

Ofgem Consultation on the Future of Local Energy Institutions and Governance

Graham Oakes Ltd response

Graham Oakes Ltd welcomes the opportunity to respond to Ofgem's Consultation on the Future of Local Energy Institutions and Governance. We agree this is a vitally important topic for the UK's transition to Net Zero. People's choices about how they generate and consume energy, and interact with the wider energy system, will be strongly influenced by the extent to which they see that system to be providing value to themselves and their community and to be operating in a fair and transparent manner. Strong local governance and accountability will help create an environment where people are prepared to act in ways that support the transition, e.g. by maximising their use of renewable generation and providing flexibility to the system when it needs it.

Our response is grounded in our experience working with innovators, communities and energy system institutions. So first we will outline some of that experience.

Graham Oakes Ltd


Graham Oakes Ltd is the personal consultancy vehicle for Dr Graham Oakes. As well as consulting to technology firms such as Cisco, Intel, Skype and Sony, and third sector organisations such as Amnesty International, Greenpeace, Oxfam and the UN FAO, the company has supported a number of technology startups and spawned two startups of its own, Five Mile Food Ltd and Upside Energy Ltd. Upside went on to raise almost £10m of funding, employ 35 staff, and sign major contracts with firms such as EDF and Vertiv. Upside was acquired by Octopus Energy in November 2020, and is now known as KrakenFlex.

We now specialise in developing technology, systems and business models that provide flexibility to the energy system, through engagements such as the following:

- **Flex Assure:** Dr Oakes is a director of Flex Assure Ltd, which has developed and operates a scheme to provide assurance to "customers" (i.e. I&C sites that can provide flexibility) of flexibility service providers / aggregators. The scheme is currently being extended to address assurance for domestic customers via an NIA project with SSEN.
- **GM LEM:** Partner on Innovate UK PFER project to design a local energy market for Greater Manchester, and to undertake Local Area Energy Plans for all boroughs within the city region. The project engaged closely with citizens across Manchester, most notably through a Citizens Jury that looked at options for governance and transparency of the local energy system.
- **LEO:** Member of the panel operated by Low Carbon Hub to advise and scrutinise the community energy projects it set up within the LEO PFER demonstrator. Provided advice on flexibility markets, business models and platforms to the project. Worked with Piclo and Element Energy to develop whole system energy scenarios based on Element's dispatch model to explore the role of local flexibility in evolution of the energy system.
- **AmpX:** Support executive management and product development teams to understand trends in the energy sector, identify opportunities that could be addressed by their platforms, frame

requirements and develop business models. Provide ongoing mentoring to help executive managers develop industry positioning, internal capabilities (e.g. skills), etc.

- **Clean Growth Fund:** Provide incubation support to SMEs within its investment portfolio, including:
 - **Piclo:** Develop strategic narrative for Piclo for 2022-2027 to support discussions with current and potential investors.
 - **Piclo:** Develop process models for Flexibility Settlement and Flexibility Operations to give Piclo a common view of the different processes executed by ESOs and DSOs.
 - **Carbon Re:** Develop models for pricing Carbon Re's SaaS platform and market test these with target customers in the cement industry.
- **EIZ Review:** Work on Carbon Trust team to review Energy Innovation Zones in West Midlands and Cornwall. Hence recommend enduring model for what an EIZ is and how it might be governed, funded and operated.
- **EMPOWER2.0:** Partner on ERDF North Sea Region project investigating ways to support prosumers in the Energy Transition. Led on work to develop an integrated prosumer proposition and frame recommendations for organisations and business models to support prosumers in UK, Netherlands, Belgium and Denmark.
- **Engineering Standards Review:** Member of panel commissioned by BEIS to review engineering standards for the electricity system in GB. Led on development of the panel's recommendations regarding data and digitalisation, interoperability, and standards governance and evolution.
- **Energy Systems Catapult:** Provide incubation support to SMEs on the ESC's Energy Launchpad and BEIS NZIP programme, and to related projects undertaken by ESC. Includes:
 - **NZIP Acceleration Manager** for Cheesecake Energy, RFC Power, StorTera and Invinity.
 - **Incubation tasks** for SMEs such as Equiwatt, Grid Edge, Grid Duck and Q-Energy.
 - **LDES Site Financial Model** for Cumulus Energy, Cheesecake Energy and RFC Power. We developed a model for costs and revenues for innovative long duration storage technologies in order to compare their returns for a variety of configurations and use cases against counterfactual scenarios for Li-ion ESS.
- **MWHHS:** Member of Design Advisory Board set up by Ofgem to provide advice on operating models and platforms for the SCR on Market-wide Half Hourly Settlement.
- **Northern Powergrid CEG:** Member of Northern Powergrid's Customer Engagement Group for the RIIO-ED2 price control. Dr Oakes leads the subgroup on Energy Futures, addressing issues such as Digitalisation and DSO Strategy.
- **Upside Energy:** Upside Energy has built a cloud-based platform that uses advanced algorithms and AI to coordinate distributed energy resources to provide flexibility to the energy system. It now has more than 4GW of distributed energy resources under management, and operates as KrakenFlex Ltd since its acquisition by Octopus Energy in November 2020.



Graham Oakes
Director & Principal Consultant

Question 1: Do you agree with our proposal to introduce Regional System Planners?

Yes, there is a clear gap in the current arrangements, with no party responsible for integrated energy planning within a region.

Question 2: What are your views on the detailed design choice considerations?

While there is merit in having a consistent approach across all regions, we are concerned that a “single national entity with local branches” will struggle to gain local acceptance in many areas.

For example, the Citizens Jury undertaken on the Greater Manchester LEM project was clear that they wanted a body that is accountable to local people. The FSO could not demonstrate such accountability – the chain from local branch to national executive management to national regulator to national parliament is too tenuous. We believe Regional System Planners (RSPs) should have more direct accountability to locally elected bodies.

Our concerns are compounded by factors such as:

- The current ESO lacks deep skills in engaging with local people. It is accustomed to engaging primarily with energy system specialists. To fill the RSP role as it transitions to become FSO, it would need to recruit heavily to build this skillset. That might not be any easier than building the necessary energy system skills and understanding in existing local institutions.
- The ESO/FSO lacks the on-the-ground presence needed to engage at the level called out in the foreword to the consultation: *“changes to the way people fuel their vehicles and heat their homes happening on a street by street, town by town basis”*. Again, it would need a huge change to the current ESO’s structure and culture to be able to engage at this level, and it might be easier to start with a set of institutions that already has presence at this level. Experience on project LEO, for example, shows that there is a need to engage with councils down to district and even parish level – ESO has no experience of engaging at this level. Bodies with truly local roots would be far more likely to win the trust of local people and organisations than the currently non-existent “branches” of a centralised, national organisation.
- The ESO/FSO lacks strong links to or expertise in adjacent sectors, such as transport, housing and planning. These will all strongly influence, and be influenced by, development of the energy system. RSPs need to be set up with equally close links to the bodies planning for these adjacent systems as they have to bodies like DSOs. The ESO/FSO risks being (perceived to be) caught within the energy system silo.

We fear that Ofgem has chosen a solution that is within its direct influence, rather than one that is best suited to the problem at hand (much like the man looking for his keys under the streetlight, even though he lost them elsewhere). It would not be easy to build the necessary skills and capability within existing local institutions, such as local authorities, but it might be more fruitful than trying to build a new institution with local credibility from scratch.

Question 3: Do you have views on the appropriate regional boundaries?

This is a complex question. Firstly because the boundaries across the various systems (electricity, gas, district heating, transport, local authority, etc) are not necessarily coterminous. Secondly, because the natural scale for planning (ranging from individual houses and streets to towns, cities and regions) varies according to the use case.

GM LEM examined the question of scale for a local energy market in some depth in the final six months of the project. It concluded that, while people tend to ascribe more value to localness at small scales

(e.g. primary substation), the benefits of market size and liquidity outweighed this for many use cases. These latter benefits tail off when you go to scale broader than GSP, so the net effect is to favour a unit at about that level. Larger units cease to be local in many people's perception, and so lose their support.

Some of the work on LEO, however, tended to favour smaller units. For example, some people are more willing to act when the boundary of "local" is set at their village or town, i.e. at about the primary substation. Where such people are willing and able to act, the value of drawing the boundary at this level can be high.

We believe the answer may be to allow for planning at multiple levels. Where people in a locality are highly engaged, they may want and be able to plan at a very fine-grained level. Where they are less engaged, planning could be done at a broader level, e.g. borough or county. This creates complexity to integrate the plans, but the benefits of increased engagement from people who care about local energy are likely to outweigh this.

Question 4: Do you agree that the FSO has the characteristics to deliver the RSPs role? If not, what alternative entities would be suitable?

No. As outlined in our response to question 2, we believe the FSO lacks the local presence, credibility, mindset and skills needed to be RSP. Local authorities also lack skills and capability, but it might be more effective to start with them than to try to build an FSO with local presence and credibility from scratch.

Q5 - Do you agree with our proposal for a single, neutral expert entity to take on a central market facilitation role?

We agree with your analysis that there need to be fair and transparent rules and processes, and that there is a need to standardise and simplify in order to reduce friction for market participants.

We are not convinced that Ofgem has adequately considered all options in proposing a single (presumably regulated) market facilitator to do this. The current regulated entities (individually and collectively via the ENA) have failed to develop standards, primacy rules, stacking rules, etc, at a pace commensurate with the urgency to decarbonise the electricity system. The proposal does not really explain how giving that responsibility to one of them will speed up the process.

We believe alternatives such as opening the market facilitation role to operators of existing market trading platforms (e.g. Epex Spot, Nordpool, emerging innovators such as Nodes or Electron, market operators from other sectors) should also be considered. Thus far, these players have been precluded from facilitating and operating flex markets by the privileged positions of the ESO and DSOs. Ofgem should explore options to allow them to take on the market facilitator / operator role, e.g. by competing for one or a limited number of licences, or by fully opening up the market. This option is precluded too quickly in paragraph 4.25 of the consultation. (The FSO, and DSOs, could also be allowed to compete for these licences. If they were to win a licence in open competition, then so be it. But alternative players should be allowed to compete with them for this role.)

We'd also note that:

- As Ofgem recognises, the ESO is a major buyer of flexibility. No matter how hard it tries to be neutral, its conception of flexibility markets will be grounded in the needs of the current energy system, the mechanisms it currently employs, and the views of current stakeholders in energy and flex markets.
- For example, standard flexibility products are necessary but not sufficient to facilitate the market. Those products also need to be framed such that they are accessible to all stakeholders, not just energy system specialists. It has been a clear finding on project LEO that current flex

products, and the associated service agreements, are not fit for domestic consumers who want to offer flexibility to the system. They are framed for businesses with expertise in energy, and are unlikely to get much better while they are framed purely from the perspective of energy system players. We need a truly neutral party to consider both sides of the market if we are to fully exploit its potential.

- Projects such as GM LEM have found significant value in integrating flexibility markets with energy markets. Many flexibility providers can only gain full value from their assets by participating in all markets. Integrating DSO and ESO flex markets is a step in the right direction, but it doesn't go far enough – without also integrating access to wholesale energy markets, the amount of flexibility brought to market will still be seriously constrained. This suggests the market facilitator should also have experience of supporting trading on wholesale markets.

We fully recognise the need to transition quickly and without over-complication in order to speed up the pace of decarbonisation of the electricity system. However, doing something that fails to gain the confidence of key parties, or that fails to fully address the market requirements, will just create delay.

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?

Our experience is that there is always devil in the detail in defining roles and responsibilities. For example, design of the detailed data flows between network operators, system operators and flex providers may suggest the need to fine tune boundaries of responsibility in order to minimise latency and double handling of the data. So these questions still need deeper analysis and specification. But the broad direction of travel seems fair enough.

Note also our response to Q5 – the market facilitator needs to address trading on wholesale energy markets as well as flexibility markets if we are to optimise the amount of flexibility brought to market.

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?

See our response to Q5 – we believe Ofgem should consider other parties who have experience of operating markets for flexibility, energy and other commodities. An open competition for a single or a small number of market facilitator / operator licences would have many attractions. (Noting also that projects like GM LEM have suggested that there is value in regional / local market operators, so these licences might also be applicable for this role.)

In particular, the pace at which the ENA (individually and collectively) is developing things like primacy rules is not encouraging – it is not showing a sense of urgency commensurate with the fact that we are only 12 years away from a net zero electricity grid. As well as expertise in defining and operating markets (which many organisations outside the ENA have), the market facilitator needs to have proven ability to move quickly to define and evolve the market's products. None of the current network system operators fit that bill.

Overall, Ofgem's detailed design choices (here, as for RSPs) seem to align more to what will be easy to regulate than to what is most likely to work well.

Q10 – Do you agree that DNOs should retain responsibility for real time operations?

Current processes for allocating network capacity (from network planning and build through to real time operation of the network) are not working well. Transmission owners and DSOs are not creating instruments that enable customers to dynamically buy the capacity they need when they need it, hence the growing issues we see with connecting renewable generation & storage to the system.

We believe that's because there's a missing role between the asset operator (currently the DNO, but they are really an asset operator more than a network operator) and the system operator (DSO). By not separating these two functions, we are preventing a role for independent network operator from emerging (similar, for example, to the virtual network operators that emerged in mobile telecoms). While one party acts as both DAO & DSO, intermediate parties with commercial expertise to operate the network and provide innovative customer products and services cannot establish a foothold.

However, that is not a problem that can be solved easily or rapidly. So for now, it probably makes sense for the DNOs to retain responsibility for real time operations.

Q11 - What is your view on our proposed approach to the undertaking of an impact assessment?

Ofgem's suggested time scales are too slow. For example, paragraph 6.6's suggestion that these arrangements be in place by the end of the decade would consume 7 of the 12 years we have until 2035. These arrangements need to be in place no later than 2025.

Clearly an impact assessment is essential, e.g. to ensure we don't overlook key factors, but we need to do it in parallel with action, and in rapid iterations, constantly assessing progress as we proceed. In that sense, impact assessment should be an ongoing process, not a one-off study.

Ofgem's analysis also places too much emphasis on the counterfactual, and not enough on where we need to be to hit net zero targets (both for the electricity system in 2035 and the nation in 2050). This ongoing impact assessment should also consider whether we are on right path to hit these targets as a core part of its remit.

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

Measures such as flexibility, data quality (including granularity, latency and timeliness as core aspects of quality), market participation are all fine. It would also be worth considering factors such as speed of new connections for renewable generation and demand from LCTs such as EV charging, heat pumps, etc, as delays to these connections is a key indicator of lack of progress right now.

And, as above, the assessment needs to be put into wider context of progress against net zero targets.

Q13 - How should we attribute these benefits between the governance changes in the proposed option, and other changes required to achieve the benefits?

We recognise that attribution is important in order to steer progress and allocate resources, but we shouldn't let definition of an "ideal" attribution approach delay making a start now.

Q14 - What additional costs might arise from our governance proposals?

Q15 - What additional costs may arise from sharing functions with several interacting organisations?

We don't have sufficient access to detailed costs from current organisations to give a meaningful response to these questions. We would however note that any estimate from affected parties should be seen in the context that they are risk averse and loathe to lose current functionality, so their cost estimates are likely to be at the high end.