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Maxine Frerk
Ofgem
9 Millbank
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Our Ref: EN01-005048

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Dear Maxine,

Re: RES response to OFGEM consultation on Quicker and More Efficient Distribution Connections

Renewable Energy Systems Limited (RES) is one of the world's leading independent renewable energy project developers with operations across Europe, the Americas and Asia-Pacific. RES has been at the forefront of wind energy development since the 1980s and has developed and/or built more than 8GW of wind energy capacity worldwide, including projects in the UK, Ireland, France, Scandinavia and the United States.

RES welcomes the opportunity to respond to the Ofgem consultation entitled "*Quicker and more efficient distribution connections*" of 19 February 2015 ("the consultation"). We are extremely supportive of the principles of this consultation, and strongly welcome Ofgem's efforts to progress this issue. The existing methodology has proved to be a barrier to market entry for significant volumes of Distributed Generation ("DG"), where the exceptionally high cost and risk of major reinforcements being passed to individual connecting users has created a seemingly impassable obstacle in many parts of Great Britain.

Specifically, it is the combination of the high cost cap ("HCC") rule with prevailing distribution system design policies which can consider a major reinforcement as triggered only by the last contracting party, the party which just exceeds a design threshold. This results in an effective 'cliff-edge' where future connections are effectively unviable as no single user can progress with resulting large capital and risk obligations. Furthermore, national targets for decarbonisation are at risk due the long lead-time for certain major reinforcements, and uncertainty over when and where resulting grid connection capacity will become available.

It is our opinion that **all** of the scenarios presented could work to improve connections in differing scenarios, and **all** justify further development. We acknowledge that many of the proposals are as yet only high-level – however, please consider that worked examples would greatly increase our understanding and enable more informed comment. We would be happy to support such development. In the short-term however, we would suggest that Scenario 2 is most readily deliverable, applying lessons learnt from transmission system planning and funding arrangements.

The complexity of efficient planning and funding of networks assets is equally relevant to the transmission system, and we are concerned about inconsistent investment signals being sent to distribution or

transmission connecting users, particularly for projects which could connect to either system. **Overall, we see greater harmonisation between transmission and distribution policy as critical to efficient future connections.** RES considers that complications such as those set out in the consultation strengthen arguments for the introduction of shallow charging in a manner aligned with the transmission system methodology. This would remove some of the arbitrary commercial effects of the currently divergent charging methodologies and establish a level playing field for all generators; in what is becoming an actively managed total system in which generators of all sizes participate.

We note that many of the various concepts detailed under scenario 4 are under consideration by the ENA DG-DNO steering group, which seeks to improve DG connections service in response to the annual DG Fora. On behalf of the group, we would welcome Ofgem's attendance to discuss any of these or related issues:

<http://www.energynetworks.org/electricity/engineering/distributed-generation/ena-dno-dg-steering-group.html>

In relation to active network management and flexible connection terms, as per answers to Q20, Q23-26 and Q29, please also consider the *Flexible Connections* work undertaken by Smart Grid Forum work stream 6.

<https://www.ofgem.gov.uk/electricity/distribution-networks/forums-seminars-and-working-groups/decc-ofgem-smart-grid-forum/work-stream-six>

The specific consultation questions are answered in the following pages. In overview, I would summarise:

- We welcome Ofgem's efforts to tackle a hugely significant issue in connections.
- All scenarios could work, and all justify further development.
- Scenario 2, adopting only the best elements of transmission's SWW process, would seem to offer the most benefit in the short term.
- Obligations to restrict connections to a particular type or to a specific asset would be unacceptable as contrary to license conditions.

We look forward to contributing to the further development of any related solutions.

Yours sincerely,



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I. Scenario 1: DNO funds via DUoS, costs spread

Q1 Would a DNO be sufficiently confident about future connections demand and the benefits to DUoS customers to justify this approach? If so, in which circumstances?

Consider the ‘heat maps’ published by DNOs to indicate available capacity for new generation connections¹. There are today many *very large* geographical areas – take for example the whole of Eastern England or South-West England – which presently have practically zero available connection capacity. The rate at which existing capacity has been taken up (generation connected within last couple of years), the sheer geographical extent and the volume of interest expressed to DNOs makes a compelling case that new capacity in these areas would be well-utilised. The volume of interest expressed to DNOs can be defined as a combination of recorded connection applications (either unaccepted, or made within active network management zones), budget quotes and other enquiries to the respective DNO.

A more challenging task is to calibrate the specific capacity required of a reinforcement. This issue should be a main focus of any follow-up work on this scenario to ensure a robust process which can deliver efficient solutions. To some degree this could be mitigated by scoping reinforcement options with a range of possible capacity outputs.

More broadly, lessons should be learnt from National Grid’s experiences of its *Network Development Policy* (NDP) process and particularly the scenario planning element which identifies ‘least regrets’ reinforcement solutions. Similarly there will be much to learn (positives and negatives!) from the transmission *Strategic Wider Works* (SWW) process and the related mechanism for approving transmission owner funding.

Q2 What other barriers are there to DNOs taking this approach? How might these be overcome?

Potential for insufficient justification, with worst case outcome of DNO ‘stranded’ spend (although assets could well be used elsewhere, we recognise there will be not inconsiderable cost in the design and planning consent preparation stage of a major reinforcement, which may not be recoverable). Perhaps some form of underwriting from contracted connecting users (similar to *User Commitment* for the transmission system) could mitigate this risk.

It is not clear in this scenario how the DNO would be incentivised to most appropriately determine the capacity of any such development. It is possible that scenario 2 incentivises more efficient development by encouraging a closer match between capacity and utilisation.

II. Scenario 2: DNO funds via DUoS, reimbursed (RAV buyback).

Q3. What are your views on this type of approach and the RAV buyback Model? Are there any elements which are essential, not required or should be changed – and why?

Please see answer to Q1 for examples of where such works could be justified and what evidence could be presented. In particular, lessons should be learnt from National Grid’s experiences of its *Network Development Policy* (NDP) process and particularly the scenario planning which identifies ‘least regrets’ reinforcement solutions.

As noted in the 10-year suggestion – the 5-year limit on second-comer is an artificial barrier which would have to be reviewed in conjunction (and should be reviewed irrespective of the outcomes of this consultation).

¹ For example, <http://www.ukpowernetworks.co.uk/internet/en/connections/electricity-generation/generation-capacity-maps/>

It is not appropriate to *require* new connectees in the area to connect into the reinforcement. For overall efficiency (and thereby lowest overall cost to consumer) the broader test of a connection solution being *economic, efficient and coordinated* should apply in the first instance, which typically (but not always) results in the minimum cost scheme being the most appropriate.

Stakeholder engagement in the building of a needs case and effective regulatory oversight would be necessary to prevent inefficient spending by DNOs; lessons must be learnt from related activities for the transmission system, such as National Grid's Network Development Policy (NDP), the transmission Strategic Wider Works (SWW) process and Integrated Transmission Planning and Regulation (ITPR).

Q4. Please give details of any projects or schemes this type of arrangement could have helped progress which would have not otherwise gone ahead?

We would be happy to provide examples to Ofgem directly. We have not provided examples in this response in order to maintain commercial confidentiality.

Q5 What would justify requiring subsequent connection customers to only be able to connect to the new, enhanced part of the network?

As above-

It is not appropriate to *require* new connectees in the area to connect into the reinforcement. For overall efficiency (and thereby lowest overall cost to consumer) the broader test of a connection solution being *economic, efficient and coordinated* should apply in the first instance, which typically (but not always) results in the minimum cost scheme being the most appropriate.

Q6. What would justify a DNO charging a premium to subsequent connection customers to reimburse DUoS customers for the risk they bear in funding this work? What might be the impact of this? How should the premium be calculated?

This item requires further development to ensure any such 'premium' is reasonable and justified in enabling timely development.

Q7. Over what time period would it be reasonable to expect DUoS customers to be reimbursed for their initial funding?

This should be developed in due course. The starting point should be the nominal lifetime of the asset for depreciation; often c.40 years for new distribution assets. Any other period should be justified with evidence, insofar as practically possible. A short period – e.g. the existing 5 years used under 2nd comer rule – could inappropriately incentivise inefficient market behaviour, e.g. delaying a connecting project to just avoid the five-year window.

Q8. When might it be appropriate for a DNO to have an upfront revenue adjustment to cover this type of scheme? Or should existing mechanisms be used?

Revenue adjustment should be considered in each case where the needs case for such strategic development has been approved. It is assumed that these will be large scale and high value developments which may or may not be approved on a case by case basis, therefore not realistic to assume DNOs could include these works in their original reinforcement proposals under the approved business plan.

Q9. Do you consider that this approach would have any implications on competition in connections?

Presently, all reinforcement which affects the shared-use network is only undertaken by the DNO. This proposal therefore does not obviously affect the status quo. This proposal may trigger a separate and subsequent development to introduce competition in the delivery of strategic distribution system works (there are parallels with *ITPR*).

As Q3, Stakeholder engagement in the building of a needs case and effective regulatory oversight would be necessary as a minimum to guard against inefficient spending by DNOs.

III. Scenario 3: Connection customer funds anticipatory reinforcement and charges subsequent connectees.

Q10. What are your views on the DevCo model and process set out in Appendix 2? Are there any elements which are essential, not required or should be changed – and why?

Any 'premium' post-connection charge needs to be controlled in a manner which ensures overall benefit – i.e. that the benefits of more timely connections are not substantially eroded by premium DUoS charges. It seems that other options to deliver timely reinforcement which do not include third party premium charges could be overall more efficient (e.g. any development of scenarios 1, 2 or 4) because of the DNO's ability to secure finance at a lower rate than most independent parties. However, such independent parties could theoretically obtain other efficiencies in overall development costs. As hinted in the consultation, this may be the only practical solution in situations which the DNO is not prepared to accept the risk of new developments coming forward – in such situations mechanisms must be in place to ensure best value for the end customers (learnings from ITPR may be relevant here). Strong regulatory oversight would be necessary, particularly if there is any consideration of *mandating* use of the newly developed distribution asset. In summary, further development of this option could be beneficial.

Q11. Please give details of any projects or schemes this type of arrangement could have helped progress which would not have otherwise gone ahead?

As Q4 – provided separately.

Q12. What would justify requiring subsequent connection customers to only be able to connect to the new, enhanced part of the network?

As above-

It is not appropriate to *require* new connectees in the area to connect into the reinforcement. For overall efficiency (and thereby lowest overall cost to consumer) the broader test of a connection solution being *economic, efficient and coordinated* should apply in the first instance, which typically (but not always) results in the minimum cost scheme being the most appropriate.

Q13. What would justify a DNO charging a premium to second-comers to reimburse the customer? What might be the impact of this? How should the premium be calculated?

This must be a risk-reflective premium, and may be justified where otherwise there would not be any timely connection capacity, however strong mechanisms must be in place to ensure best value to end customers.

Q14. Over what time period would it be reasonable to expect the customer to be reimbursed for their initial funding?

Same as Q7: further consideration required. Default to asset lifetime, unless evidence to the contrary; strong caution against a short period which could have adverse impacts in signalling to new connecting parties. Longer period may well encourage responsible custodians with experience of asset management.

Q15. What would justify the initial investor being permitted to restrict the type of schemes that would connect using the infrastructure it has paid for? For which type of schemes might this be appropriate?

To support effective competition, non-discriminatory obligations are sacrosanct (as per DNO license). RES would not support such restrictions.

Q16. Do you have any comments on the recommendations proposed in Appendix 3 to enhance consortium arrangements? What would justify these recommendations? Are there any other changes which would support consortium arrangements?

RES has serious concerns over the practicality of such consortia, noting the limited flexibility of requiring a consortium to work to a common programme, and noting the limited history of successful consortia. There is a strong likelihood that this concept will only work in extremely rare situations.

IV. Scenario 4: Other ways of making it easier to connect

4.1 Reducing the need for reinforcement via network management

Q17. What role, if any, could changes to engineering standards play in helping to accelerate the connections process without damaging reliability levels? In what circumstances would this be appropriate?

RES is already actively participating in the development of key ENA standards such as P2, P28 and G5. The connection barriers here, although important, are presently not nearly as significant as the over-arching connection barriers of basic thermal and steady-state voltage limits – as highlighted by each of the DNOs' generation capacity heat-maps. Nonetheless we will continue to actively participate in such reviews to ensure the standards are fit for purpose.

It is not clear that the impact of reactive power flows (and related voltage limits) is being treated equally by the different DNOs. Furthermore, work is needed to identify how best to support the Transmission System Operator's need for reactive power services, including sensible use of DG capabilities. We would welcome greater harmonisation of reactive power obligations (and by association, voltage control operation) across DNOs and better coordination with National Grid on this issue. This issue has the potential to deliver very significant volumes of capacity with minimal reinforcement.

Q18. Which particular standards might most benefit the connections process if changed?

See Q17.

4.2 Reducing the need for reinforcement by managing connection offers

Q19. What benefits might the introduction of assessment and design fees bring?

An up-front fee for formal connection terms is essential to incentivise efficient engagement with the connection process and avoid wasting DNO resource. This should work in tandem with high level budget quotes and related discussions which should not carry a fee. Please note that this issue has been debated at the ENA DG-DNO steering group, to which RES contributes. Please refer to the evidence presented to DECC by the DNOs collectively, led by ENW and NPg (contact Brian Hoy at ENW).

Q20. Could more flexibility in the way assumed available capacity is calculated help accelerate the connections process? Are there any other improvements to be made in how DNOs manage interactivity between schemes looking to connect to the same part of the network?

On **assumed available capacity**: One strand to increase efficient use of capacity is for DNOs to consider the profile of use (i.e. assumptions or obligations on the time-varying nature of import or export). A further strand is to consider more active network management. For both of these issues please see Q29 and refer to the **"Flexible Connections" work undertaken through Smart Grid Forum**. In the same vein, it is worth starting a debate on the technical capacity limits asserted by DNOs; for example, there are areas of GB which are considered constrained on voltage limits either due to older network equipment or for want of better coordination with the transmission system operator, both of which could potentially be addressed at relatively low cost.

On **interactivity**: DNO management of interactivity has improved significantly and is generally reasonable and fair. There are nonetheless improvements that could be considered, including harmonising the process between DNOs, and some consideration of whether consented projects should have some form of priority. Please note that this issue continues to be debated at the ENA DG-DNO steering group, to which RES contributes.

Q21. When might it be reasonable to withdraw capacity it has previously offered to customers?

- 1) Following constructive work at the ENA DG-DNO steering group, DNOs are now implementing 'milestone' events within connection offer contracts, which require reasonable demonstration of project progression to avoid the capacity being withdrawn. We support this work insofar as it makes capacity available to those parties which can make use of it in the most timely manner.
- 2) For operational sites, a lengthy period of under-utilisation (e.g. a generator not using its maximum export capacity) should lead to a DNO reducing the contracted capacity accordingly. This is most readily evident where the installed plant is significantly less than the contracted capacity, an issue which should be more actively tackled by DNOs.

Q22. Are there any other changes which could be made to reduce the need for reinforcement?

Recording the energy constrained through a constrained connection could be used as a signal to trigger efficient reinforcement investment. Please see the strawman and example in the separately attached "Flexible Connections" paper drafted through Smart Grid Forum work stream 6.

4.3 Flexible terms for the recovery of connection charges**Q23. What would justify a DNO offering more flexible terms for connection charges? What might be the impact of this?**

Universally, user connections are better enabled if charges are levied post-energisation, noting that the DNO's financing arrangements are very likely significantly cheaper than almost any single system user. To mitigate risks of projects which don't progress, some form of pre-energisation user commitment may be justified.

Q24. What type of schemes would most benefit from this arrangement?

Everyone (fortunately, this also satisfies obligations to be non-discriminatory).

Q25. What could be done to protect other customers from picking up any costs which cannot be recovered from the original connection customer?

Some form of pre-energisation user commitment from parties contracting to connect. This should reflect not the risk of the individual party, but all factors such as the chance of another party 'stepping-in', and whether designs or equipment can be re-used. A clear, transparent methodology for any such user commitment would be essential.

Q26. Are there any other measures that would reduce the cost impact of connecting to the network?

- 1) Reconsider charging boundary – see cover letter – and consider greater harmonisation of transmission and distribution connection policy to best avoid conflicting investment signals.
- 2) Equipment Type approvals – encourage DNOs to adopt novel equipment and improved methods of delivery in the shortest practical timeframe.

Summary and Next Steps**Q27. Which of the arrangements described above would deliver the greatest benefit to the connections process without placing additional risk or cost on the generality of customers, and why?**

All scenarios are worth further consideration, and we would particularly welcome some worked examples. Nonetheless, Scenario 2 is most likely to deliver right balance of benefits to consumer and potential connectees in the short-term.

Q28. Should wider benefits beyond energy system benefits (such as those provided by NTBMs) be taken account of in DNOs' or third parties' considerations of any of the measures or mechanisms described in this paper?

RES would support investigation of taking into account wider economic benefits of all new grid infrastructure and not just in relation to the delivery models considered in this consultation document. RES understands that this is a complex area, not least because of the clear energy consumer focus of the Gas and Electricity Markets Authority. However, RES is also of the view that it is time for a debate around this question to ensure that investment decisions are taken on the basis of the most complete set of relevant economic factors and not just those relating specifically to the energy system.

Q29. Do you have any other suggestions for delivering quicker and more efficient connections?

Please refer to the outputs from *Smart Grid Forum, Work stream 6*, in particular the work on “flexible connections”. A copy of the relevant papers has been provided separately. In particular, there is a strawman on quantifying the energy constrained by a flexible connection, and using this as a signal for network reinforcement, with further suggestions on how the reinforcement cost could be recovered.