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26 June 2023

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RE Centralised Strategic Network Plan: Consultation on Stage 1 – modelling future supply and demand

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.

Q1. Do you agree that we should move towards pathways instead of scenarios, to provide greater clarity on the type of investments required under the CSNP? (p 13)

We support the FES and related information, but recognise these are potential scenarios, not investment guidance. The industry now requires a more focussed approach to achieve Net Zero.

We acknowledge that the FES have been developed with good stakeholder engagement, the derivation of sensible assumptions and use of good data inputs. The move towards pathways

should improve on the FES approach by modelling and illustrating co-ordination at a more granular level. This will provide a greater clarity and better inform investment decisions.

The GB electricity network holistically requires a great deal of investment both nationally and regionally. The underlying decisions for these investments and associated developments must be clearly aligned and co-ordinated.

We consider that the proposed shared single, short-term pathway will provide the best approach to establishing a clear and common view of the type and location of network developments and the investment required to achieve these aims. The development of these pathways should be clear and transparent for all interested parties who will have differing interests towards their decarbonisation targets. Key to these are differing implementation timescales, which should be recognised in the pathway. We expect the pathways to play an important role in meeting individual parties' objectives, as well as national Net Zero targets. Taking these points together it is therefore important that the development and implementation of the pathway approach is transparent. To provide clarity and transparency, consideration must also be given to stakeholder engagement throughout the process to ensure acceptance, agreement and support with the type and scale of investments required. Feedback here will help to optimally develop the pathways as they branch to include additional assumptions required to assess uncertainties, as they emerge. Such an approach will enhance the credibility of any investment signals as they develop from the CSNP modelling outputs.

Q2. Do you agree that there should be a single forward view of the near term for all pathways? (p 13)

We see that there are benefits to providing a single forward view for the near term for all pathways initially.

In order to achieve a carbon-free electricity system within the timelines set, a clear course of developing to overcome existing challenges needs to be established at the earliest opportunity. The pathway approach should help to clarify these practical solutions to those challenges, such as constraints and changing system needs. This will ensure that system developments are focussed on meeting GB's Net Zero targets and not side tracked by having to manage and disproportionately invest in stranded asset management or whole system inefficiencies.

We support the need for the FSO to provide such leadership from an independent perspective, continued full visibility and engagement of interested parties at key stages is vital to provide realistic expectations.

We believe the pathway development requires further co-ordination with environmental permitting and health and safety aspects that could hinder the scale and pace of developments.

For example, a site's COMAH requirements could take up to two years to complete, if converted to producing/ storing hydrogen. Pathways should be developed holistically, for the GB energy system as a whole. For example, projects need to cater for carbon sequestration and hydrogen production, transport and storage. Any changes to legislative and cultural changes that may have an impact may need to be considered. As the energy industry develops for the future there are likely to be coordination and communication requirements to ensure that the various government departments remain appraised in order to fulfil their roles and responsibilities. These aspects of the policy development process may also influence the definition of short-term in this context. Government could help here by ensuring clear alignment and requirements as the energy system is developed and new energy sources are planned for connection.

A single pathway has the disadvantage of potentially stifling other viable options and may become self-fulfilling. It seems reasonable that private R&D may be discouraged if expectations of the future system are perceived as 'fixed', with limited new opportunities. On the other hand, a single pathway could clearly signpost system needs and encourage innovation in specific areas. The timeline of the single pathway would need to take timescales of R&D projects in account, to allow suitable innovative space. There should also need to be alignment between government funding into research and innovation and the longer-term pathways, or there is a risk that two areas will be seen as conflicting.

Q3. Do you agree with our proposal to have Net Zero compliant pathways (number to be determined by FSO), with a separate counterfactual demonstrating the scale of activities and investment that falls short? (p 15)

The proposal for the FSO to develop a number of Net Zero by 2050 compliant pathways will best ensure that the current ambitions to achieve a Net Zero energy system are met. We would expect them to send clear investment signals to the transmission network, the types and locations of new energy sources and connection timescales. Given Ofgem's intent, covered under their separate consultation on Energy Institutions and Governance, to improve and co-ordinate network planning down to the distribution level, we would ask that the FSO considers this aspect when developing the new pathways.

We believe that it is important to consider the costs of not meeting Net Zero and that this should be carefully presented so as not to be considered as a viable option. We do however anticipate that the role of monitoring progress towards achieving the Net Zero targets falls within the scope of the FSO. The proposed separate counterfactual approach would seem to achieve this but we look forward to further engagement with the FSO to establish how this will be best

achieved for all stakeholders and to help shape this argument and clearly establish how it should be used and presented.

Q4. Do you agree that the pathways should run to 2050, and if not, why not? (p 15)

We agree with and support the notion that initial planning and modelling of a series of pathways should run to 2050 and have the target of a fully realised Net Zero energy industry in mind. We further welcome and support the suggested iteration and regular update approach to maintaining these pathways. However, the modelling approach must remain open and flexible to accommodate future developments that could emerge.

Given the current level of potential unknowns, we believe that it would be prudent to consider an extension to the pathway modelling beyond 2050, otherwise the industry runs the risk of losing momentum and missing key targets. The industry must maintain a flexible approach to considering the future view, past our current targets, even if unclear what this may involve.

Q5. Do you agree that the model should develop the capacity to include extreme data ranges when requested of the FSO in its role as strategic advisory body? (p 17)

We agree would be prudent for the FSO to include in its methodology the ability to model extremes in data ranges. This would allow the FSO to quickly react to any unexpected scenarios. For example, the energy sector would not have envisioned the scenarios that we have recently experienced regarding the covid pandemic or the Russian invasion of Ukraine and the effects that these have had. Both scenarios would have been deemed extremely unlikely just a couple of years ago.

These modelled outputs would not necessarily be for public consumption as they could undermine the purpose and intent of the proposed new pathway approach, but such analysis may provide the FSO with additional insight into otherwise unforeseen vulnerabilities in the system.

Q6. Do you agree with our consultation position on modelling network constraints? (p 18)

The modelling of an unconstrained network can be useful, but the investment required to mitigate the impacts of constraint must also be considered. If the decision is made not to model constraint over the longer term, we would anticipate that these aspects are covered under the NOA process. This would require the FSO and TSOs to have the ability to compare plans and identify the network requirements and act on these. For example, the costs and benefits of deploying storage technologies, such as batteries, and network reinforcements. An unconstrained network is inherently inefficient, and this aspect needs to be considered.

We currently believe that network constraints are and will continue to be an issue that needs to be addressed for some time. We therefore remain to be convinced that network modelling should be unconstrained in the longer term without an alternative to assess these impacts.
Whilst this approach will help to provide appropriate network investment signals, it may not fully recognise the importance of the growing electricity storage technologies, the increasing number of system connection applications for storage and the benefits that storage can provide. The importance of battery storage as demand, particularly at times of coincident excess wind generation and network constraint, should continue to be considered within the proposed development of focussed pathways.

Q7. Do you agree with our consultation position, and do you have a view on which data principles should be possible to adopt for the first FES? (p 20)
We strongly advocate FSO transparency of data inputs, outputs and modelling and that this information should be widely available wherever possible. Without such openness the FSO is likely to receive much less feedback or of poorer quality. This will make it harder for the FSO to fulfil its roles and responsibilities.
We further support information as described in the consultation in supporting guidance documentation. This is a more flexible and transparent approach to encourage open discussion by all stakeholders.

Q8. Are there specific stakeholder needs cases for publication of data, including the format of outputs? (p 21)
We currently have not identified any further specific stakeholder needs cases and agree with those presented as a good starting point. We would however suggest that needs cases remain under review. It is vital that outputs are detailed and consistent so that parties can perform analysis and use the outputs as a complete and reliable data source in and of itself. This will lead to a better understanding of the pathway and more effective response from industry.

Q9. Are there specific data outputs associated with the FES that we should mandate? (p 21)
We do not have any specific views on mandating data outputs at this time. However, we ask that ongoing development of government policies and discussions between Ofgem, the FSO and stakeholders continues to be open and transparent and that the FSO remains flexible to accommodate any requests as the pathways develop.

Q10. Do you agree that regional and/or industrial hub pathways should be included in the FES? (p 22)

If the FSO is to maintain a holistic view that fully considers all energy vectors and coordination of key requirements at both a national and regional level, it is vital that both regional and industrial hub pathways are included.

The government and Ofgem are reliant on Industrial clusters to take the lead on several new fronts, including the initiation of the hydrogen economy. These aspects must therefore be incorporated into any modelling strategy to fully understand the energy system requirements, any emergent shortfalls and continue to provide the correct investment signals to providers of these technologies.

We further agree with and support the need for the FSO to model pathways for each region. We would, however, ask that further consideration is given as to how the FSO will manage any potential conflicts that could arise between local parties, for example, DSOs and Regional planners with their very localised view vs the FSO bigger picture and how these will be resolved. The increased disaggregation of such a modelling approach will need to be carefully managed if it is not to undermine the intent of pathway developments in general and potential investment signals in particular. With this in mind, we look forward to the further consultation as set out in section 3.53.

Q11. Do you agree with our proposal for a 'major' FES in the year prior to the main CSNP publication, with smaller annual updates in the intervening years? (p 23)

Regular updates assumes that the core pathways remain relevant. Given the pace and scale of change required, this may not necessarily be the case. Therefore, 3-4 years between major updates currently feels too long, particularly during the early years of pathway development. It must also be noted that annual updates are likely to involve a considerable amount of work, such as revisiting and review of assumptions.

When considering the trade-off between incremental and major publication of the pathways, the key question seems to be what would trigger the need for a major publication? For example, the impacts of an increased pace and scale of change, when compared to forecasts, or external forces such as significant increases in gas prices that could derail any underlying assumptions.

With these points under consideration, the publication timescale should be kept under review. This will ensure that updates and CSNP publications continue to provide stakeholders with the timely, clear and transparent information and access to data. This, in turn, will help to manage

investment decisions and provide informed feedback and continued full engagement with the development of the FSO pathways.

Q12. Do you consider that longer-term evolution of energy supply and demand modelling should head in the direction outlined above and if so how? (p 24)

We welcome the long-term inclusive approach to the evolution of supply and demand modelling and suggest that Ofgem continues to ensure that it continues to consider other major industry initiatives that will have a bearing on pathway developments, such as REMA.

In a shorter timeframe, there could be significant co-dependences and benefits of more operational modelling, to anticipate challenges to system optimisation significantly ahead of time and have information to make anticipatory change.

If you have any questions or would like clarification on anything with our response, please get in touch.

Yours sincerely,

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