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Solihull, 1st May 2019

Subject: Sembcorp response to the Open Networks Project Consultation on Future Worlds Impact Assessment

Dear Farina,

Please find here below Sembcorp response to the Open Networks Project Consultation on Future Worlds Impact Assessment

Context of the response

Sembcorp is an established industrial energy, utilities and services provider to major process businesses based in the Teesside area. On the Wilton International Industrial site, Sembcorp owns and operates one of the largest and most efficient combined heat and power (CHP) plants in the United Kingdom. With 200MW of installed capacity, the plant supplies electricity and heat to on-site businesses via the private distribution systems that are owned and operated by Sembcorp.

Sembcorp, through its wholly-owned subsidiary UK Power Reserve, is also the leading provider of secure, flexible, low carbon electricity and services to the UK power market. With a contracted portfolio of over 1GW of decentralised thermal power generation and battery storage assets, we help keep the country's electricity system balanced and resilient. Our fast-ramping, low-cost and efficient assets are located across England and Wales, improving competition, contributing to security of supply, and delivering better value to consumers. Our assets are, and will continue to be, crucial to delivering a flexible energy system in which a greater proportion of energy is delivered by intermittent, low carbon generators.

We welcome the opportunity to discuss our response further. Should you have any questions, please do not hesitate to contact me at alessandra.dezottis@sembcorp.com

Kind regards,

Alessandra De Zottis
Regulatory Affairs Manager
Sembcorp

Consultation questions

Q1. Please confirm which stakeholder group you believe that you belong to; this will enable the Open Networks Project to understand the spectrum of respondents to this consultation.

Sembcorp business at the Wilton International Industrial site fits into the stakeholder group “Local Energy Systems”, as its arrangements are those of a private network used to supply industrial complexes.

Sembcorp’s wholly-owned subsidiary UK Power Reserve fits into the stakeholder group “Distributed Energy Resources”, as the assets include decentralised thermal power generation and battery storage.

Q2. Please provide your views on Baringa’s interpretation of the Future Worlds, detailed in Section 2, for the purpose of this impact assessment and the overall approach, highlighting any key strengths or weaknesses, or areas which should be explored in more detail?

Sembcorp welcomes Baringa’s IA: it is a well-thought piece, which helps set out the range of variables and options for the DNO-DSO transition and what these scenarios might entail for the wide energy ecosystem.

We also welcome the approach favouring a naturally evolving transition, which values both the current arrangements and the future opportunities for a low-carbon and resilient energy infrastructure. We therefore support the introduction of developmental stages for each Future World.

Although we have not analysed the details of the modelling work, we would like to share some feedback based on the text of the consultation, particularly on certain aspects of Baringa’s interpretation and assumptions within Section 2.

World A – In the 2018 Future Worlds consultation, we had already flagged the issues and risks of allowing a DNO/DSO to participate in competitive markets. The issues persist also in the event of DNOs/DSOs being allowed to participate in the Balancing Mechanism (BM) as Balancing Service Providers (BSP), instead of Balancing Responsible Parties (BRP). Allowing DSOs to provide services on a locational basis to the ESO will only exacerbates current concerns around the actual effectiveness of roles and scope of regulated activities in preventing market distortions as the energy system evolves.

DSO activity in the BM would have severe detrimental effects on competition, with unprecedented and unregulated knock-on effects on the balance of BM participants, who, for instance, might incur in undue charges or might not be able to deliver as expected by their Final Physical Notification (FPN).

The role of DNOs/DSOs as aggregators cannot - and should not - be justified by the need to optimise existing network assets and manage network congestion and capacity. Where DNOs/DSOs become active market participants, these markets are no longer truly competitive. This would also be impacting on system security by taking away market share on market participants that are allowed to participate in competitive markets.

Compliance with EU legislation is also key – and the assumption that “... the DSO was required to aggregate DER under each GSP to offer flexibility into the Balancing Mechanism and Balancing Services Markets, but not responsible for energy balance at each GSP” is not in compliance with EU Network Codes and Guidelines: Art.

15.1 of the European Balancing Guidelines (EBGL)¹ helps shed some light on the various functions and responsibilities of the different parties contributing to the electricity balancing market. The provision states that “DSOs, TSOs, balancing service providers and balance responsible parties shall cooperate in order to ensure efficient and effective balancing”, clearly differentiating and keeping separate DSOs from market participants (BRPs and BSPs).

DSOs are - and should continue to be - completely separate from market participants that are financially responsible for balancing the system and from those that provide the services but are not balance responsible (e.g. Virtual Lead Parties as per Modification P344 – Project TERRE)

Finally, allowing DSOs to offer regional and national services to the ESO and neighbouring DSOs does not comfortably sit with the role of neutral market facilitator. Such role is also promoted by the Clean Energy Package.²

Any DSO’s activities should therefore be appropriately focussed on optimising the operation of their network to achieve the best outcome for GB consumers and not negatively impacting upon the efficiency and competitiveness of UK energy markets.

World B – This is the scenario that in principle allows market participants to stack revenues across different markets. Stacking value across different parts of the market is very much encouraged by Ofgem³ as it spurs investment in new services and technology. This direction from the Regulator should be considered in conjunction with the EU requirements according to which the ESO is ultimately responsible for the overall national system balance.

Therefore, the assumption for World B whereby “DSO’s needs would be prioritised, with the residual flexibility offered by DER being available to the ESO” is questionable and distort the perspective of who the ultimate entity responsible for balancing is. World B allows DSOs to address local constraint issues, but these should be addressed without compromising the overall system balance, and allowing DER providers to offer their residual flexibility directly to the ESO.

World C – We agree that the reform of access and charging arrangements should be assessed as an integral part of all Worlds, and not just World B. World C should therefore not be a standalone scenario and it should be integrated in the other Worlds in the next assessments.

World D – We in principle agree with the assumptions for Stage 1 of World D. The assumptions for Stage 2 would need to take into account the current role of DNOs in managing their network that would still be in place regardless of the outcome of the access and charging arrangements reform.

¹ Article 15.1 of the European Balancing Guidelines. Accessible here: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2195&from=EN>

² In the Recast Electricity Directive, which has recently been adopted by the EU Parliament and is due to be adopted by the Council in May 2019. More info here: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

³ BEIS and Ofgem, Smart System and Flexibility Plan, July 2017. Accessible here: https://www.ofgem.gov.uk/system/files/docs/2017/07/upgrading_our_energy_system_-_smart_systems_and_flexibility_plan.pdf

World E – This is the only scenario trying to address and deliver the role of DSOs as neutral market facilitators. Industry has been continuously raising the issue of the need to mandate a legal separation between DNOs and DSOs to limit the risk of conflict of interest in the key responsibilities of supporting the optimisation of the wider electricity system, actively managing the network, and optimising the amount of network reinforcement needed. Yet, this requirement seems only to be considered in a standalone World instead of it being integrated across all Worlds as is the case for World C.

Q3. Do you agree with the conclusions and insights within the Executive Summary? If not, please explain your rationale. Please provide reference to more detailed comments against individual sections if this is appropriate.

Q4. Do you agree with the options set out as potential transition paths?

We agree that Transition Path n. 4 is available throughout other transition paths, potentially as increasing separation of the roles of network operators to become more independent. We are concerned that this would represent a delay in the benefits of World E as expressed in this Impact Assessment, and therefore should be discouraged. A clear choice of transition path guided by government and regulatory policy will allow consumers to see the benefits described of each world soonest and at lowest overall cost. A late movement from World A Stage 2 to World E could result in costs associated with multiple flexibility coordinators, and significantly erode the benefits described in World E.

Q5. Do you believe there are any other viable transition paths? If so, please explain why.

There is a long-term concern that if Transition Paths 1, 2 and 3 are not managed correctly, that is if industry or consumers do not believe the transition is in the best interest of consumers, the industry may 'slide' between World A or World D. This would, in practical terms, mean that we remain in World B Stage 1 for longer than intended, delaying benefits other Worlds would bring and not addressing the challenges that industry is starting to face currently.

Whilst we do not envisage any other 'viable' Transition Paths, it must be noted that the described paths are not discrete from each other, nor guaranteed to progress. There will need to be continuous monitoring, both from within the industry and from regulatory bodies, that we are following the appropriate path.

Q6. Do you agree with the assumption that all transition paths start in Stage 1 of World B?

Sembcorp welcomes the identification of different Paths that offer a realistic and natural evolution of the system. We support World B Stage 1 as the starting point for all Transition Paths and agree with the key insights of the assessment.

In particular, we believe that the most adequate way forward is the continuation towards World B Stage 2 (i.e. Transition Path n.1). Path n. 1 duly consider the connections and charging needs and arrangements for DERs to thrive in providing flexibility services to the ESO and in the future to the DSOs. Stacking revenues and value is a key element for DERs to be able to provide services to multiple system operators and to do so competitively and at the lowest cost to consumers. World B (Stage 1 and 2) should however be mindful of the need to re-

assess the priority given DSOs' needs. Such assumption should be reconsidered and changed as appropriate, as previously explained in Q2.

While we appreciate the need to consider the level of DER uptake to assess the trigger points for the Transition Paths, we do not agree with the assumption and conclusion that Transition Path n. 2 is necessary due to the fact that a high level of DER uptake makes coordinated procurement across the ESO and DSOs problematic: DNOs are already developing and using a platform to procure flexibility (Piclo), which gives the opportunity to manage local constraints and fine-tune the way they procure flexible resources in line with the current ESO arrangements. The move to a DSO-led coordination as per Transition Path n. 2 would bring a range of limits undermining the possibility for flexibility providers to retain full access to markets at transmission level and competition issues, should DSOs be allowed to participate in the BM and ancillary services markets. We therefore do not support World A and Transition Path n. 2.

Q7. Do you agree with the areas identified for further work in the 2019 workplan and the further work ideas in the impact assessment or do you feel there are other areas of work that should be prioritised to progress in this area?

Of the four areas identified for further work, Sembcorp believes that the third area regarding assessing and mitigating the potential conflicts of interest requires considerable further assessment. We are keen to stress once again the need for a legal separation between DNOs and DSOs and the need to apply this requirement in all Worlds.

DSOs will be faced with similar responsibilities as the ESO. National Grid is undergoing greater separation of its electricity system operator role, with two legally separate companies owning the cables and procuring services respectively. Similarly, the DNO/DSO functions should undergo the same separation, in order to avoid conflicts of interest that would otherwise exist for a company that both owns the distribution network and also procures flexibility services on that network.

A DNO/DSO separation will guarantee a level playing field between DSOs and the ESO, which is appropriate since these entities will eventually have the same role and responsibilities, in the distribution and the transmission system, respectively.

Such separation is key, especially considering the increasing difficulty for the ESO to access unconstrained services from DERs and the subsequent larger and more complex role of DSOs, which will be tasked to coordinate balancing actions with the ESO, and provide visibility of available flexibility from DER.

The capability to procure flexibility services from a range of providers, and ability to run market platforms and, on the other hand, the ability to plan, manage, develop and maintain the distribution system should be attributed to two separate entities to avoid conflict of interest, as is the case at transmission level.

The need for such separation is even greater when considering the DSO capability to evaluate and deploy technology and innovation in a timely, secure and efficient manner. Only with legal separation will it be possible to effectively select the right combination of flexibility solutions and reinforcement needed for the distribution networks and the wider system, without any conflict of interest.

In this context of innovation, UKPR is particularly concerned about the type of projects funded by Ofgem, which could for instance end up allowing DSOs to own and operate generation assets. Although we appreciate that innovation projects must have the potential to have direct impact on distribution networks and/or the operations of the SO, the ENA must address a series of competition issues, especially when it comes to allowing new categories of innovation areas: we do not support DSOs receiving consumers' money to develop or demonstrate new means of electricity generation. If the market can provide the build out of innovation, then it should do so as this transfers risks and costs from the consumer to independent investors. Only when innovation cannot be provided by the market should Ofgem consider using innovation funding.

For the remainder areas, Sembcorp agrees that the reform of access and charging arrangements needs to be reviewed as the Ofgem's work progresses.

On the second area identified as "value of flexibility to network operators at low voltages", we urge the Open Networks Project to evaluate the flexibility against the value to consumers and the impact on energy bills; and the impact on investment for DER. Measuring whether flexibility services outweigh the costs of establishing, running and operating flexibility markets at the lower voltages is inward-looking and would not provide a suitable setting for the transition.

Q8. What future work do you believe would enhance the debate and body of evidence around transitioning to the potential Future Worlds?

The complexity of the transition and the range of uncertainties that come with it require the Open Networks Project to take stock of the learnings from – and address the issues of – other parallel work streams from National Grid ESO, namely Wider Access to the BM.

Current arrangements for access to the BM do not provide a level playing field for all BMUs and this fault must be addressed and solved before looking to extend such arrangements to a new central ancillary services market for flexibility resources. All players should be granted transparent and fair access and dispatch. However, National Grid is still to provide non-discriminatory dispatch in the BM that does not discriminate on clip size. Smaller BM units must be granted the confidence that they will not be disadvantaged.

NG BM software contains a discriminatory fault, which means that smaller (less than 100MW) BM units are at a disadvantage during the dispatch process, such that they are less likely to be called to generate. Ensuring that we have a truly fair, technology neutral and transparent dispatch and settlements system is the essential stepping stone for all market players to have confidence in the BM.

The discrimination problem is compounded by the fact that different NG control room teams have different approaches to meeting the needs of the system and this adds to the actual and perceived imbalanced playing field between larger and smaller players. Given the persistent reliance on manual dispatch of BMUs by the Control Room Operators, we are particularly concerned with the failure by NG to put in place the EBS* platform (which was supposed to provide fair access to the BM and solve BM access issues for smaller providers).

As such, any further work must address this issue and these system faults need to be solved to avoid developing an unfair and discriminatory system. Only in this way it will be truly possible to have an efficient

and true coordination between SOs whose processes will need to evolve to manage increased uncertainty in system flows and demands.

Sembcorp also believes that Future Worlds should allow for variations in technologies and not attempt to control or punish market participants that are in the minority. For instance, from a Whole Systems perspective, decarbonisation, efficiency and allowing consumers to actively manage their own energy could benefit from technologies that are currently classed as "Behind the Meter". Combined Heat and Power is an existing technology that allows heat intensive industries to be more energy efficient than receiving heat and power separately. There may be other technologies that give similar benefits in a low-carbon manner, such as large-scale heat pumps. It is important that consumers are not penalised for actively engaging in their power management by being excluded from flexibility and being able to realise the benefits. Consumers should also not be forced into the energy industry if they wish to be proactive, for instance, if a small community scheme wishes to largely self-supply, there should not be a regulatory or metering burden that renders such a project unfeasible. Whatever the nature of the flexibility coordinator, there must be an awareness that they will not be able to micro-manage the industry, especially without visibility or understanding of other energy markets, such as local heat and hydrogen. Any attempt to do so will have unintended consequences and could harm consumer faith in the industry as a whole.

Q9. Do you agree or disagree with the four categories of system operation benefits identified? Are there areas that should be excluded from the list and/or other areas that should be included?

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Q10. Do you agree, disagree on the key benefits assumptions contained within Appendix B (e.g. all Worlds, apart from World C, achieve the same benefits by 2050 etc.) and used in the impact assessment? If you disagree, please explain your reasoning. Do you have any other comments?

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Q11. Do you agree or disagree on the approach used to assess the overall potential benefits of improved system operation?

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Q12. Do you agree with the assessment of the proportion of benefits which each Future World is capable of delivering in Stage 1 and Stage 2?

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Q13. Do you agree or disagree on the approach taken to deal with the uncertainty/range of benefits? If you disagree please explain your reasoning.

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Q14. Do you agree or disagree with the areas identified for quantification of the implementation costs that will be faced by DSOs and ESO in Appendix C? If you disagree, please explain your reasoning.

Sembcorp does not fully agree with the assumption and overall conclusion that all Future Worlds A, B, D, and E can deliver the same level of benefit by the time they reach Stage 2, and the related assumption that the only difference is the speed by which they can achieve Stage 2 and the costs of getting there.

Q15. Do you agree or disagree with the approach used to assess the costs of each world? If you disagree, please explain your reasoning.

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Q16. Do you agree or disagree with the approach to dealing with the uncertainty/range of costs? If you disagree please explain your reasoning.

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Q17. Do you agree with the trade-offs of each of the Future Worlds identified against each of the high-level criteria in Table 1 of the Executive summary?

Sembcorp is keen to stress that World A and B need to have mitigations in place to address conflicts of interest. We do not agree that these conflicts are merely perceived: they are real, and we are already witnessing instances whereby DNOs choose to use their own assets in competitive markets instead of procuring competitively flexibility services.⁴ The real and already present conflicts of interest must be addressed, and mitigation measures must be in place. The indication of a potential requirement for mitigation does not offer a true account of the situation and undermines the need to establish clear roles and responsibilities of market participants.

Q18. Do you agree or disagree with the Appendix A approach of ranking of worlds to help identify the strengths and weaknesses of each World against each criteria? If you disagree, please explain your reasoning.

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⁴ For instance, in May 2018, Electricity North West had three accepted static FFR tenders, two at £10.8/hour and one £16/hour. They all offer static response for a one-month period. Durations across each tender are for up to four-hours. The DNO has tendered "DSF: Load Response". Link to the FFR tender documents:

<https://www.nationalgrid.com/uk/electricity/market-operations-and-data/system-balancing-reports>

Q19. Do you agree or disagree with the rankings and whether they are suitably justified? If not, please comment on which ones and why?

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Q20. Do you agree or disagree with the list of potential unintended consequences identified in Section 4.5, and their prioritisation and potential mitigation as charted in Figure 20? If you disagree, please explain your reasoning. Should the Open Network Project progress further work on unintended consequences?

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