

Accelerating onshore electricity transmission investment

Response from Regen and the Electricity Storage Network

About Regen and the Electricity Storage Network

Regen is an independent centre of energy expertise with a mission to accelerate the transition to a zero carbon energy system. We have nearly 20 years' experience in transforming the energy system for net zero and delivering expert advice and market insight on the systemic challenges of decarbonising power, heat and transport.

Regen is also a membership organisation and manages the Electricity Storage Network (ESN) – the voice of the UK storage industry. We have over 150 members who share our mission, including clean energy developers, businesses, local authorities, community energy groups, academic institutions, and research organisations across the energy sector.

This response is based on our extensive experience working with BEIS, Ofgem, the system operator and network operators on whole energy system decarbonisation.

Network investment and capacity is one of the most critical enablers of net zero delivery, economic growth, and low carbon technology uptake. However, the network is currently acting as a key barrier slowing down progress on developing the low carbon energy projects that will help the UK achieve net zero and ensure consumers reap the benefits of cheaper, cleaner energy.

Accelerated decarbonisation ambition is running ahead of the ability of the networks and Ofgem to make and deliver investment. This is accentuated by several underlying issues and systemic challenges, in particular the issue of strategic, anticipatory investment which is prevented by the regulatory framework, RIIO incentives and the allocation of risk and reward for future network investment.

The delays to network investment, especially on the transmission network, are a key cause of current constraint levels and the very large queue of projects that are facing delays to connect until the 2030s – our industry members inform us that almost all projects over 1 MW seeking to connect to the distribution network are facing delays of up to a decade due to capacity constraints at the transmission level. Projects are also liable for uncapped financial contributions to transmission network upgrades, which make many projects unviable.

Urgent reform is required of the processes and criteria for network investment, with a view to ensuring a much faster and more strategic anticipatory approach.

It is, therefore, very positive that Ofgem has recognised the need to accelerate investment in the onshore electricity transmission network. As Ofgem rightly highlights, there is strong consumer interest in ensuring the necessary transmission upgrades are delivered on time.

We also welcome the publication of BEIS and Ofgem's 'Electricity Networks Strategic Framework' and that Ofgem is already acting on commitments set out. The number of actions being pursued by BEIS and Ofgem is a stark reminder of the breadth and scale of policy and regulatory reform that will be needed to get our electricity networks ready for net zero.

This consultation's proposals to accelerate certain onshore transmission projects that have been identified by the system operator as being needed by 2030 is one positive step, in particular the move to speed up the project and funding approvals process.

Whilst we welcome the steps being taken here, our concern is that this process may disappear into technocratic analysis that fails to get to the core of the issues preventing strategic investment across the energy system. This accelerated delivery framework could help address part of the problem, but there are many other areas where Ofgem could improve network processes to make them fit for the future. In addition to considering the measures proposed in this consultation, we urge Ofgem to focus on addressing several related issues, including:

1. Transmission-Distribution queue management and process

The process for managing the queue of projects waiting to connect to the network is inefficient and blocking the delivery of key clean energy projects.

There has been significant growth in the number of applications to connect to the transmission network in recent years leading to a huge queue of projects waiting to connect. The current 'first come, first serve' approach to managing this queue is ineffective and holding up key clean energy projects that are needed to meet the UK's strategic energy goals.

The current process means that distribution projects that could be deployed quickly are sitting behind network reinforcement for projects that arguably might be 'speculative', e.g. may not yet have land security, leading to an issue of 'capacity blocking'. Projects can also easily change their connection date and retain their position in the queue.

This process should be improved through tighter and more enforcement of milestones for project progression and clear implementation of the new queue management guidance, including allowing flexible assets that can help relieve a constraint to connect. There are industry code modifications seeking to address this that should be accelerated (e.g. CMP376: Inclusion of Queue Management process within the CUSC).

2. RIIO-ED2 Draft Determinations

Levels of investment in the RIIO-ED2 Draft Determinations fall short of what is required to achieve the UK's legal and strategic energy goals.

BEIS and Ofgem's recent 'Electricity Networks Strategic Framework' states that the proposed increase in network investment will "ensure sufficient capacity to support new demands, particularly from the decarbonisation of transport and heat".

In the RIIO-ED2 Draft Determinations, however, investment falls well short of that required to achieve the UK's legal and strategic energy goals. Ofgem has set the baseline for load-related reinforcement based on a 'System Transformation' scenario. This scenario assumes a low uptake of low carbon technologies on the distribution network and is not compatible with the Sixth Carbon Budget, nor key government targets such as 600,000 heat pumps a year by 2028 and a net zero power system by 2035.

The 'Electricity Networks Strategic Framework' notes that "additional mechanisms will allow investment to quickly track changes in demand over time"; however, the proposed mechanisms are complex and bureaucratic. These need to be much simpler to enable timely investment in the hundreds of projects and flexibility markets required.

Regen has previously written to Ofgem in [February](#) and [August](#) this year to ask that Ofgem ensure that the final determinations are fit for purpose and will enable the level of investment needed over the next five years to prepare our electricity networks for net zero.

3. Rising constraint management costs

Accelerate existing initiatives to address rising transmission network constraint management costs.

The cost to the Electricity System Operator of managing constraints on the network has risen significantly in recent years – by £1.2 billion in the last 12 months. This is a direct result of lack of strategic investment in our energy networks, as well as our reliance on large-scale, inflexible and expensive gas-fired generation to provide balancing services.

The process of ‘connect and manage’ is falling behind, in part due to the tardiness of Ofgem to approve new investment and the inherent challenge of building large-scale grid capacity. As well as leading directly to constraint costs it is also, ironically, leading to delays and queues for the connection of solutions, like battery storage, that could ultimately help to alleviate constraints.

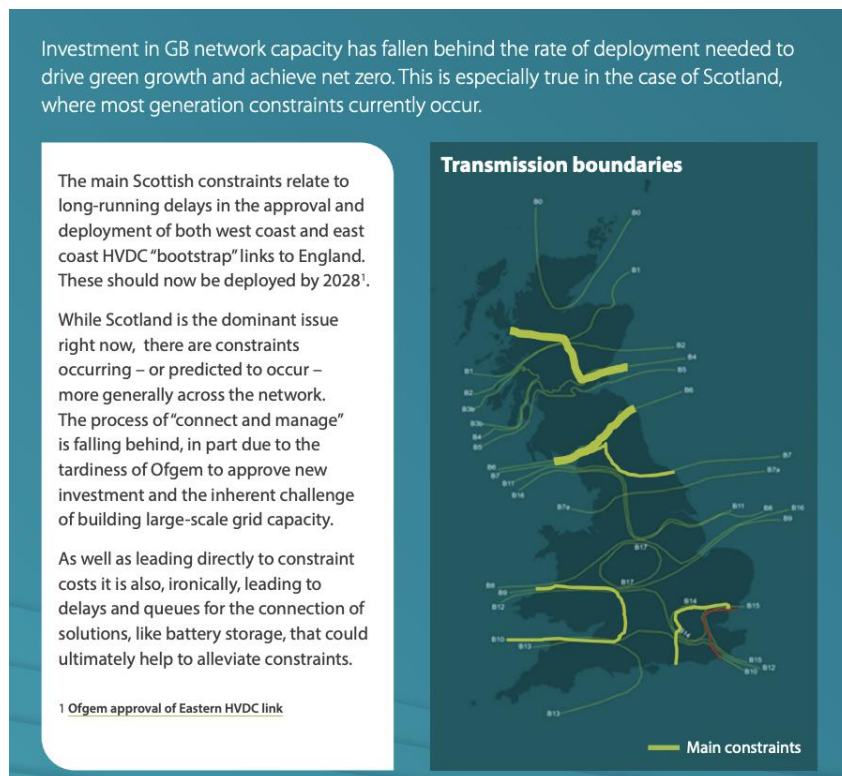


Figure 1: Main transmission constraints in GB (Source: Regen paper, [‘Seven solutions to the rising cost of transmission network constraint management’](#))

The projected rise in constraint management costs has been a major driver of recent calls to radically redesign the GB energy market towards nodal or locational marginal pricing (LMP) and a return to centralised dispatch. Regen’s view is that an LMP solution is very unlikely to be adopted and would be a retrograde step for the GB energy market.

In addition, Ofgem cannot afford to wait for market reform to address constraint costs. We suggest Ofgem launches a task force with the aim to explore how constraint costs can be reduced in the

short term. Regen's [latest insight paper](#) recommends several actions that could be taken today to better manage constraints and reduce the associated costs within existing market arrangements.

These solutions could be accelerated to make an impact on reducing energy costs now and would support investment in low carbon technology and flexibility services for a smarter, cheaper and more flexible net zero energy system, including:

- expanding the use of forward contracts for flexibility services;
- widening access to the Balancing Mechanism for participants offering flexibility services;
- improving control room functions through better forecasting, digitalisation and automation.

4. Offshore Transmission Network Review, Interconnectors and Holistic Network Design

Coordinated forward planning is needed to ensure that the UK achieves its net zero targets, both on and offshore.

A key element of the UK's future transmission network will be the operation of GW-scale offshore wind farms around all parts of the UK, and the development of interconnectors to neighbouring energy markets. While much of this infrastructure may be offshore, as is the focus of the Offshore Transmission Network Review, it is crucial that this is integrated into onshore transmission planning in a coordinated and holistic approach.

National Grid ESO's [Pathway to 2030 Holistic Network Design](#) (HND) sets out the path towards centralised, strategic network planning to support the large-scale delivery of offshore wind. This is an important first iteration to better understand long-term network investment and is exactly the sort of coordinated forward planning that we need; the current approach of each developer building their own links is not sustainable as the sector scales up to 50 GW by 2030.

However, there are areas of HND that need refinement, including extending the HND to cover interconnectors, which will form a significant part of offshore capacity, and keeping pace with accelerated offshore development. It will also be crucial to ensure that the HND is integrated into the existing Network Options Assessment (NOA) process to embrace a coordinated approach to network planning at all stages of the planning process. To match this strategic network plan, Ofgem needs to think through the appropriate investment model for offshore transmission. We would argue that, where the offshore grid design is for the efficiency of the national transmission network, it should be considered as part of national infrastructure and financed accordingly.

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