

Written evidence submitted by RenewableUK (EB05)

Briefing: The Lords Amendment on Ofgem remit reform

The significance of the measure on the pace and scale of investment in the UK's electricity grid (or 'transmission network') & energy generation

Overview

- **The UK, along with countries across the world, has chosen to increase its renewable energy development ambitions to increase energy security, reduce the UK's reliance on price-volatile gas, tackle climate change and reduce energy bills** (now that wind and solar farms are the lowest cost means of generating new electricity).
- **However, the biggest constraint on the development of new wind and solar farms is the UK's electricity grid ('transmission network') infrastructure.** The Government's outgoing Offshore Wind Champion – Tim Pick – [estimated](#) that, without addressing issue caused by grid infrastructure constraint, the UK is on course to deliver 40.5GW of offshore wind by 2030, as opposed to the Government's target of 50GW.
- **We urgently need to increase the pace and scale of investment in our grid if we want to accelerate investment in renewables,** as well as new nuclear and innovative new clean energy technologies like tidal stream.
- In line with the Energy Security Strategy, **the UK needs to make a step-change in the way it develops grid infrastructure, from a system of building 'just in time' or 'retroactively' to proactively investing *ahead of time* from areas where wind and solar farms are clearly going to be developed to areas of electricity demand** (such as cities and industrial areas).
- To achieve this strategic shift, the **Government should use the Energy Security Bill reform the remit of the energy regulator, Ofgem, as voted for in the House of Lords.**
- In addition to this, we would urge Ministers to **take an active role in ensuring all other enabling initiatives are taken forward at pace though a new Prime Minister led delivery group of key senior parties.** *Details of some of the measures the group should prioritise are listed in the briefing below and outlined in the Government's Strategy and Policy Statement for Energy.*
- Developing the UK's grid infrastructure will not only unlock billions of pounds in investment in low-cost renewable energy, but **support thousands of jobs in grid infrastructure manufacture, construction and maintenance, whilst reducing bills for the hardworking people of Britain and enabling the roll out of electric vehicles, heat pumps and more.**

The benefits of expediting renewable energy development

- Renewables are now the lowest cost means of generating new electricity. The wind and solar contracted by the Government last summer alone will reduce energy bills by £58 a year.
- The billpayer benefits of rapidly shifting from gas to renewables have increased given that gas prices are still forecast to remain high until at least 2030.
- Over 31,000 people across the UK are employed in offshore wind alone – set to rise to 97,000 by 2030, driven by £155bn in private investment. A further 27,000 jobs are expected in onshore wind by 2030.
- The UK has the opportunity to lead the world in the development of floating offshore wind components and expertise if we can progress projects before our competitors, enabling UK supply chain companies to capitalise on the enormous emerging global market for it.

How much is our grid constraining renewable energy development, and why?

- There are wind and solar farms which are facing long delays due to a lack of grid development across the UK. This is particularly acute in areas of high wind and solar resource – for example;
 - o In Scotland, a significant number of offshore wind farms that were granted leases last year by the Crown Estate Scotland won't be able to get a grid connection until the mid-2030s. As it stands, many of the developers of these offshore wind farms haven't even been told where their grid connection will be or how it will be delivered.
 - o The Welsh Affairs Select Committee's inquiry into [Grid Capacity in Wales](#) (Oct 2022) found that "*grid capacity in Wales is significantly restrained*" and that "*11 of the 94 grid reinforcements that are necessary to meet the Government's 2030 offshore wind target will not be delivered on time for the target to be met, under current regulatory and consenting processes*".
 - o In some instances, industry can deliver offshore wind farms faster than they can be connected to the grid by approximately 3-5 years.
- Unless clear progress is made to accelerate grid development and connections, it's very likely Government will not achieve its target of 50GW of offshore wind by 2030 – to the detriment of the UK's energy security, billpayers, and the wider economy. The Government's outgoing Offshore Wind Champion – Tim Pick – [estimated](#) that, without addressing issue caused by grid infrastructure constraint, the UK is on course to deliver 40.5GW of offshore wind by 2030, as opposed to the Government's target of 50GW.

- **These delays are happening because:**

1. **Grid development has only taken place where there has become overwhelming demand for it, instead of being built in anticipation of the energy system's future needs.** This is delaying the pace of renewable energy development, and wider changes in the UK's electricity demand and supply (e.g. the roll out of EVs, heat pumps etc).
2. **The UK currently has "first come first served" approach to grid connections.** This means large queues of potential wind, solar and other electricity generators can build up in an area – all waiting to connect.
 - o The 'transmission queue' for England and Wales currently comprises over 200GW of new generation and interconnector schemes¹ – the equivalent electricity providing capacity of 75 Hinkley Point C nuclear power plants, waiting in line. This includes 35GW of new applications within in the last 6 months. Slow moving projects can therefore act as a blocker to connecting more viable projects which sit behind them in the queue.
3. **Both of the above points are compounded by the fact that adding grid development often takes longer than renewable energy projects.** By the time there is 'overwhelming demand' for grid, it is very hard for grid development to catch up.

- Not only is investment too slow in the grid network that will connect new renewable energy projects to the grid, but this is also true for investment in the cables that will carry their electricity to where it is needed (much of which will be offshore).

Case study example from RWE

A 3GW East Coast offshore windfarm under development by RWE, instrumental to meeting the UK's target of 50GW of offshore wind by 2030, was initially given a 2033 connection date. The Government's current initiative to try and bring forward grid development for offshore wind -the Offshore Wind Transmission Network (OTNR) project - will only bring this forward to 2032. RWE are awaiting the outcome of the British Energy Security Strategy's commitments on consenting and regulatory approvals onshore (see below), which may bring this forward further. However, without sufficient focus and timely intervention, the 2032 date will not change.

¹ Interconnectors are large power cables which connect the UK electricity network with neighbouring countries.

What needs to change?

- We need a new model of grid development; where critical investments are accelerated by Ofgem and the Transmission Owners to rapidly upgrade our electricity system. This is to enable us to achieve the Government's clean energy development ambitions – to the benefit of billpayers. The ASTI (Accelerating Strategic Transmission Investment) framework is a welcome first step, but this needs to become the norm.
- The Energy Security Strategy (ESS) recognised the importance of “*accelerating the connecting network infrastructure*” and committed to develop grid infrastructure *ahead* of time by ensuring “*Ofgem expedites its approvals process to build networks in anticipation of major new sources of generation and demand*”.
- As the ESS also states, this will ultimately be to the benefit of billpayers - “*On costs, building ahead of need, where good value for money, may mean paying more in the short term for an asset that isn't efficiently utilised immediately but is the cheapest option over the long term and reduces the need for repeated disruptive works to continually upgrade the system.*”
- As well as ensuring billpayers benefit for an expedited roll out of low cost clean energy, investment in the grid will help ease the burden of ‘*constraint costs*’, experienced today – this is when, due to under-investment in our grid network, the grid doesn't have the capacity to carry clean power from wind and solar farms to areas of demand during times of high winds, etc. Renewable electricity is effectively ‘wasted’ and the UK is forced to use gas electricity stations (currently at vast cost), or other generators.
 - o As an illustration, constraint payments, chiefly paid to fossil fuel generators in England and Wales², are close to £1bn per annum and forecast to rise to £2.3bn by the mid-2020s. However, the construction of one and a half cables the size of the existing East Coast links between Scotland and England, with an annualised cost of £0.3bn, would almost entirely eliminate this constraint cost³ - a net benefit to bill-payers of up to £2bn per year.

How do we achieve a shift in the UK's approach to grid development?

Action 1: Reforming the remit of Ofgem, as voted for by the House of Lords

- Ofgem's remit has not substantially changed since its establishment in 2000, and it does not prioritise electricity decarbonisation in line with Government's recent legislation or stated ambitions – it only has a ‘consideration of green gas reduction’.
- As a result, Ofgem has been unable to substantially reform its working practices and regulatory frameworks in response to the 2008 Climate Change Act and the UK's subsequent net zero ambition, to detriment of renewable energy investment and decarbonisation pace.
- Although Ofgem have established initiatives to try and address issues of under-investment - such as the Offshore Transmission Network Review and the Accelerating Strategic Transmission Investment framework – they have been siloed and do not go far enough. While senior management of Ofgem may point to such programmes, their remains caution at a working level, and network companies may still not be confident that Ofgem has truly changed without remit reform, and thus remain cautious in their own proposals.

² In 2021, 84% of all National Grid ESO constraint payment was made in Balancing Market offers to turn-up southern thermal plant. LCP, *Renewable curtailment and the role of long duration storage*, prepared for Drax, May 2022.

³ “*Constraints costs could reach £2.3bn p.a. by 2026*” ESO NZ market reform phase 3 conclusions, slide 6, presented 22/3/2022.

However, compare ESO ETYS power flows with allowed East-Coast HVDC project (EHVDC) costs: 6GW of new connectors (three cable links, or 1½ of the EHVDC project) enables 90% of this constraint to be avoided. Averaging 2024, 2025, 2026 – the “mid-2020s” forecast peak of constraints – shows:

- Scotland-to-England capability of 7.1 GW in this period
- Average maximum to cover 90% of power flow situations in this period is 13.4 GW – a shortfall of 6.3 GW (to underline the point, boundary capability rises to 12-15 GW in the early 2030s, when constraint spend is forecast to fall substantially).
- Using EHVDC approved costs, multiplied 150% for 3 links instead of 2, gives +6.0 GW of capability for cost of £5.1bn – equating to £270m equivalent annual cost of investment, using RIIO-T2 financial parameters.

- We would advise the Government to reform Ofgem’s remit in the Energy Security Bill to address this, as had been voted for by the House of Lords.
- Whilst Government have recognised the need to substantially reform the working practices of Ofgem in the past, they have proposed this is done through the recently released *Strategy and Policy Statement for Energy* (SPSE). Although we welcome the publication for the SPSE, there is a risk that the SPSE could become quickly dated, particularly if there are continued unforeseen shocks in the energy system as we’ve seen in recent years. Given the SPSE is not legally binding to begin with, it is unclear how Ofgem practices would continue to change at the point the becomes dated.

Reforming Ofgem’s remit: benefits beyond developing our grid infrastructure at pace

Ofgem’s inability to suitably prioritise and expedite the energy transition is not only leading to underinvestment in the UK’s grid infrastructure, but feeds into its wider regulatory working practices. As a result, the regulator is proposing changes to network charging and assessing the introduction of Location Marginal Pricing (LMP) which will both create significant headwinds to investment in renewables.

Shifting from a national electricity price to localised pricing would be a fundamental change to the power market. As [a recent report by University of Strathclyde outlined in detail](#), these proposals risk undermining the UK’s world-leading market for renewables and shaking investor confidence at precisely the time we need to be ramping up clean energy. [Analysis by Frontier Economics](#) also warns of the potential for “*a substantial increase in the Weighted Average Cost of Capital (WACC) as a result of any move to LMP.*” Setting hundreds, or even thousands, of local energy prices in real-time would make revenue forecasting incredibly complicated and even more volatile, which risks push up financing costs and, ultimately, electricity prices for consumers.

In addition to the detriment to investment, Ofgem needs to consider:

- Locational restraints. Renewable energy development is locationally constrained to where wind and solar resource is highest, and where there aren’t significant barriers to development, such as land availability, planning rules or protected areas. For example, offshore wind will be the biggest source of UK power – but developers can’t choose where those sites will be, which are set out years in advance by The Crown Estate, or Crown Estate Scotland; it is extremely difficult to gain planning permission for onshore wind farms next to urban population centres in southern England.
- It may have a detrimental impact on some consumers. In those large parts of the country where developing new large-scale power sources isn’t feasible, consumers could be burdened with higher energy prices.
- Energy Security. These proposals would benefit large gas plants located near the big cities in England, and risk extending our dependence on gas at the same time as Government has set a target of rapidly cutting gas power by 2030.

Action 2: Taking an active role in ensuring all other enabling initiatives are taken forward at pace though a new Prime Minister or Networks Minister led delivery group of key senior parties.

- In addition to reforming the remit of Ofgem, Government needs to establish a regular working group that brings together key senior parties in BEIS, Ofgem, Defra, DHLUHC, National Grid ESO, Scots & Welsh Government and the Transmission Owners to accelerate decision making and delivery for new grid (transmission network) development – with Networks Minister driving actions and leading the delivery.
- Priorities for this group should include;
 - o Ensuring recent proposals to reform the connections process and queue management hit the milestones set out and can be fast tracked - as well as moving from a ‘connect and manage’ system to grid development to building ahead of need.

- Progressing work to accelerate regulatory and planning approval of onshore transmission projects⁴ already identified by Transmission Operators as required to meet the Government's 2030 renewable electricity generation ambitions, over and above Ofgem's programme to accelerate onshore transmission investment.
- Swift implementation of the requirements identified in the British Energy Security Strategy including accelerating consenting, and to identify and progress offshore priority cases for consenting will greatly aid progress.
- Rapid revisions to National Policy Statements (which provide the planning framework for major infrastructure projects, to which there is currently an open consultation) to facilitate the consent of the transmission network projects that have been identified by National Grid ESO's '[Holistic Network Design](#)' (HND). Critical National Priority Infrastructure should have presumed consent, including the HND outlined the grid required to meet the Government's 2030 targets for offshore wind (though it is being enhanced, with a revised version with additional infrastructure to be published at some point this year).
- Ensuring parties deliver the longer-term holistic grid planning required to establish and identify new transmission projects and reduce system constraints.
- Adequately resourcing consenting bodies (in regulatory, planning and environmental consenting organisations) to avoid the unnecessary delays currently being experienced.

There are wider economic benefits to investing in our grid infrastructure.

- In order to achieve the Government's energy targets for 2035 (as outlined in the 6th Carbon Budget) [the UK will need](#):
 - a c10% increase in transmission cables by 2035 (which carry electricity across the country, both onshore and along our coasts), as well as upgrading 16% of our existing lines so that they can double the volume of electricity they can carry.
 - a c25% increase in new cables for our distribution network (which takes power from transmission lines or local power generators to homes, businesses etc) – equivalent to around 300,000km of cable.
- The UK will also require a 50% increase in grid and bulk supply stations⁵ between 2020 and 2050.
- The development of the UK's distribution network alone [is set to require £7bn of investment each year by 2035](#).
- UK companies supplying electrical components for grid development expect the market to have increased by 10-fold at this point.
- As an indication of the jobs that could be supported by investment in our grid; Ecuity and Hitachi estimate that between 19,000 and 49,000 jobs could be supported by the existing investments in battery storage, digital substation reinforcements and additional cabling already planned by Distribution Network Operators.

Case study; Schneider Electric
 The UK has an established supply chain in electrical components, which could grow alongside increased investment in our grid infrastructure.

For example, Schneider Electric's factory in Leeds employs 550 people in the production of low and medium voltage electrical infrastructure products.



May 2023

⁴ 'Onshore transmission projects' are the powerlines which help carry electricity across the country

⁵ 'Grid and bulk supply stations' are crucial infrastructure that join different parts of the network together (for example, substations).