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## **Sembcorp's Response to Call for Input: Future of local energy institutions and governance**

Thank you for the opportunity to respond on this topic. The effectiveness of local energy arrangements are important for the UK to reach Net Zero by 2050.

### **Context**

Sembcorp Energy UK (SEUK), a wholly-owned subsidiary of Sembcorp Industries, is a leading provider of sustainable solutions supporting the UK's transition to Net Zero. With an energy generation and battery storage portfolio of nearly 1GW in operation, our expertise helps major energy users and suppliers improve their efficiency, profitability, and sustainability, while supporting the growth of renewables and strengthening the UK's electricity system.

Our Wilton International site, within the Teesside Freeport, sits amongst a hub of decarbonisation innovation. At the site, we provide energy-intensive industrial businesses with combined heat and power (CHP) via our private wire network that supplies electricity generated by gas and biomass.

These services are complemented by our fleet of fast-acting, decentralised power stations and battery storage sites situated throughout England and Wales. Monitored and controlled from our central operations facility in Solihull, these flexible assets deliver electricity to the national grid, helping to balance the UK energy system and ensure reliable power for homes and businesses.

### **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?**

We agree that these areas are core to the necessary changes required to reach Net Zero safely and at least cost to consumers. There is a subtle distinction between 'information' and 'digitalisation' – in that correct use of information (i.e. data with relevant insight leading to clear recommendations) is needed, rather than 'more data' being available to more parties. Digitisation is the major route for successful information, allowing better decisions to be made, so digitisation is an enabler for the three functions as stated.

We believe that the majority of potential actors to see successful delivery of these functions, i.e. users connected to the distribution networks, are unaware of them. Even larger distribution users will only be aware of real time operation through Active Network Management or similar. Most users will only have a relationship with the network through their energy supplier. Suppliers are essentially commercial bodies who do not share the same obligations with respect to the larger network picture. Any effective delivery of these objectives will necessarily be dependant on users' engagement, which is currently largely

prescribed by suppliers and aggregators. It may not be necessary for users, especially small users, to become explicitly conscious of these functions for them to respond appropriately.

**2. Do you agree with the criteria we have set out for assessing the effectiveness of institutional and governance arrangements?**

We agree with the criteria.

**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?**

*Energy Systems: competence and creditability*

Local Authorities and other local government institutions may have some credibility challenges, in that they are perceived as political and therefore open to influence from short-term, political will, rather than prioritising the long-term benefits to energy users. This therefore raises concerns that individual pieces of system planning e.g. large numbers of LA-provided EV charges, may be perceived as public relation pieces, rather than necessary or appropriate for the needs of users or the network.

We agree there is a conflict of interest for DNOs between increasing their asset base and developing long-term flexibility solutions. This conflict of interest was addressed at the Transmission level by initially separating the Electricity System Operator from the Transmission Network Owner, and the recent decision to establish a fully independent System Operator, which was welcomed by industry. There was significant time and resource spent on creating a ‘legally separate’ ESO, which was ultimately not enough. There is not time to make a similar mistake of a “halfway” solution with DNOs/DSOs. Y

*Energy Systems: accountability and coordination*

The Energy Network Association (ENA) has facilitated good communication between the network owners, although engagement with industry and users is challenging due to the technical nature of the discussions.

There will often need to a balance between users’ needs, the capability of the network to serve and the cost impacts of network improvements. A single actor should be able to balance those needs transparently, possibly informed by separate parties, such as Local Authorities.

We note that the Network Options Assessment process has improved considerably over recently years and could present a template for system planning decisions at a local level. A single actor would also be able to judge impacts across timelines, as currently separate bodies do not necessarily use the same basis for assessment.

*Energy systems: Simplicity*

We believe a single actor has the potential to simplify the process of system planning for the rest of industry and users. They would represent a clear point of contact and could adjust the depth of their engagement to suit the intended for audience. They would also be the main source of information and so reduce the risk of seemingly contradictory information.

*Market facilitation of flexible resources: Credibility*

We have very significant concerns about DNOs credibility in facilitating effective markets, given that DNO-owned and operating equipment is allowed to participate in nationwide ancillary markets through Project CLASS. Flexibility providers will be reluctant to enter a market where they will be competing against subsidised bids from the market operator. It

would be almost impossible for the DSO to facilitate a fair and competitive market, as distortions are built into the design. For the DSO to have credibility in designing and operating flexibility markets, they must be completely independent.

DNOs may not currently have relationships with the range of flexibility providers needed for a liquid and cost-efficient market. These relationships may need to be built through suppliers, aggregators or other service providers, meaning ‘credibility’ and perceive conflicts of interest may be wider than simply the market facilitator.

#### *Market facilitation of flexible resources: Coordination*

Sufficiently detailed coordination is essential, as it is desirable that flexibility providers are able to participate in multiple markets, with appropriate revenue-stacking. By appropriate, it is important that assets can be utilised by multiple markets, to keep overall costs down and efficiency system operation up but coordinated in such a way that providers are not paid multiple times for fulfilling the same need. In order for that to happen, there must be links between similar flexibility markets on overlapping networks.

#### *Real time operation of local energy networks: competence and credibility*

There is a conflict of interest for DNOs between real-time solutions and long-term network solutions. Under currently funding methods, DNOs are indirectly incentivised to increase their asset base, which works well for a passive system where user demands are absolute. As distribution systems evolve, this will no longer be suitable.

System operators may also presented with a more difficult technical challenge than the ESO currently faces. The ESO can dispatch assets based on clearly defined physical parameters and limits, such as Minimum Net Zero Time. This is possible partly because of the relatively small number of assets involved, but also most of these assets have the “power market” (the sector, as opposed a particular area of the market) as their main source of income. They are able to change operation as instructed by the ESO for the appropriate price because that is, at least partly, their business model. A lot of distribution-level assets, at least in the near term, will not have the “power market” as part of their primary business model but will have more important commitments. This might be a minimum charge rate for EVs or times when demand reduction is possible (weekends and nights) and times when it is not (working hours). That may present the system operator with significant technical challenges, which no current body has the tools or expertise to deal with.

#### *Real time operation of local energy networks: coordination*

Coordination with require efficient communication, clear processes and potentially, a hierarchy of actions. As well as the obvious risk of opposing instructions, there is also the potential for distribution systems to increase costs on other distribution systems.

Hypothetically, if one local area is ‘perfectly’ balanced (which probably took significantly high prices), it is highly unlikely the nationwide system will be balanced. It is counterintuitive to ask a local system to ‘unbalance’ itself, and so the costs of nation-wide balancing will fall onto other users, at potentially higher costs (locally and overall) than if the ‘perfect’ area was allowed to be slightly imperfect.

There is the risk that DNOs are developing their own view of what a DSO will be. If multiple similar-but-different DSOs are allowed to develop, nationwide coordination will be significantly harder, due to the increased complexity and different options available.

**4. Overall, what do you consider the biggest blocker to the realisation of effective energy system planning and operation at sub-national level?**

**5. Do you agree with the opportunities of change we outline and the potential benefits they may create?**

We agree with the synergies identified, although the processes to maximise them will need to be developed carefully. Synergy 3, for instance, should involve an element of ‘lessons learnt’ to take forward, which can need encouraging if within a single body or careful monitoring to ensure cooperation if between multiple bodies.

**6. Are there additional opportunities for change and benefits that we have not set out?**

There is a significant potential benefit around consumer engagement. In order to reach Net Zero, it is likely that smaller users will need to become more active in managing their network use (e.g. time of use tariffs, controlled EV charging) and more comprehensive local energy governing arrangements should help realise opportunities for those small consumers that will be able to/wish to engage. It is likely that this engagement will not align with the current “supplier hub” principle of communications with small users, and users are not able to engage with measures designed to encourage efficient network use are not penalised.

**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?**

We agree that distribution-level reform is different to transmission-level reform, in that there is only one ESO. However, we believe this challenge can be overcome. The concept of a Distribution System Operator is not well understood and certainly not yet defined. All reform requires change from what currently is to what will be and new information flows will be essential to any solution that achieves the benefits described in this consultation. We therefore believe that significant changes to DNOs are not only achievable, but necessary, otherwise responsibilities and accountability will continue to be unclear. The cost to industry in terms of time-resource and cost can be mitigated by sensible, realistic timelines and careful implementation.

We believe that there is a real risk of different areas of the country having different opportunities, with associated costs and benefits, if DNOs are not reformed equally. This would represent undue discrimination to consumers and prevent some groups of consumers from realising the full value of this reform. As different DNOs are further along the road to becoming what they individually perceive as a DSO, there will need to be greater change for some DNOs than others, whatever solution.

We also note that with the changing nature of energy use (more active smaller consumers, more decentralised generation and service provision and electrification of heat and transport), DSOs will become extremely powerful, with considerable danger of (unwittingly) of reducing benefits to consumers, through unduly high costs or inappropriate decisions. They therefore must be closely regulated, and a separate entity with their own price control is the most suitable option to do so. This would also provide a clear separation in roles between DNO and DSO, mitigating the duplication DNOs are concerned about.

**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?**

*Internal separation of DSO roles within DNOs*

We strongly disagree that internal governance measures will address the perception of conflict of interests and will serve to actually make it harder for users to highlight inappropriate by reducing transparency. While some DNOs may do this successfully, it is unlikely that all will do so and this will cause harm to users based on geography. It is also not clear how these mitigations would work where multiple DNOs/DNO areas are owned and operated by a single company. There is potential in the future for companies to benefit by playing DNO areas ‘off against each other’.

*Independent Distribution System Operator(s) (IDSO)*

We agree that independence is necessary for mitigation of conflict of interest and believe this should be a stronger consideration than ease of implementation. If an easier framework is adopted, but does not address conflicts of interest (real or perceived), there will need to be another round of regulatory changes, as with the legal separation of the ESO then moving to an independent System Operator

We do not necessarily agree that some or all DSO roles are inextricably linked with DNO roles. We note similar arguments were made around the separation of the ESO from the TO and the baseline today shows that it is not the case. There are areas where close communication is necessary, and we believe ESO-TOs communications could be used as template.

*Regional System Planner and Operator(s)*

We agree with the assumption that DSO roles need to be carried by a separate body to mitigate conflict of interest.

We believe there is already a case for a true ‘whole system approach’ which link electrical power with local heat networks and transportation hubs. This especially true with regards to the planning function, although we agree that network planning generally at distribution level is hampered by gaps in coordination.

There is a key assumption – and benefit – to this framework that is not recognised. The DNO boundaries are largely arbitrary as they were determined by network usage and social development historically. They are not representative borders for any other demographic – for instance, for Wales-England border, or urban/suburban/rural. A regional-level system planner and operator that is not tied to DNOs will be able to view community needs and areas more holistically and so provide wider benefits for consumers and society as a whole.

*Interacting organisations*

We agree that roles within the bodies with competencies to deliver them is an advantage to this model, but it is not clear who will decide where the competencies sit, or how. Where roles are new, or in the stages of developing, different institutions may be currently developing the skillsets and competencies required in different parts of the country. There is therefore the possibility that the same role “should” sit with different bodies around



the country, which increases complexity and confusion around responsibility and accountability.

A mix of private and public governance has the potential to ‘build in’ conflicting drivers, such as political will against financial incentives. This framework needs to be further developed before the benefits and risks can be fully appreciated.

**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.**

We believe that Regional System Planner and Operator(s) would provide the greatest advantages against the status quo. It

- Fully mitigates real or perceived conflicts of interests, including where multiple DNO areas/networks are owned by owned company
- Allows clear accountability between different roles and will be able to judge whether value or money for consumers has genuinely been delivered
- Has the potential to best understand the realities of consumer needs, rather than being tied to GSP area
- Is the most future-proof as it can be easily expanded to multiple energy vectors (and new vectors as they develop)
- Has the potential to allow regions to work together without taking on ‘competitive’ roles for a coherent national view
- Will be medium difficulty to implement. Changes in roles to local government are unlikely to be a significant barrier to implementation, as those LAs that are already engaged (such as public EV charging hot-spots) will have the skill set to engage and those that are not will be supported in developing these areas. The licensing and regulatory set-up can be developed in parallel with the Future System Operator (FSO), which will avoid duplication within BEIS and Ofgem, and ensure differences between distribution-level system operation and transmission-level system operation are justified, rather than accidental.

The IDSO model has similar advantages but we are concerned that parties with a GB-wide portfolio would have to engage with a lot of different organisations performing the same role in different ways. There is the potential for disengagement if parties have to work with 14 DNOs and 14 IDSOs. Our preference would be for a single IDSO, covering all DNO areas, who would then be able to take a nationwide view along with the ESO, improving collaboration.

**10. What do you consider to be the biggest implementation challenges we should focus on mitigating?**

The greatest implementation challenge to this program is the amount of other work being taken on by Ofgem, BEIS and industry. Some, such as DUoS reform, Code reform and the development of the FSO, have natural ties to this work and can be progressed together. Other areas of reform, such as the REMA, switching and balancing reviews mean resources all round may be limited. We would therefore suggest that a realistic timetable is set, to allow everyone to plan, prepare and implement changes smoothly.

We do not believe interaction with local government is as big an implementation challenge as described in this consultation. There are examples of interactions with local governments, either in advisory or controlling roles, such as Local Enterprise Plans or the development of Local Area Energy Plans. Under the Regional System Planner and Operator framework, if local authorities do not choose to be 'active' in their engagement (such as a permanent representative), they could be considered 'a customer' or representative of 'consumer's needs' more broadly than basic network design.

**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)?**

Under project CLASS, DNOs are currently both providers of, and procurers of, ancillary services. Whilst it is uncompetitive for DNOs to participate in national markets, there is also the potential for DNOs to use CLASS instead of local flexibility markets, which would significantly delay, if not eliminate, the benefits recognised in Ofgem's flexibility programme.

**12. Are there other key changes taking place in the energy sector which we have not identified and should take account of?**

**13. What do you consider to be the most important interactions which should drive our project timelines?**

A decision should be made as to whether this project is to run parallel with the FSO, so the arrangements can be reflective and coherent, or afterwards, with enough time for 'lessons learnt' and a clearer strategy on the future of other energy vectors.

If you wish to discuss our response further, please get in touch.

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