REA response to the NIC Electricity Distribution Network Study Call for Evidence

The Association for Renewable Energy & Clean Technologies (REA) is pleased to submit this response. The REA represents industry stakeholders from across the sector and includes dedicated member forums focused on solar, storage (including thermal storage), deep geothermal, green gas & hydrogen, biomass power, renewable transport fuels, and energy from waste (including advanced conversion technologies). Our members include generators, project developers, heat suppliers, investors, equipment producers and service providers. Members range in size from major multinationals to sole traders. There are over 500 corporate members of the REA, making it the largest renewable energy trade association in the UK.

Policy, regulation and governance

1. **Does the current RIIO-ED2 price control do enough to enable required investment in additional capacity? What changes should be considered for the next price control period (RIIO-ED3) to ensure that required investment is identified and enabled?**

The total expenditure (TOTEX) allowance set by RIIO-ED3 for Distribution Network Operators (DNOs) needs to be set against mutual aims of consumer protection and being aligned to the Government 2035 net zero power grid target. This could well require an increase in TOTEX allowance to meet the expected distribution grid demand needed to meet the "leading the way" scenarios of the Future Energy Scenarios (FES) and Climate Change Committee (CCC) sixth carbon budget.

In addition, appropriate flexibility within spending controls need to be enabled to allow DNO investment in highly innovative First-Of-A-Kind (FOAK) projects, especially where expected returns could extend beyond the price control period. This will enable the DNOs to consider longer term strategic investments.

In order to aid transparency, especially to help comparison of DNO business plans, Ofgem (or in the future the National Energy System Operator) should set out a list of key deliverables that should be included in all RIIO-ED3 plans. A separate standardised summary document can then be produced alongside DNO business plans clearly stating how these objectives are being met. This would deliver greater transparency, developed alongside the business plan, enabling comparison and ensuring all plans are aligned to NESO determined aims for the grid.

2. **Does current planning policy impede the deployment of distribution network upgrades? If so, what solutions could alleviate this? Please provide examples**

Yes, planning policy could be further streamlined by extending permitted development of critical power infrastructures. The review of permitted development rights regarding power infrastructure should be continued, this includes extending certain permitted development rights to Independent Connection Providers (ICP) to aid in the timely build-up of the distribution grid.
For example, there should be a surety that DNOs are able to upgrade single phase lines to three phase into buildings, or that they can upgrade the size of a Low Voltage (LV) cable on an overhead line without having to go through the planning system. Nationally Significant Infrastructure

Projects (NSIPs) should allow for wider permitted developments in the area through requiring network reinforcement to fall under the Development Consent Order (DCO) for the NSIP.

However, of even greater importance is ensuring that both local and national planning authorities are suitably resourced to handle planning applications in a good time frame and have the skill to do so. A minimum mandated response time should be brought in and enforced. Of greatest concern to developers is the time taken to hear decisions on their application. In many cases it can more than 12 months for the application to even be looked at. This creates uncertainty outside of the developers control and creates significant risk for investors.

3. **To what extent can a move to more strategic planning of the network at transmission level be replicated for the distribution network? What would be the benefits and costs of doing so? In answering this question, please consider the interaction with forthcoming changes to strategic energy planning, such as the introduction of Regional Energy Strategic Planners**

The Regional Energy Strategy Planning (RESP) will need to closely consider distribution grid needs and build off the Strategic Spatial Plan, being developed by NESO. The scope of flexibility services in the short and long term should be accurately assessed to help determine the level of build needed for the grid at distribution level and ensure value for money on the wider build out of projects. This would require clear collaboration between the DNOs and the electricity system operator (ESO).

The RESP should consider what is needed in a region for the establishment of a decentralised energy system. From that analysis then build up an understanding of grid requirements at first the distribution and then transmission level. It must be recognised that there are knock-on effects passed onto the distribution level from whatever occurs at transmission level. Accurate forecasting and planning is needed for the distribution network to ensure that the distribution and transmission network are developing in parallel and ensuring they are not blocking each other.

4. **To what extent will making the distribution network fit for net zero also help ensure that it is adapted to a changing climate? Are there any potential conflicts between meeting additional demand and adaptation, or any additional steps required to ensure adaptation is effective?**

Global warming has resulted in a changing and abnormal climate. Flexibility and more decentralised generation will help to future proof the grid system. A distribution network that is fit for net zero means having a network that can accommodate a wide range of different types of energy generation and a high capacity for energy storage. This reduces dependency on large scale centralised generation or on access to globally traded fossil fuels where supply chains can become disrupted by climate or geopolitical issues.

While solar and wind are variable technologies, these systems can be well managed with energy storage and smarter grid systems that enable greater demand side response. Given this, the ability to co-locate renewable generation with storage is to be encouraged. This is then also supported by a variety of low carbon base load generation including biomass, deep geothermal and energy from waste, which in time will also include bioenergy carbon capture and storage.

5. **Are there any other ways in which policy, regulation and governance could be improved to deliver a resilient electricity distribution network fit for net zero?**

There urgently needs to be dedicated support for the delivery of for long duration energy storage technologies (LDES). Government commissioned modelling recognises a need for 20GW of LDES by 2050, in order manage a decentralised energy system. However, delivery of a support mechanism for LDES has been very slow to come forward, having been originally consulted on more than two years ago. There are a range of technologies that will have an important role to play in delivering this form of storage from pumped hydro, compressed air storage and inter seasonal hydrogen storage.

The regulated definition of battery storage, as set out in the Energy Act 2023, also needs to be evolved. The definition only recognises storage for the purposes of energy to be turned back to electricity, this ignores the benefits of thermal storge and the wider energy needs within the sector. Utilisation of thermal storage also places less demand on the wider grid system, utilising heat.

In relation to the DNOs, there needs to be greater standardisation of the connection process and response times as well as connection reform processes being delivered quickly. This includes seeing existing connection agreements brought forward where possible.

The ability to provide data transparency and standardisation across DNOs should also be explored by the NIC. Some DNOs are better than others at providing information on capacity constraints and heat maps for connections. However, the lack of standardisation makes it difficult for developers to compare where it is best to apply. A higher level of minimum standards would help deliver greater transparency and eliminate the number of speculative connections.

Additionally, there must be a certain level of relationship maintained with supply chains as recommended by Nick Winser to facilitate the build-up of the distribution grid at pace.

Technologies and solutions

6. **What solutions could be used to provide additional capacity without new network investment? Does the current price control do enough to encourage non-network solutions? Please provide evidence of their real world or potential impact on avoided network investment**

The current price control could do more to encourage non-network solutions. There could be more funding/incentives but also more regulations towards encouraging flexibility services and aggregators including facilitating Low Carbon Technology (LCT) detection so new potential flexibility providers are identified. Greater, more efficient management of the distribution system in terms of supply and demand reduces the need for added reinforcement in order to connect the distribution network and hence less network investment would be needed to facilitate large generators.

Also, the treatment of energy storage within connection queues needs to continue to be reformed so that the benefits it provides to the grid are promoted. If you prioritise storage, you maximise the grid and reduce the amount of reinforcement work that is needed. A first come, first connected approach does not distinguish the benefits that storage assets could provide to whole grid, if allowed to connect first it could help further capacity to connect faster.

Lastly, processes could be developed where unused capacity within existing connection agreements is made available or auctioned to other projects in the queue, so creating shared connection agreements. For example excess capacity in landfill gas connections by their nature can have excess capacity at their connections given the nature of the generation (as the amount

of landfill gas decreases over time). This spare capacity could be used by other technologies like solar. Such systems are already operational in places like Spain, helping to make the most of existing grid infrastructure.

7. **What role could digitalisation and data play in supporting efficient management of existing capacity and targeting of investment in new capacity? Are there examples of where the benefits have been realised through trials or examples used in other markets?**

Data and digitalisation is crucial to LCT detection and flexibility services which help manage existing capacity better, data that can specify where there's opportunities for LCT to be deployed would also be helpful in energy planning and identifying where new network capacity may be proactively needed. As well as data that can help identify pre-faults in network infrastructure and help with the better management and resource allocation for the network. NG ESO planned use of "Advanced Infrastructure" GIS software to help manage network constraints in an area seems to have the potential to be very effective in this regard and should be explored how it can be deployed at the distribution level.

Data can also be used by aggregators to provide smart tariffs to consumers and better utilise their grid connections, and of course adoption of smart metering is key in terms of data and digitalisation for the distribution network.

Connecting to the distribution network

8. **What barriers or delays are currently being experienced in the process for managing connections to the distribution network? Why do these occur? To what extent are these issues likely to be addressed by the government and Ofgem's Connections Action Plan? Please provide specific examples, differentiating between different users (e.g. domestic and non-domestic demand, distributed generation, etc).**

The major barrier continues to be capacity constraints, that mean that new connections require significant levels of reinforcement. This is leading to connection delays of more than 10 years and reinforcement costs that can make new projects impossible.

Greater standardisation of the connections process across the DNOs is required. This should include:

- Ensuring clear cost estimates for reinforcement actions at the point of a connection offer. This can be included in a non-firm connection agreement that the developer can expect to not significantly change at a later date.
- Enable connection dates to be brought forward where projects are ready to connect rather than waiting in a queue behind 'zombie' applications.
- Increase and standardise the data that is available on capacity constraints across all DNOs. This will provide more visibility/transparency for where you can connect to the grid.
- Have minimum expected response times on both connection applications, and then on the post connection agreement process.
- Have a clear escalation process so that applicants can seek faster responses if communications are taking longer than minimum requirements.
- Ensure that queue management thresholds are realistic to the build out of renewable projects and then appropriately enforce them when they are not being met.

The ENA connections action plan, published in 2023, has been a very welcome step in the right direction but we are yet to properly see the impacts of these changes. Better forecasting at DNO

level and more transparency at the Transmission Operator (TO) level is still needed to see how they impact each other.

9. **How does transmission network capacity cause delays in connecting to the distribution network and what is the scale of the challenge? How far are these issues addressed by transmission network policy, particularly the government's Transmission Acceleration Action Plan? Please provide examples, where possible.**

There are 2 separate queues, one at the Transmission Level and one at the distribution level. However, the distribution level queue is typically dependent on reinforcement actions at the transmission level to progress. Because distribution applications and transmission applications are within the same queue, we have seen instances of large-scale transmission level projects effectively being connected before reinforcement work is done to enable distribution applications to progress. The interaction between transmission and distribution is important and can significantly slow how quickly distribution queues can proceed. Addressing this issues requires more transparency around the transmission queue and greater consideration of how transmission reinforcement work expediate distribution queue connections.

This will also be helped by there being better forecasting by DNOs of their expected connection needs. Giving the TSO opportunity to understand the level of demand that needs to be considered. It is expected that the SSEP and CSNP from the transmission acceleration plan will help address the issue, however faster action is needed to see distribution queues accelerated.

10. **How could processes requiring contact with, or work from, the distribution network operators be improved? Is there a case for more standardisation of processes between network operators to improve the customer experience and, if so, where would standardisation be most beneficial?**

Standardisation of various procedures would help improve customer experiences. Standardisation of procedures such as decisions over contestable and non-contestable works; public data regarding the grid; connection processes and response times to ensure initial cost estimates for reinforcements are reliable and improve investor confidence in clean generation projects.

It would also be useful if there were standard, clear escalation pathways for when communications do not meet minimum response times, as well as having good processes post connection agreement in order to progress development of reinforcements required at pace.

Additionally, there needs to be transparency of options for connecting to the grid and more collaboration between DNOs at DNO boundaries, this could be supported by DNOs communicating with each other more effectively and more data sharing between the DNOs.
Lastly, the DNOs need to be sufficiently resourced and if possible, government can help make sure staff are provided with the necessary training, and if not already it should be mandatory for all DNOs to have a dedicated connection contracts manager for projects to regularly contact.

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