

Digitalisation and Decentralisation; Energy Systems Management and Security
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The Future of Distributed Flexibility

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 over 1.3GW in operation or under development, 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 energy 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.

Section 1

We agree with the benefits identified in the Call for Input and agree that is essential for Net Zero. With appropriate digitisation and information, it could allow for a degree of 'self-stabilisation' in the consumption of energy which would, in turn, stabilise the financial elements. If incorrectly poorly, it could exacerbate problems by increasing uncertainty, requiring more complex modelling or broader assumptions.

Flexibility from CER presents more a challenge than DER as it is a new area, requiring collaboration between industries that have not historically interacted directly, such as white good manufacturers and the Authority. There may also be a significant consumer trust challenge – decisions made by business to provide flexibility using DER are more likely to be logical, business decisions that respond to clear financial incentives. In contrast, CER are more personal and flexibility provision is less likely to justify initial costs. The value of CER is also harder to express – we agree that CER must be aggregated to be of value to the system and the volumes expected mean the scenario of parasitic CER is not in the interests of consumers or the system. The level of aggregation means the reward, remuneration or other incentive to an individual CER user is likely to be extremely low, even though the

impact of providing flexibility may be perceived to be high (or high risk), such as white goods not performing optimally for their owner.

Section 3

We would support a thicker, more centralised model as we believe it is more likely to be successful. The effectiveness of the market – sending accurate signals to the correct parties – is the most important criteria in our opinion. If the solution is otherwise perfect but users are being incentivised to act in a manner that is unhelpful to the system, this will be similar or worse than the status quo. There will be no realised benefits yet users will have paid for the platform. We believe it is possible to build a thick flexible energy system that still encourages innovation – if the algorithm that optimises the system is transparent enough, developers will be able to find ways to ‘improve’ their product within that algorithm or meet the requirements of the market whilst providing the best user experience. Flexible energy delivery will be a secondary purpose of the CER, and the interaction between that primary purpose and the market will present a space for innovation, regardless of the model chosen. We are also sceptical that thinner archetypes are more adaptable: whilst change can happen faster in some areas, it can lead to incompatibilities becoming ‘built in’ and benefits not being realised across the system. A central body can evaluate changes and trends holistically and apply the most appropriate response whereas a thinner model would require more coordination and communication to affect market-wide improvements.

Section 4

On balance, we would support a build-out from existing assets – this would enable ‘quick-wins’ and is likely to be received better by market participants than completely new, untried infrastructure. We also consider development would be faster, bringing benefits to the consumer soon and supporting the development of the thick archetype.