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Dear Doug,

Call for Input: The Future of Distributed Flexibility

This letter is in response to Ofgem's Call for Input: The Future of Distributed Flexibility, issued on 1 March 2023.¹

The letter is submitted on behalf of SSE's energy businesses - SSE Thermal, SSE Renewables, SSE Enterprise, SSE Energy Solutions and SSE Energy Portfolio Management. There may be separate responses on behalf of SSEN Distribution and SSEN Transmission.

About SSE

SSE plc is a UK-listed, FTSE-100 company and provider of low-carbon energy infrastructure. Our purpose is to provide energy needed today while building a better world of energy for tomorrow. Headquartered in Perth, SSE has operations and investments across the UK and Ireland, primarily as a developer, operator and owner of low-carbon energy assets and businesses, with a strategic focus on regulated electricity networks and renewable energy.

Our views

We summarise our views below, while our responses to the individual questions included within Ofgem's call for input are included within the appendix to this letter. To confirm, our response is not confidential.

The importance of increased distributed flexibility

We welcome and support Ofgem's focus on increasing flexibility from those assets connected to the distribution network (ie distributed flexibility) as we believe enabling more flexibility will be key for a net zero energy system. We are pleased that Ofgem is thinking about how to improve distributed flexibility – although there are interdependencies to other industry reform programmes such as the Review of Electricity Market Arrangements (REMA) and the introduction of Mandatory Half Hourly Settlement (MHHS), we think it is important to increase the use of flexibility now.

The benefits of increased flexibility are already well recognised within industry, and have been discussed extensively within previous Government and Ofgem publications, such as the Smart Systems and Flexibility

¹ [Call for Input: The Future of Distributed Flexibility | Ofgem](#)

Plan.² As more reliance is placed on the electricity grid as a result of the increasing demand for electrified transport or heat, distributed flexibility has the potential to reduce the peak demand, ultimately saving end consumers money.

The Great Britain (GB) energy market already tenders for and contracts high volumes of flexibility. According to the ENA's flexibility figures published in July 2022, Distribution Network Operators (DNOs) tendered for 3.7GW of flexibility in 2021/22, of which nearly 2GW was contracted. Additionally, the volumes being tendered and contracted are increasing year on year.³

Therefore, any reforms should seek to build upon work already underway within flexibility markets by building upon existing momentum from Smart Systems and Flexibility Plan and increasing the involvement of flexibility providers in the present-day market. It is imperative that reforms enable and do not slow down the development of efficient flexibility markets.

The need for more focus on the addressing issues within present day flexibility markets

To enable more distributed flexibility, equal focus needs to be placed on both resolving problems that exist within present day flexibility markets and longer-term strategic reform. We do not think Ofgem is focusing enough on issues within present day flexibility markets and should be more involved in ongoing industry work on this subject.

Ofgem should be focusing intervention on addressing specific problems or issues it has identified within flexibility markets. Ofgem should be seeking to understand if there are any underlying problems as to why not all flexibility tendered is contracted and why some parties wanting to offer flexibility services have not been able to sell flexibility via DNO or ESO markets. If any problems are uncovered through such research, Ofgem should be seeking to target interventions specifically at those problems. Further to this, we believe attention should be focused on the standardisation of approaches across the different DNOs; incentives for consumers to offer flexibility services; and ensuring the ESO's balancing market supports participation from batteries and other flexible assets.

Positive steps are being taken to address some of these problems via the ENA's Open Networks programme.⁴ However, we recognise that the ENA Open Networks programme has not moved as quickly as industry would have liked. We think this is partly because of a lack of involvement from Ofgem.

Ofgem's desire to predominantly focus on strategic longer-term reform risks undermining and further slowing down the momentum of a growing flexibility market. It could distract attention away from existing flexibility markets and reforms being taken forward via the ENA Open Networks programme. It could deter new flexibility providers from entering the market now while they wait until reforms are implemented.

Therefore, we believe Ofgem should focus more attention on the present-day problems and get more involved in the ENA Open Networks programme. A focus on present day problems will enable more flexibility to be contracted now and help accelerate the energy systems transition to net zero.

² For example, within recent publications such as [Next steps on our reforms to the Long Term Development Statement \(LTDS\) and the Key Enablers for DSO programme of work | Ofgem](#) and [Transitioning to a net zero energy system: smart systems and flexibility plan 2021 - GOV.UK \(www.gov.uk\)](#).

³ [Resource library – Energy Networks Association \(ENA\)](#)

⁴ More detail about the work programmes within the ENA's Open Networks programme can be found here: [Open Networks: developing the smart grid - Energy Networks Association](#)

The need to hold non-domestic flexibility in equal consideration to domestic flexibility

We also think Ofgem needs to focus more on flexibility provided by assets owned by non-domestic / commercial providers (ie Distributed Energy Resources (DER) flexibility). We disagree with Ofgem's contention that a focus on flexibility provided by assets owned by domestic consumer (ie Consumer Energy Resources (CER) flexibility) will itself enable more DER flexibility.

There is significant potential for flexibility provided by assets owned by non-domestic / commercial consumers and there is a risk that overlooking this sector will leave a significant amount of efficient flexibility untapped. Although some reforms which enable more CER flexibility will indeed help DER flexibility, the non-domestic sector has its own issues and merits its own focus. Focusing on CER risks leaving behind the non-domestic sector, which will ultimately slow down the energy system's net zero transition.

The need for incremental reform if introducing a central digital energy infrastructure

It is important that any new central digital energy infrastructure is implemented without friction to those currently operating in the market. Providing this is the case, we can conceptually see that a directory of market operators and flexibility providers (ie a thin architecture) could make markets more discoverable, enabling flexibility providers to discover new markets.

However, as Ofgem has itself recognised, the architectures are very high level and abstract at this stage, which means any assessment of the cost and benefits of each is speculative. Accordingly, it is difficult to provide detailed comment on each architecture until the time, cost and feasibility is known.

Considering the range of wider industry reform programmes underway, we also think it is premature to confirm any ambitions for a costly central digital energy infrastructure. Wider reform programmes, such as REMA and MHHS, create a great deal of uncertainty within the energy market right now and make it difficult to evaluate the benefits of any new central digital infrastructure.

Ultimately, we believe that any vision should embrace incremental reform, building on work already underway within the ENA Open Networks programme, while reflecting on changes introduced by wider industry reform programmes. Our preference is to limit any future vision to the implementation of a thin architecture as it will then enable industry to consider the added cost and benefits of a medium architecture over a thin architecture, and then thick architecture over any medium architecture. This incremental approach would also enable industry to reflect on the impact of wider industry reform programmes like REMA and MHHS before confirming whether any more complicated and costly architectures are beneficial.

We hope you find the comments in this response helpful. Recognising that Ofgem's call for input is the start of the process, we aimed to provide relatively high-level thoughts. We also note we have not been able to fully review all supplementary information published by Ofgem during the response window, notably the 60-page Open Grid Systems (OGS) report published three working days before the response deadline. We are therefore keen to continue discussions as Ofgem develops its thinking and proposals.

Please do not hesitate to contact me if you require any clarifications or would welcome further discussion.

Yours sincerely,

Graeme Barton
Regulation Manager

Appendix: Responses to questions listed within the Call for Input

1. What do you think distributed flexibility could contribute to the energy system?

The benefits of increased flexibility are already well recognised within industry, and have been discussed extensively within previous Ofgem publications.⁵ As more reliance is placed on the electricity grid in the future as a result of the demand for electrified transport or heat, distributed flexibility has the potential to reduce the peak demand, ultimately saving end consumers money.

However, we need to be realistic about the potential of distributed flexibility, and recognise it is not going to solve all the problems of increased demand on the grid (nor will it always be the most cost effective or efficient solution). Consumers' energy use is likely to remain somewhat inelastic, which means it will be difficult to flexibly shift significant demand from one time to another. It is important that flexibility (whether from domestic or non-domestic customers) is used efficiently, eg where it is more cost effective than other solutions, and is not seen as a panacea. Therefore, investments will be needed to increase generation, grid capacity and storage technologies such as batteries to cope with the additional peak demand that will be experienced on the grid. That being said, new services and markets may be developed which make demand more elastic over time as consumers will be more likely to offer flexibility if there is a tangible reward for doing so and storage technologies such as batteries will help handle peak demand.

As a side note, we dislike Ofgem's description of CERs as a 'parasitic' load on the network. This term establishes negative connotations with consumers' existing use of assets such as electric vehicles or heat pumps, and could undermine future engagement with consumers. Therefore, we suggest Ofgem avoids such terminology in the future.

2. Will a focus on CER flexibility also help enable other forms of flexibility, especially distributed flexibility?

We do not agree that a focus on CER flexibility will necessarily enable other forms of flexibility. A focus on (domestic) CER flexibility is not enough to help enable (commercial) DER flexibility.

The non-domestic and commercial market offers greater potential for flexibility, but it is very different from the domestic market and therefore deserves its own focus. Ofgem should not seek to 'pick a winner' between diverse types of flexibility but rather ensure markets are allowed to develop and evolve effectively.

There is more opportunity for suppliers to work with large non-domestic customers to identify opportunities to flexibly operate. The non-domestic sector uses more energy than the domestic sector - according to data from the Department for Business, Energy & Industrial Strategy (BEIS), in 2020, the non-domestic sector consumed 197.6 TWh of energy, while the domestic sector consumed 121.2 TWh, or in other words the non-domestic sector consumed around 62% of the UK's total energy consumption, while the domestic sector consumed around 38%.

Therefore, the non-domestic market offers a significant opportunity for flexibility and there is likely to be a significant untapped potential for DER flexibility. Additionally, the reasons preventing non-domestic and commercial users from partaking in flexibility markets are different to those preventing domestic consumers.

⁵ For example, within recent publications such as [Next steps on our reforms to the Long Term Development Statement \(LTDS\) and the Key Enablers for DSO programme of work | Ofgem](#) and [Transitioning to a net zero energy system: smart systems and flexibility plan 2021 - GOV.UK \(www.gov.uk\)](#).

Compared to domestic customers, large non-domestic customers are likely to be more 'engaged customers' and offer more opportunity to shift demand, which means other blockers may be preventing their involvement in distributed flexibility markets.

Therefore, without targeted intervention at DER, there is a risk this potential from the non-domestic market will remain untapped.

3. Is there a 'case for change' and a need for a common vision for distributed flexibility?

As explained above, we agree there is a need to optimise the use of distributed flexibility within the energy system to help achieve net zero.

However, we do not necessarily agree that this translates into the need to have a common vision for distributed flexibility. Distributed flexibility markets are fairly nascent and there is a risk that fixating on an end state for the market may hinder innovation and disrupt new business models.

4. What is your vision for how to accelerate the delivery of accessible, coordinated and trusted markets for distributed flexibility?

Building on our response to other questions, to accelerate distributed flexibility, we think **the vision should be to enable and not slow down the development of flexibility markets.**

As indicated in response to question 5, we believe a vision with an overly strategic long-term focus could undermine short-term developments in the market and stifle the market (ie it would not enable more flexibility). A vision should not be pursued at the cost of short-term progress though.

5. Will certainty of an end vision help accelerate enabling work and make it cohesive?

Ofgem's vision for the end state of the distributed flexibility market may provide some certainty for providers looking to enter the market, by providing insight as to the future direction of the GB energy market.

However, we think the benefit of such an end vision may be overstated.

Firstly, there is a risk that any end vision articulated now may become outdated if it is succeeded by developments in the market. Therefore, its benefit may be time limited.

Secondly, and most importantly, we do not think an end vision will accelerate short-term enabling work and could become a distraction. We believe there is considerable risk that a focus on a long-term strategic vision could distract from short-term priorities. This may, for example, undermine the time market participants spend engaging with the ENA's Open Networks programme or with wider enabling work.

Ofgem should instead be focusing intervention on addressing specific problems or issues it has identified within flexibility markets. To do this, Ofgem should be seeking to understand if there are any underlying problems as to why not all flexibility tendered is contracted and why some parties wanting to offer flexibility services have not been able to sell flexibility via DNO or ESO markets. If any problems are uncovered

through such research, Ofgem should be seeking to target interventions specifically at those problems. Further to this, we believe attention should be focused on:

- Lack of standardisation of rules, approaches, technologies and products across the different DNOs.
- Lack of incentive for consumers to offer distributed flexibility services when it is not the consumers' core activity.
- The optimal locality at which DNOs tender for flexibility, ensuring that tenders present a realistic opportunity for flexibility service providers to offer their services while still addressing network needs.
- Ensuring rules within the ESO's balancing market support participation from batteries and other flexible assets, eg the thresholds for participation and rules requiring aggregation at Grid Supply Point (GSP) group.

Positive steps are being taken to address some of these problems via the ENA's Open Networks programme, which is seeking to standardise rules and establish new process.⁶ However, we recognise that the ENA Open Networks programme has not moved as quickly as industry would have liked.

Therefore, we believe Ofgem should focus more attention on the present-day problems, potentially by lending its weight to the ENA Open Networks programme and helping drive this work forward. A focus on present day problems will enable more flexibility to be contracted now and help accelerate the energy systems transition to net zero.

6. When should a common digital energy infrastructure be in place? And therefore, when should development begin?

It is difficult to comment on specifically when a common digital energy infrastructure should be in place and when development work should begin as the answer to this question is intrinsically linked to the nature of digital energy infrastructure pursued and its feasibility, which is currently unknown.

However, we believe any new central digital energy infrastructure would need to be introduced quickly and without friction to those currently operating in flexibility markets.

Additionally, we are aware of an innovation project funded by Government in 2022 considering the feasibility of some form of central digital energy infrastructure.⁷ This raises questions whether work to develop a central digital energy infrastructure has already been started by Government. Accordingly, we would expect Ofgem to consider learnings from projects like this and coordinate future plans on flexibility with Government.

7. What should a common energy digital infrastructure look like, and why? Please consider the archetypes or develop your own proposition. AND

8. What is your view on the desirability and feasibility of the archetypes or your own alternative proposition?

It is important that any new central digital energy infrastructure can be implemented without friction to those currently operating in the market, and be flexible enough to deal with a developing market.

⁶ More detail about the work programmes within the ENA's Open Networks programme can be found here: [Open Networks: developing the smart grid - Energy Networks Association](#)

⁷ For example, [Digital Spine Feasibility Study: successful project - GOV.UK \(www.gov.uk\)](#)

Providing this is the case, we can conceptually see that a directory of market operators and flexibility providers (ie a thin architecture) could make markets more discoverable, enabling flexibility providers to discover new markets.

However, we are not currently convinced that a fuller architecture would deliver benefits, especially considering the uncertainties created within the market when implementing them. As Ofgem has itself recognised within its publication, the architectures are very high level and abstract at this stage, which means any assessment of the cost and benefits of each is speculative. Ofgem needs to do further work to understand the time, cost and feasibility of each of the architectures presented to enable respondents to comment. It is difficult to provide detailed comment on each architecture until the time, cost and feasibility is known.

In abstract though, a medium and thick architectures are likely to be complex to implement, and we are wary that the benefit of each may be undermined by the challenges of implementing them. Additionally, the implementation of such architectures may have the unintended consequence of slowing down the development of flexibility markets and deterring new entrants as they 'wait' for a new architecture to come into force.

Accordingly, we believe that any vision for a central digital energy infrastructure should embrace incremental reform, initially limiting any future vision to the implementation of a thin architecture. This is preferable as it will enable industry to consider the added cost and benefits of a medium architecture over a thin architecture, and then thick architecture over a medium architecture.

An incremental approach would also enable us to take account and reflect on the impact of later changes of wider industry reform programmes like REMA and MHHS. While REMA and MHHS reform programmes are in flight, we believe ambitions for any medium or thick architecture should be paused. Reforms introduced by REMA and MHHS could impact the feasibility and desirability of a future central digital energy infrastructure, and therefore we need to ensure any programme considering this continues to reflect wider industry reforms.

Irrespective of whether or not an incremental approach is adopted, it is important an evaluation framework is developed and put in place to assess distributed flexibility markets. This will need to confirm who is responsible for assessing distributed flexibility markets and establish a clear feedback loop back to those considering whether any additional intervention is needed.

9. Should a common digital energy infrastructure be new-build, or should it build-out from existing infrastructure? AND

10. What are the important areas for consideration when designing institutional delivery models for a common digital energy infrastructure? AND

11. What are the important areas for consideration when designing financial delivery models for a common digital energy infrastructure?

It is important that the implementation of any new central digital energy infrastructure is done without friction to those currently operating in the market. As stated above, the vision of any reform should be to enable flexibility and not slow down the development of flexibility markets.

In line with our suggestion that an incremental reform approach be adopted, if establishing any central digital energy infrastructure, we think it would be preferable to initially use existing tools and platforms already established. This would be less costly and help build on work already underway within industry.

However, at this stage we do not have a strong view on the specific delivery models for any central digital energy infrastructure architecture. It is difficult to comment on whether any future central digital energy infrastructure should be publicly or privately owned, or new build digital infrastructure or build-out from existing infrastructure, when the nature of the central digital energy infrastructure is still very speculative.

Additionally, we encourage Ofgem to fully consider the lessons learned of past industry IT projects introducing centralised digital infrastructures (such as the smart meter database, central switching service and the work in progress plans for mandatory half hourly settlement). There have been lots of consultations and information gathered in recent years by Ofgem and by Government on these programmes, and learnings from these programmes should help inform the way forward on a central digital energy infrastructure.

There are two notable lessons we think need to be considered in the design of any central digital energy infrastructure. Firstly, interoperability of devices and platforms has been a consistent challenge in the smart meter programme. Secondly, ensuring high security of the platform needs to be a key consideration from the very beginning of any work developing a central digital infrastructure.

Similar to the point made above, an evaluation framework needs to be developed ahead of the delivery of any central digital energy infrastructure. This will need to confirm who is responsible for assessing distributed flexibility markets and establish a clear feedback loop back to those considering whether any additional intervention is needed.

Lastly, careful consideration needs to be given to the role of the Future System Operator (FSO) regarding distributed flexibility. We do not think the FSO will be well placed to take on a role in distribution network operation or in distribution market facilitation, or in the operation of any future central digital energy infrastructure, especially considering its lack of expertise in distribution network operation. The proposed activities of the FSO are already very wide and the addition of this distributed flexibility responsibility could increase the risk that FSO will not be able to deliver its core system operator role. Therefore, the FSO's role, and how their performance assessed, in the future energy system needs to be considered holistically as part of those wider Government / Ofgem work programme considering the role of the FSO.