue.

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

It's not perfect but it is probably the best option for speed of delivery; the status quo is not the best option. PFER evidence suggests the governance will be a major factor in achieving a cheaper, fairer energy system with better outcomes, so as outlined above we think local authorities and local organisations using the system to deliver net zero in places will need to feature highly on governance boards for any RSP arrangements.

5. Proposed governance reform: real time operations

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

Yes, they are the asset owners, but they need to get much better visibility of granular data of their networks, and they must be required to share this in an open, transparent and user-friendly way.

We agree real time operations should be kept within DNOs, who are good at ensuring clear accountability for network reliability and safety.

However, we need much greater visibility of real time operations and the networks could deliver this. Data must be open source, transparent, interoperable, and delivered in a way that is readable and useful to everyone who wants to interact with the system.

DNOs are risk averse and have failed to deliver flexibility markets that meet carbon reduction requirements and user needs, as well as system needs.¹⁷ Flexibility in its current guise is much too limited in terms of the outcomes it can deliver. The focus is on the system need, not what people using the system need. We have seen DNO flexibility markets that have incentivised more fossil fuel generation which takes up valuable network capacity, delivering a double negative impact on citizens and communities who want to decarbonise and connect more low carbon generation onto an already constrained network. Market facilitation should be focused on carbon reduction and realising opportunities for people using the system. Evidence from PFER on local energy systems, suggests that if governed correctly, they can deliver a cheaper, more equitable system that delivers double the energy savings and three times the additional social benefit, including associated health benefits.¹⁸

A recent PFER funded report by Thomas Morstyn for Energy Rev looks at the role of energy smart places in net zero multi-scale market design, including how DNOs could take a more probabilistic approach to flexibility, and access a proportion or less firm flexibility some of the time. The report explores multi-scale design and integration across spatial and temporal scales which is increasingly valuable due to:

- Rapid adoption of distributed resources
- Availability of near real-time sensing & communications
- Need for reliable low-carbon flexibility (not just energy)

Challenges include:

- Value of coordination is divided between stakeholders
- Data ownership, sharing and security
- Fairness in terms of the distribution of costs & benefits¹⁹

DNOs could also be regulated to take a more probabilistic approach to flexibility, for better realisation of potential value of local markets across temporal and spatial scales.

A key question is about governance and whole system integration. DNOs have failed to enable connections of low carbon generation, or enable fair participation in new flexibility markets at the pace and scale required to meet net zero. At the same time DNOs have been extracting large profits for shareholders, and are not incentivised or regulated to reduce demand in the first place through EE and retrofit, which would save citizens money, deliver better social outcomes, and reduce emissions. They also deliver a safe and reliable system.

¹⁷ [Power to Participate: a specification for community energy to participate in a flexible energy system - Regen](#)

¹⁸ [IUK-090322-AcceleratingNetZeroDelivery-UnlockingBenefitsClimateActionUKCityRegions.pdf \(ukri.org\)](#)

¹⁹ Paredes, Aguado, Esayeh, Xia, Savelli, Morstyn "Stacking Revenues from Flexible DERs in MultiScale Markets using Tri-Level Optimization", 2022

I. Savelli, T. Morstyn, "Electricity prices and tariffs to keep everyone happy: a framework for fixed and nodal prices coexistence in distribution grids with optimal tariffs for investment cost recovery," Omega, 2021.

Our recommendation would be to change the focus of regulation, adjust system governance to take greater account of what citizens want the energy system to deliver for them (reduce cost, cleaner, fairer). FSO and DNOs will have an engineering systems solution and markets bias, DNOs are incentivized to build bigger systems rather than reduce the need for a bigger system though reduced demand and balanced local and regional system operation. Impact on low carbon connections, local system balancing, reduced demand and better social outcomes should be measured and relate directly to incentives (RIIO ED3) so that citizen engagement for DNOs and the FSO becomes more than the box ticking exercise it currently is, where the usual suspects already in the system far outnumber the representation of citizens using the system.

This challenge needs to include heat, electricity and transport, across the system at all levels; silos will not deliver the outcomes we need and the system needs horizontal integration to enable greater impact.

6. Next steps

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

We agree with your proposed approach overall.

Key principles need to include impacts of the system on the people who pay for and use the system, as well as carbon impacts.

Ofgem could also look at the cost and speed of the alternative to delivering net zero through a more distributed approach. For example, looking at the network upgrades and costs delivered in the last 10 years. Would the physics of the system cope with a purely centralised approach in the next 10 year? Could we upgrade the networks fast enough? What would this cost? How would it help with decarbonising heating in homes, and decarbonisation of local transport infrastructure?

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

PFER and our partners encourage Ofgem to including the benefits of achieving net zero, and the additional social benefits²⁰ that can be delivered if we get the energy transition right, delivering double the energy savings and social benefits for around a third of the cost. The energy system exists to serve people and the benefits to people of the proposed changes should be front and centre.

Ofgem could consider wider economic benefits including potential UK market leadership benefits, UK business capability in flexibility, inward investment and export of skills opportunities.

Social opportunities: Ofgem could consider include health, productivity, reduced commuting time, and benefits of a cleaner better energy system to people using the system. Treasury green book outlines how to value social benefits, and PWC's work in the PFER programme (footnote 20) modelled these for the first time with relation to decarbonisation.

Ofgem have identified the following benefits:

²⁰ [UK-090322-AcceleratingNetZeroDelivery-UnlockingBenefitsClimateActionUKCityRegions.pdf \(ukri.org\)](https://ukri.org/UK-090322-AcceleratingNetZeroDelivery-UnlockingBenefitsClimateActionUKCityRegions.pdf)

- Flexibility (provision, connections, synergies) - We agree benefits of flexibility should include system balancing to enable more low carbon assets to connect while minimising cost on unnecessary network upgrades.
- Data quality improvements – Should be in line with Energy Digitalisation Taskforce recommendations.
- Improved market participation of flexible resources – getting these markets right will enable greater participation and improve outcomes for citizens, increasing competition and improving services for system interaction.
- Deferred reinforcement/decarbonisation synergies - Avoided network reinforcement costs should be considered, including through energy efficiency and retrofit. Decarbonisation synergies could unlock uncertainty around heat, and decision making.
- Transparency of decision making – the ability to trust decisions about network plans is worth considering, the network view is not the only view of what should be built.
- Increased stakeholder confidence – “With new technologies and systems involved in integrated local energy approaches, and the need for people to opt in or adapt behaviours to make systems effective, citizen engagement and trust is critical to ensuring that people are educated and included in the process.”²¹
- Whole system benefits – yes if whole system is defined as across heat, transport and electricity at local, regional and national levels.

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.

PFER has done some work on assessment of benefits in our Enabling decentralised energy innovation report by Jeff Hardy²², and our Accelerating net zero delivery report by PWC, which has an additional economic and technical annex. We await the governance and regulatory changes recommended in these reports, that would enable these benefits to be realised.

Through PFER IUK have funded the development of the LAEP process led by the Energy Systems Catapult (ESC) including several LAEPs, extensive LAEP guidance²³ and a report on building a governance framework for coordinated LAEP. In this report ESC state that coordinated LAEP is likely to deliver substantial whole system cost savings, in the order of 1% GDP, relative to an organic, unplanned approach. The total energy system discounted cost saving from this approach could total £252bn between 2025 and 2050²⁴.

²¹ https://www.ukri.org/wp-content/uploads/2022/11/IUK-14112022-Smart-local-energy-systems_Skills_and_capabilities_final.pdf

²² <https://www.ukri.org/publications/enabling-decentralised-energy-innovation/>

²³ [Local Area Energy Planning - Energy Systems Catapult](#)

²⁴ [Building a governance framework for coordinated Local Area Energy Planning - Energy Systems Catapult](#)

Energy Systems Catapult (ESC) developed tools to evaluate benefits in cost and carbon savings attributable to local project delivery. These methods were used to analyse the portfolio of PFER projects' progress in delivering savings in these metrics. This methodology might give a starting point as to how to attribute benefits from local delivery within a heavily interlinked national system also undergoing change.

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.

Clearly the development of a new RSP will require significant budget. Throughout PFER we have looked mainly at the potential opportunity if we were to get the energy transition right locally, regionally and nationally. A key learning point is that local authorities are key local convenors and actors in the energy transition, but are insufficiently funded to play a central role as per their democratic mandate. If we would like to achieve better system outcomes for citizens we need to better financially support the local authorities who could help us achieve this.

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 is a lot of cost in planning the optimal decarbonisation pathway in places and this is patchy and unfunded currently, with a lack of clarity about roles. There is also some duplication across DFES and LAEP activity that could be more efficient if aligned more effectively. Three recent LAEPs commissioned by PFER cost over £300,000. Most local authorities don't have this budget or the resource and capacity to engage, especially at the county and district levels. Shared data platforms which the RSP could facilitate and reduce costs significantly. Wales and the GLA are trialling this approach, and Combined Authorities like GMCA and WMCA are organising plans centrally in collaboration with boroughs. PFER recently funded a workshop with Regen, unpicking some of these issues that led to some consensus on the need for a shared data platform, the write up is available on request as we are in the sign off stage prior to publication. For local authorities to engage in RSP they will need to be funded and properly resourced.