Written evidence submitted by Statkraft (GRI0079)

Introduction to Statkraft

Statkraft is Europe's largest producer of renewable energy. With a legacy in renewables stretching back more than 125-years to Norway, we have been established in the UK since 2006. Today, we employ more than 450 highly skilled people across the country and to date we have invested more than £1.3 billion in the UK's renewable energy infrastructure, generating enough electricity to power 400,000 homes.

Our broad and growing portfolio in the UK includes wind, solar, hydropower, and batteries as well as innovative grid stability and green hydrogen projects. As a company that invests 100% of its growth in renewables, we are proud that every one of these projects plays an important role in reducing reliance on expensive fossil fuel imports, increasing the UK's resilience and economic competitiveness. We are also one of the largest traders of power in the world and, in the UK, our origination team has facilitated the construction of a further 4.3GW renewables through power purchase agreements and is leading the way in flex markets.

Summary of Response:

- It is Statkraft's view that the current transmission and distribution networks are not delivering the capacity needed for the future.
- Grid access continues to be a massive issue affecting the renewables industry in the UK and we call upon National Grid Electricity System Operator (NGESO) to move to a 'first-ready-first-connect' model to grid connection.
- Resourcing is the biggest issue facing the NGESO, Transmission Operators (TOs) and the Distributed Network Operators (DNOs), who are feeling the impact of the connection backlog at the transmission level.
- NGESO's Stability Pathfinder projects are examples of positive approaches to innovation in the development of the grid.
- We believe the Government is making good progress on planning reform but propose further policy changes in this response.
- The Netherlands and Republic of Ireland provide case studies for the UK to learn from on grid investment and public engagement on network development.

Question 1 – Does the current national and DNO grid deliver the capacity needed for the future and, if not, what are the solutions?

1.1 The current transmission and distribution networks are not delivering the capacity needed for the future, and grid access continues to be a massive issue affecting the renewables industry in the UK. Ofgem estimates there is now over 340GW of new generation (including storage) holding connection agreements, with 40% of these projects provided with connection dates of 2030 and beyond.

1.2 This backlog means that viable projects currently in development – including some of our own with planning permission – will be waiting ten or more years to connect to the grid. Further connection delays risk leaving the country reliant upon expensive and price vulnerable fossil fuels for much longer than needed, impacting the delivery of the Government's net zero targets.

1.3 Statkraft currently has around 515MW of onshore wind projects in Scotland where congestion has resulted in unsuccessful efforts to obtain a connection offer, and where we are being forced

to re-apply with an expectation for later connections dates. There are a further 1GW of projects in Statkraft's pipeline, spanning several different technologies, with grid connection dates at least ten years later than requested.

1.4 Statkraft remains committed to the UK, as one of its priority markets, not least because the Government has been a frontrunner in setting targets and putting market mechanisms in place to support the roll-out of renewables. However, grid capacity is now a major issue for projects at a time when competition for investment has become even fiercer as other markets look to transition to renewables.

1.5 The biggest issue facing National Grid Electricity System Operator (NGESO), the Transmission Operators (TOs) and the Distributed Network Operators (DNOs), who are feeling the impact of the backlog at the transmission level, is resourcing, as we will provide more detail in our response to Question 2. Resourcing needs to be significantly increased to solve this issue.

1.6 Beyond resourcing, many of the actions that will help solve the problem are, with some adjustment, proposals already on the table, but these need to be urgently brought forward to avoid the situation deteriorating further.

1.7 We appreciate that NGESO has sought to tackle the queue through initiatives such as the Transmission Entry Capacity (TEC) Register Amnesty, which allows developers to request permission for a project to leave the queue without incurring cancellation charges. The principle behind this initiative is a good one. However, because it was over-subscribed by an immaterial 0.2GW, the process slowed. Moreover, the 8.2GW released represents less than 2.5% of the queue, which continues to grow, so the impact is miniscule.

1.8 We understand that NGESO is considering a modification of the contractual framework of connections that would allow it to terminate projects that are not progressing against milestones, enabling the System Operator to remove projects from queue. In addition, this will allow projects to overtake other projects in the queue, if they reach a specific milestone. This approach risks focusing valuable technical resources on unsuccessful projects that may fall-out of the queue at some stage anyway.

1.9 Instead, we call upon NGESO to move to a 'first-ready-first-connect' model that would enable projects that can prove they are ready to connect being permitted to do so, rather than waiting behind projects that have not been able to fulfil the final set of criteria.

1.10 This would result in developers competing against each other to fulfil the success criteria as quickly and as efficiently as possible, rather than developers challenging NGESO's interpretation of where their projects are in relation to specific milestones.

1.11 We note that, under the NGESO's current proposals, the likelihood of legal challenge will increase because developers will believe that there is a risk of their project being removed from the queue and charged a cancellation fee, if they are deemed by NGESO to not be progressing against milestones as quickly as they think they should be.

1.12 Statkraft would welcome the opportunity to work with NGESO to develop a 'first-ready-first-connect' approach. This approach would represent genuine dynamic queue management as it would be outcomes focused i.e., the number of MW connected, rather than outputs i.e. the number of milestones a project has passed.

1.13 Looking ahead, National Grid's estimates from May 2023 suggest that, in the next seven years, industry must deliver more than five times the transmission infrastructure that it has built in the past three decades. The scale of transmission and distribution infrastructure needed to meet the demands of the grid requires greater public buy in and community engagement. We, therefore, support Recommendation 12 of the *Electricity Network Commissioner's Review* in its calls for the Future System Operator (FSO) and TOs to work with Government to design and implement a public information campaign on the need for a grid refresh.

1.14 Furthermore, the Government should play an enhanced role in communicating why modifications and adjustments to the UK's energy infrastructure are necessary to the public – supporting broader buy-in into the emissions reduction targets set out in the 2008 Climate Change Act, which have been endorsed by every Government since that date. We urge the Government to take a more active role in the public discourse on this issue and work with industry to make this case, rather than relying upon the sector to unilaterally lead this campaign.

Question 2 – Has the organisation of the National Grid proved a barrier to the installation of renewable energy sources, and if so what could be done to remedy this?

2.1 As highlighted in our response to Question 1, the current grid connection queue is proving a significant barrier to the installation of renewable energy generation in the UK. Connection offers are now being received for 2037, after the 2035 target to decarbonise the grid, and Statkraft has approximately 1GW of projects in our pipeline (spanning several different technologies), with grid connection dates of at least 10-yers later than asked for.

2.2 While the volume of grid connection applications has been unprecedented, with NGESO stating that it has increased almost tenfold in the last five years (and by 80% in the last year alone). The lack of resourcing within the organisation has exacerbated the issue and contributed towards the severity of the growing backlog.

2.3 Preparations should have been undertaken in advance to handle what was surely a foreseeable uptick in demand for services. It is vital that lessons are learned from this, and that adequate resource is now invested to increase physical grid capacity and to improve organisational efficiency. It is our view that resourcing is a problem at all levels within NGESO, and the TOs, but particularly with contract managers – a vital service for the smooth running of the application service. Simply put, there is no way to solve the problem of the connections backlog without significant and sufficiently qualified extra resource and technical capacity being put in place to manage the process and to make the connections.

2.4 We note that the Entry Application Fees range from £28-£145k for a single application, depending on capacity and TO, but even with the huge increase in number of applications and, consequently the NGESO's revenue, we have seen no corresponding improvement in resourcing levels at the System Operator.

2.5 Beyond resourcing, there continues to be a need to move from a first-come-first-served approach (where you are connected according to when you joined the queue) to a first-ready-first-served approach (where you are connected according to when you are prepared to connect) as per our response to Question 1 above.

2.6 We appreciate that NGESO are introducing reforms that would mean all new connection offers and modifications to connection offers will include so-called 'queue management' provisions. These provisions will allow projects to move up the queue if they meet specific milestones,

overtaking those that are judged not to have progressed adequately. However, this will only be applicable to projects receiving offers, or modifying their offers, from halfway through 2025. This is too late to be effective in tackling the increasingly vast queue of connections that already exists, and as such risks only storing up the problem.

2.7 Moreover, it would require NGESO to be able to collect, manage and analyse large amounts of additional data to interpret whether a project should move up the queue ahead of another project. It is fair to say that NGESO struggles to do this with the data it has already received for this process. While the ambition is commendable, there is, therefore, little confidence that NGESO can fulfil this function, especially without extra human and IT resource. There is also the concern that it could result in further delays as legal challenges are brought forward by those whose position in the queue is taken by another project and may dispute the NGESO's judgement.

2.8 Our preferred solution remains the first-ready-first-served model that would avoid NGESO over-engineering its response and would shift the focus from outputs to outcomes. Projects that have everything in order and can prove they are ready to connect to the grid should be allowed to do so rather than waiting behind a project that has not been able to fulfil the final set of connection criteria. We believe a first-ready-first-served approach would represent a genuine dynamic queue management system and should be brought forward from 2025.

Question 3 – Should there be more innovation and devolution in the development of the Grid?

3.1 NGESO's three Stability Pathfinder projects are examples of where it has taken a positive approach to innovation in the development of the grid. It identified three challenges facing the electricity system as increasing amounts of energy generated from renewables and low-carbon sources come online. These addressed:

- High voltage system issues created by the need to absorb more reactive power from the transmission network;
- Stability system issues created by the decline in transmission connected synchronous generation; and
- Constraint system issues created by surplus intermittent generation on the network.

3.2 It then ran a series of competitions, inviting companies to submit proposals outlining how they would work with NGESO to solve one of the challenges. Statkraft was successful in Phases 1 and 2 of the Stability Pathfinder projects, providing inertia to the network.

3.3 For decades, inertia was produced as a by-product of fossil fuel power stations – something that renewable generation technology cannot typically create, but which is critical for the stability of the grid. The problem of where to obtain inertia was a risk to the roll-out of renewables and to NGESO's target of being able to operate a zero-carbon electricity system, as fossil fuel plants were kept running for this reason only. On 20th April 2020, for example, 17 gas fired power stations had to be turned on by NGESO simply for their stability services – increasing carbon emissions and consumer costs.

3.4 By asking Statkraft and others for help, NGESO were able to pool resources and kickstart cost effective solutions delivered quickly by a range of different companies. In Statkraft's case, we have built two giant flywheels located at strategic points on the grid, and plan to build five more, that use cutting-edge synchronous compensator technology to 'store' kinetic energy in the same way as a gas-powered turbine can do, but without the resulting emissions.

3.5 Each weighing 200-tonnes, the synchronous compensators use a small amount of electrical energy to maintain rotational speed at up to 500 revolutions per minute to create as much inertia as possible. This inertia acts as a safety buffer for the grid as the higher the inertia, the slower the system frequency will change. This gives NGESO time to adjust the system during times of disruption or outages – maintaining wider grid stability.

3.6 The flywheel is a centuries old technology, but we have worked with NGESO to push the engineering on so that it can be applied to solve a 21st century challenge.

Question 4 – What changes should be made to the planning system to enable it to increase the use of renewable energy?

4.1 We believe the Government is making good progress on planning reform. We welcomed the *National Strategic Infrastructure Action Plan (NSIP) for Reforms to the Planning Process*, published in February 2023, for identifying the right priority areas to focus on speeding up, streamlining, and removing unnecessary bureaucracy in planning.

4.2 Since publishing the NSIP, the Government has proposed increased planning fees in England to build capacity and capability and to introduce a more robust performance regime. This includes looking at cost recovery and allowing statutory consultees to be able to charge for their services, incentivising delivery through a fair rate of pay. We agree in principle with the move to cost recovery to build capacity and capability. Statkraft understands this is necessary to service increasing levels of demand, and we are fully prepared to resource this. However, this must be achieved with consideration given to variations that exist between different renewable projects and alongside an absolute assurance that there will be an improvement in the user experience.

4.3 The most recent proposals outlined in the Operational Reforms to the NSIP Consenting Process suggest introducing different levels of fees according to the complexity of a project and the level of support that might be required and setting key performance indicators. It is not clear, as the proposals are written, exactly how the levels will be calculated and applied to different types of renewable projects. We are concerned that no further consultation is planned to take place on the details and would encourage the Committee to seek this reassurance.

4.4 Beyond greater transparency on the process for determining the fees, we would ask for more openness on how the fees are used and for precision in performance measurement. Increasing emphasis is placed on Planning Performance Agreements (PPAs) as a tool to manage expectations between developers and planning authorities.

4.5 Our experience of PPAs has been mixed. In some authorities, there is a real sense of additionality as they have provided dedicated and expert officers to developers who enter PPAs and provide resource for this service. In others, there is a sense that, despite paying for a premium service and having a clear scope of how the additional resource will be used by the authority and what it is expected to provide, there is no corresponding uptick in service. While there is government guidance on how to use PPAs and many do follow this, there are no consequences for those that don't. The result is a postcode lottery in the efficiency of the planning system.

4.6 The Government's proposals for Operational Reforms outline the introduction of a more robust performance regime, but the language is unclear and there are question marks about the standard of monitoring and reporting.

Question 5 - Is our planning system able to deliver more rapid development of new local infrastructure?

5.1 It is vital that spatial and planning strategies are aligned with net zero and renewable targets. We point to Scotland's Revised National Planning Framework 4 and specifically Policy 11 that sets out the Scottish Government's support for all types of renewable energy, other than wind farms in National Parks and National Scenic Areas, as an example of how Government, the sector, and community groups can collaborate and find a balance that everyone is comfortable with.

5.2 We support Recommendation 1 of the *Electricity Network Commissioner's Review* in calling for the FSO to establish a Strategy Spatial Energy Plan (SSEP). Spatial strategies need to be put into place at pace to enable greater deployment of generation and it is critical that this is aligned with net zero and renewable targets. The two multi-vector energy plans proposed in the Review focus on ten-year and twenty-five-year horizons, and these will be key to ensuring greater, long-term visibility of projects to stimulate the investment needed for their development and maintenance.

5.3 We also support Recommendation 6 in calling for an urgent update of the National Policy Statements to reflect the findings of the *Electricity Network Commissioner's Review*. We believe that the Government should with work with councils to ensure local planning officers have the necessary skills and funding for future changes in this regulation.

Question 6 - Would regional, or nodal, pricing of energy facilitate a more flexible development of Grid infrastructure?

6.1 There are several theoretical benefits for locational pricing, and we understand why the Government is examining it as an option. However, we are concerned that such a significant intervention in the market, at a time when we need to be building renewables and flexibility at scale and pace, risks being a distraction that will significantly slow progress and could ultimately push up costs – negating the potential upside of the intervention.

6.2 The introduction of locational pricing will require significant adjustments to charging and planning, in addition to comprehensive grandfathering arrangements for existing assets to avoid investor confidence from being damaged as a result of unfair treatment. We strongly believe the focus should be on making sure transmission infrastructure and flexible market mechanisms are in place to ensure renewable supply is able to meet demand when and where it is needed.

Question 7 - What can be usefully learned from power transmission systems in other countries?

7.1 The Netherlands' transmission system is also experiencing congestion issues as it decarbonises. Their response has been to significantly increase the level of investment, increasing from €4 billion in total to €4 billion euros per year until 2030. The learnings from this example show that TOs need to be realistic from the outset about the investment required in the grid to facilitate the delivery of decarbonisation targets. National Grid has pledged to invest £16 billion from 2021-2026, equivalent to £3.2 billion a year. This is a considerable amount, but it is worth noting the UK is almost six times the size of the Netherlands, with over three times the population size, and there is a lack of clarity on budgets beyond 2026.

7.2 In Ireland, EirGrid has published a roadmap setting out plans to develop the network by 2030. It is accessible and provides the public with a clear sense of what is going to be needed for the grid and why. National Grid has announced the Great Grid Upgrade, but it is comparatively light in providing a complete picture to those who are interested in learning about how the grid is going to change. We believe it is vital for the National Grid, TOs and DNOs to proactively engage

people and keep them informed of not only what is happening but why it is happening, and to respond to feedback provided during consultation.

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