

Thomas Johns
RIIO Electricity Transmission Development
Ofgem
10 South Colonnade, London, E14 4PU

14 September 2021

Dear Tom,

SSEN Transmission response to Ofgem's consultation on its views on Early Competition in onshore electricity transmission networks

This response is prepared on behalf of Scottish Hydro Electric Transmission Plc (SSEN Transmission), part of the SSE Group, responsible for the electricity transmission network in the north of Scotland.

SSEN Transmission fully supports efforts by Government and Ofgem to ensure energy costs remain affordable to the consumer. We remain committed to delivering reductions in the cost of its activities, where possible. It has always been our goal to ensure that Great Britain (GB) maintains a safe, economic, coordinated, and reliable network whilst delivering our jointly shared ambition of Net Zero. Indeed, that is why we fully embrace transmission investments already being subject to extensive and robust competitive tenders, as required by legislation¹.

With that in mind, and due to the essential role electricity transmission provides in keeping the lights on and supporting the transition to Net Zero emissions, SSEN Transmission believes there are three “red line” tests, consistently communicated with Ofgem, BEIS and NGESO, which must be satisfied prior to the introduction of any further competitive process to the regulated regime. It must:

1. **Accelerate, not delay, the delivery of the UK's legally binding Net Zero emissions reduction targets**, by facilitating delivery of the right investment at the right time, and providing certainty for investors and stakeholders in the GB market. This also includes facilitating the delivery of 40GW of offshore wind by 2030 and the recently announced 78% emission reduction target by 2035².
2. **Maintain security of supply**, along with the high reliability standards, integration, and performance of GB's transmission networks. New entrants must be subject to the same rules, responsibilities, and accountabilities of incumbent Transmission Owners (TOs).

¹ <https://www.legislation.gov.uk/ukxi/2016/274/contents>. TOs are subject to the requirements of the Utilities Contracts Regulations 2016.

² <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

3. **Provide demonstrable net benefits, lifetime cost savings, and must avoid consumer detriment** by undertaking a long-term view to plan, maintain, coordinate, and operate the transmission network, and be supported by consumers, communities and the environment, industry, and electricity generators.

To date, none of the competitive models presented by Ofgem, BEIS or National Grid System Operator (NGESO) have satisfied these tests. We therefore believe that significantly more work is required prior to the introduction of legislative change which would have a profound impact on the future of the GB energy system.

Throughout our response, we set out in detail unresolved practical concerns. These require careful consideration ahead of any decision to implement any form of competition in the transmission market in GB.

Whilst we will continue to constructively engage with the Ofgem, BEIS and the ESO on all the issues of developing a model for early, as well as late competition, it is important that Ofgem and BEIS carefully consider and respond to the complex implementation concerns raised in our response. In the circumstances, and until our significant concerns are adequately addressed, we must reserve our position on the outcome of the current process.

Yours sincerely,

Sara McGonigle

Head of Regulation, SSEN Transmission

Executive Summary

The Three Tests

The GB transmission network is on the brink the biggest transmission undertaking the UK has ever seen. SSEN Transmission's network in the north of Scotland is the gateway to a renewable future in the UK. Without policy support and certainty, GB will not achieve Net Zero.

Whilst Ofgem has a duty³ of promoting effective competition where appropriate, pursuing competition in its current proposed framework in the electricity transmission network is not beneficial. Instead, it would be detrimental for the long-term planning, operation, and maintenance of the network, and is at odds with Ofgem's principal statutory objective under the Electricity Act to protect the interests of existing and future consumers. Due to the essential role electricity transmission plays in meeting Net Zero and in keeping the lights on, we believe there are three "red line" tests which must be satisfied prior to the introduction of any further competitive process to the regulated regime:

Test 1	Accelerate, not delay, the delivery of the UK's legally binding Net Zero emissions reduction targets , by facilitating delivery of the right investment at the right time, and providing certainty for investors and stakeholders in the GB market. This also includes facilitating the delivery of 40GW of offshore wind by 2030 and the recently announced 78% emission reduction target by 2035.
Test 2	Maintain security of supply , along with the high reliability standards, integration, and performance of GB's transmission networks. New entrants must be subject to the same rules, responsibilities and obligations of incumbent Transmission Owners (TOs).
Test 3	Provide demonstrable net benefits, lifetime cost savings, and must avoid consumer detriment by undertaking a long-term view to plan, maintain, coordinate, and operate the transmission network, and be supported by, consumers, communities and the environment, industry, and electricity generators.

To date, none of the competitive models presented by Ofgem, BEIS or the NGENSO have satisfied these tests, including the ESO's Early Competition Plan (ECP). We therefore believe that significantly more work is required prior to the introduction of legislative change which would have a profound impact on the future of the GB energy system. Below we make six main points which demonstrate that Ofgem's proposals fail the above tests. In order to comply with its principal objective to protect the interests of existing and future consumers Ofgem must address these in advance of proceeding.

³ Section 3A, Electricity Act 1989

Delaying Net Zero and increasing costs (Fails Test 1 and Test 3)

Early competition can extend the delivery of transmission infrastructure by at least 18 months, and rather than reducing costs for consumers, can increase costs by extending constraint payments. It has not been demonstrated how delays and consumer detriment will be avoided.

Our initial analysis of NGENSO's proposed ECP demonstrates it will likely extend the delivery of transmission infrastructure by at least 18 months compared with the RIIO counterfactual. This is due to the multiple stages of the tender process and preliminary works being undertaken post tender.

Achieving Net Zero targets requires the connection of significant renewable generation and associated timely investment in onshore transmission infrastructure to transport renewable energy from areas of high generation to locations of demand. Our modelling of the requirements to meet Net Zero targets indicates that connected generation in our network area alone will need to increase to between 13.6GW and 15.7GW by 31 March 2026 and up to 23.1GW connected by 2030. Such a momentous challenge cannot afford delay.

There is also a real risk that increased constraint costs due to delays will outweigh any unproven short-term cost savings competition could introduce. NGENSO estimated, after NOA 2020/21 reinforcements are delivered, that consumers could still face paying up to £2.5bn in constraint payments a year because essential transmission reinforcements will not be delivered quickly enough to support increasing levels of renewable generation⁴. This risk could be further exacerbated by the introduction of early competition.

Introducing new policies that cause delays to reinforcements resulting in increased costs for consumers is at odds with other Ofgem policy initiatives, such as setting late project delivery charges on TOs for large onshore transmission investment (LOTI) projects. It is inconsistent to seek to disincentivise delays from one source (ie TO Reinforcements) whilst introducing delays through the implementation of these proposals. Consumers will ultimately bear the detriment of such delays.

We note that the implementation plan and timeline, as set out by NGENSO, is already delayed⁵.

Increasing uncertainty and creating further barriers to Net Zero (Fails Test 1)

Early competition will create uncertainty and therefore investment and delivery bottle necks. Developers and the supply chain will not have a clear route to market or a defined pipeline of projects, thus delaying meeting UK's Net Zero targets, particularly the 2030 targets⁶. It has not been demonstrated how Ofgem, BEIS and NGENSO will mitigate uncertainty.

Early competition and the consequent uncertainty of the preferred bidder solution will impact generation developers' ability to attract project financing, and as a result prevent or delay Net Zero projects. Investors require certainty on connection time, returns, oversight of risks, and track records of Competitively Appointed Transmission Owners (CATOs). Uncertainty will also

⁴ <https://www.thetimes.co.uk/article/new-wind-farms-threaten-2-5bn-constraints-bill-for-consumers-chzwcfs2n>

⁵ <https://www.nationalgrideso.com/document/191251/download>, p.7

⁶ <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

introduce higher risk margins for developers, which developers may factor into a Contract for Difference (CfD) bid, ultimately resulting in higher costs for consumers.

The supply chain is experiencing increased global demand as nations around the world establish its own targets to increase renewable capacity. The journey to 2050 requires a scale of development not seen within GB since the mid-1960s⁷. The limited supply chain requires a certain and centralised strategy so it can provide the scale that GB requires to meet Net Zero at pace.

We have heard from potential bidders and the supply chain⁸ that a certain, predictable framework, and defined pipeline of projects is required to enable infrastructure providers to negotiate early with global suppliers and contractors to provide competitive costs. TOs are currently able to start procurement negotiations early to ensure assets are procured in time to meet key dates. Early engagement allows for contractors and supply chain to collaborate on the best solutions for consumers. This includes an approach that encourages freedom to challenge traditional thinking, exploration of new designs, methods, materials, and identifying drivers for eliminating risk, efficiency savings, and safety improvements. The proposed ECP prevents certainty and early negotiation to take place, and the NGESO has failed to provide any proposal to reduce this uncertainty.

The supply chain for transmission assets, including manufacturers, is limited and needs clear investment signals from GB companies, Government and regulatory policy. Only a handful of manufacturers and suppliers worldwide can produce the transmission and high voltage equipment that will be required in coming years. Innovation has been identified as one of the benefits of these early competition proposals. However, without a clear pipeline of potential opportunities and clear Government and regulatory policy, there is a risk that the investment required for the innovation and expertise that is necessary to deliver GB Net Zero targets by 2030 (and beyond) will not be readily available in GB, or will be at an increased cost as investors manage the uncertainty through demanding higher returns⁹.

The above issues caused by uncertainty will be exacerbated if Ofgem proceed with its initial view that the 'high value', 'new', and 'separable' criteria won't apply to early competition. This proposal to remove competition criteria is a significant departure from existing processes and assessments. An initial CBA is not an appropriate way to determine projects eligible for early competition, and introduces further uncertainty for all stakeholders in the industry. We are particularly concerned with these proposals.

Creating a race to the bottom (Fails Test 2 and Test 3)

The current regime maintains competitive pressure by embedding competitive tendering within project development without sacrificing the benefits of a natural monopoly. Within the current regime, SSEN Transmission upholds exceptional ethical and sustainable standards and codes of conducts. It has not been demonstrated how the ECP will maintain these for GB consumers.

⁷https://www.hvdccentre.com/wp-content/uploads/2021/07/Offshore_Co-Ordination_Supply_Report_v2.0.pdf

⁸ During NGESO's 2019/20 webinars and Morgan Sindall's consultation response to Ofgem

⁹ <https://utilityweek.co.uk/cc-c-chief-points-to-lack-of-scrutiny-on-net-zero-policy/>

To ensure the necessary investment¹⁰ to meet Net Zero is made at the lowest cost to consumers, TOs already undertake competitive tenders in accordance with legal requirements set out in the Utilities Contracts Regulations 2016¹¹. Previous ITPR development has acknowledged the competitive tendering process within its construction projects, and noted that there might be a limit to the scope of costs which are not exposed to competition under a traditional price control approach¹². In developing our own procurement strategy for the RIIO-T2 period, SSEN Transmission undertook stakeholder engagement across the supply chain and with potential providers of network and non-network solutions. We designed a multi-element approach that applies best practice over a whole programme of work to ensure the most competitive price. Furthermore, the RIIO price control is internationally recognised as a model of best practice in driving down costs. RIIO-T2 is the most stretching price control since privatisation, with the lowest cost of capital to date, an ambitious ongoing efficiency challenge and stretching consumer commitments.

Given the competitive pressures that are already embedded in the current regulatory regime, the claims of marginal value of the ECP have not been demonstrated and are further undermined when such emphasis focusses solely on short-term cost savings which will only encourage a ‘race to the bottom’.

Priority on unproven, short-term cost reduction can encourage short-term decision making in design and delivery, where solutions will be built to meet individual contract durations, rather than the enduring network need. Therefore, future consumers bear additional costs due to lack of future proofing network designs.

This short term focus will also result in detrimental impacts on the communities we serve in the north of Scotland. In the current regime, TOs are well placed, and well trusted network bodies that are highly accountable to their stakeholders, including environmental and statutory bodies, to not only ensure cost efficiency, but also that our business practices are of high quality and standard through sustainability commitments¹³ and accreditations. We have long standing relationships with local communities and stakeholders in the north of Scotland and wider GB energy industry which have been built over decades to effectively and efficiently deliver projects whilst ensuring they are acceptable to the environment and local communities.

Of note, as a regulated monopoly, we maintain a Responsible Procurement Charter¹, which sets out key principles and international best practice to ensure our business is conducted ethically, sustainably, within the law, and requires the same from our supply chain. This includes but is not limited to being:

- a **Living Wage** accredited employer since 2013 (including applying Living Wage across its supply chain, where applicable);

¹⁰ Maxine Frerk makes the point in her paper “*Investing for Net Zero in the face of uncertainty: Real options and robust decision-making*” that Net Zero may require unavoidable additional costs, but it is a price worth paying. According to the 6th Carbon Budget, on average, an additional £15bn of capital infrastructure investment per year is required to meet 2050 Net Zero targets (<https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>). As well, Lawrence Slade, Chief executive of the Global Infrastructure Investor Association, has suggested this could be as much as £40-50bn per annum through the 2020’s (<https://utilityweek.co.uk/legislate-and-regulate-for-net-zero-investment/>)

¹¹ <https://www.procurementportal.com/regulations/utilities-contracts-regulations-2016>

¹² https://www.ofgem.gov.uk/sites/default/files/docs/ng_response_appendix_2_fronteir_economics_rpt-cato_cba-08_01_16_-_final.pdf

¹³ https://www.sse.com/media/1kynkfr4/responsible-procurement-charter_0818.pdf

- accredited as a **Living Hours** employer;
- the only FTSE 100 company with the **Fair Tax Mark** independent accreditation; and
- a signatory to the **UN Global Compact (UNGC)**, the world's largest corporate sustainability initiative, committed to applying the UNGC's ten principles focused on the environment, human rights, labour and anti-corruption.

Looking back on our journey so far to Net Zero, throughout RIIO-T1 we have¹⁴:

- More than doubled the amount of renewable generation connected to our network from 3.4GW to 6.7GW displacing an estimated 38MtCO₂e from generation connected to our network.
- Become the world's first electricity network company to receive Science Based Target Initiative accreditation for our carbon reduction targets which are in line with a 1.5°C global warming pathway.
- Developed an industry-leading and award-winning Biodiversity Net Gain (BNG) approach to improve the environmental impact of our projects.
- Worked with our local communities including £0.5m contributed from the community resilience fund. Alongside SSEN Distribution, we provided much needed Covid-19 support to over 115 communities across the north of Scotland.
- Achieved leadership in Ofgem's Environmental Discretionary Reward scheme for the last three years and have been recognised by Ofgem for our RIIO-T2 sustainability initiatives through the consumer value proposition.

These positive initiatives, focusing on reducing carbon, protecting nature, supporting communities and social benefits, would inevitably be placed at risk under the current competition proposals which will lead to a myopic focus on short-term cost.

Disproportionate focus on cost reduction will also dilute adherence to industry standards and codes. NGESO's Pathfinder process to date is inconsistent with TOs obligations under industry code requirements. For example, incumbent TOs are being asked to hold capacity for Pathfinder projects, without having an associated application. Concerns regarding the risks of challenge associated with this approach being inconsistent with code requirements (amongst a raft of other unintended consequences) have been highlighted to NGESO and Ofgem. Pathfinder is also impacting connecting customer relationships that have negative impacts on other commitments TOs have undertaken within the price control (e.g. Quality Connections Incentive). This has led to the very recent Open Letter from Ofgem regarding the disapplication of certain code requirements¹⁵.

Creating a fragmented network (Fails Test 1, Test 2 and Test 3)

The proposed ECP puts coordination at risk and directly contradicts efforts by the Offshore Transmission Network Review (OTNR). The OTNR was established to resolve fragmentation concerns and to develop a regime that takes a coordinated approach for the future, essential

¹⁴ https://www.ssen-transmission.co.uk/media/5701/final-elias-sustainability-report-2020_21.pdf

¹⁵ <https://www.ofgem.gov.uk/publications/direction-relieve-national-grid-electricity-transmission-plc-and-national-grid-electricity-system-operator-limited-obligation-comply-section-d-part-2-so-code-pathfinder-connections>

to meet to Net Zero. It has not been demonstrated that early competition can achieve coordination; nor has it been demonstrated how the problems currently felt in the offshore regime will be avoided in the future onshore.

It is widely recognised that competition has a limited role in natural monopolies¹⁶. Consideration of any role competition will play must outweigh the negative impacts of splitting a natural monopoly, most notably increased costs to consumers. Proposals for competition so far ignore the benefits accruing to companies and consumers due to the interconnectedness of developing, maintaining, and operating the GB transmission network, and the benefits that natural monopolies offer as service providers. The benefits being put at risk include, but are not limited, to:

- **Cost savings through co-ordinating a portfolio of works:** As TOs have oversight of works within our regions we work with NGESO to coordinate the development of transmission network efficiently for the long-term in the best interests of GB consumers. We avoid fragmentation and short-term solutions by implementing synergies across our portfolio of load and non-load related works. Regarding connections specifically, we find efficiencies to enable multiple connections and coordinate offers with wider works, where possible. We deliver up front, as well as long-term efficiencies across our portfolio and invest strategically to avoid repeated disruption or duplication of works to a community and environment. Conversely, to ensure a level playing field, competition must limit the scope of projects so it can only address one network issue at one point in time, in one area of the network. The competition framework does not consider co-ordination of works, the longevity and need to future proof costs and network need. Competition and coordination are likely to be incompatible in delivering Net Zero on time.
- **Economies of scale and scope in operational expenditure:** The layering of operation and maintenance costs as the network fragments could result in any short-term construction or financing benefit being lost in operational inefficiency over the medium to long-term, particularly where there is post-award contract change control mechanisms proposed – i.e. the outturn cost could be significantly higher than the original successful bid cost.
- **No integration costs:** Under the ECP there is a risk of high integration costs where new assets interface with the existing network. Ultimately, the costs for these risks will sit outside the cost evaluation of the early competition proposals. It is also not clear where the obligations for these costs will sit, and how complex integration between will be.
- **Adapting to changing needs:** Competitive tendering via early competition will ‘lock in’ a solution at one point in time, thereby failing respond to changing network needs and the ever-evolving needs of local stakeholders and network users (which a “totex” price control allows for). This risks sub-optimal, fragmented network solutions that does not consider the wider network.
- **Obligations and standards that protect GB consumers and society:** TOs are subject to safety, security of supply, competitive procurement, customer service, sustainability,

¹⁶ Joe Perkins, ex Chief Economist at Ofgem giving oral evidence on 29 June 2021 to the Industry and Regulators Committee on its inquiry on Ofgem and Net Zero. Transcript: <https://committees.parliament.uk/oralevidence/2493/pdf/>

and financial risk obligations. Following NGESO's key guiding principle of a "level playing field" for all bidders, there should be no dilution of the current obligations, regulations and standards for new entrants otherwise the network will be built and maintained at different standards. We welcome evidence of where these requirements have been set for potential third party entrants, and that they will accept such additional obligations and liabilities without impacting costs levied upon consumers.

Overall, the impact of piecemeal development and management of the network has not been accounted for. No assessment has been undertaken to consider how the above will be addressed in practice.

We also note that European models (i.e. Ireland) are moving towards more coordination to better integrate long-term infrastructure, coordinate public acceptance over multiple projects, and facilitate future proofing of technology¹⁷. Through the early competition framework, GB is attempting to do the opposite. GB's direction of travel puts the renewable future of the UK and Net Zero targets at risk.

An inadequate Impact Assessment (Fails Test 3)

The Impact Assessment (IA) being relied on to make such a fundamental policy shift is not representative nor balanced. The assumptions and comparators are unsuitable, the sample (of two projects) to calculate savings is wholly unrepresentative and costs of early competition are not considered and calculated adequately. We ask Ofgem how they consider that using such analysis meets the Precautionary Principle when developing regulatory policy.

First, the comparators used in the IA to estimate benefits must be sufficiently applicable to GB transmission; they are not and therefore benefits cannot and should not be applied across directly.

The assumptions Ofgem has used to estimate cost savings that early competition could introduce is not representative of our experience and understanding. Ofgem's estimates, that early competition could reduce capex costs by 22%-44%, are based on only two projects in North America. There are significant differences in legal and regulatory frameworks underpinning transmission between the two jurisdictions. The examples also do not represent the GB sector, which is in a period of rapid evolution. Furthermore, the Hartburg-Sabine project has not yet been energised, so the quoted cost savings remain mere estimates at this stage.

In international examples where competition has been introduced on the transmission network, it has not always introduced benefits to consumers. The Imperial Valley project, as cited by NGESO, was ultimately cancelled and not delivered¹⁸, and the East-West Tie project in Ontario Canada was competed to reduce costs and drive economic efficiencies¹⁹, however the earliest in service date was delayed and outturn project costs were significantly higher than the winning bid estimate. It is unclear in the ECP proposals who would bear such additional

¹⁷ <https://www.gov.ie/en/consultation/d5fb5-consultation-to-inform-a-grid-development-policy-for-offshore-wind-in-ireland/>

¹⁸ <https://www.wecc.org/Reliability/2016-APR-IID.pdf>

¹⁹ [Competition In Electricity Transmission: Two Canadian Experiments - Energy Regulation Quarterly](#)

development and constraint costs were they to materialise upon imposition of competition in GB policy.

The OFTO regime examples also provide limited opportunity for comparison. Financing savings are largely attributable to OFTOs being shielded from risks (i.e. there is a guaranteed revenue stream, guards against inflation, and the impact of lower availability of service on revenue was reduced) in combination with, and enabling, a lower tax incidence through a highly geared structure. Consumer protection requirements under TO licencing would not permit the same arrangements for TOs.

Second, whilst there may be benefits to competition, equally there are significant costs. However, the draft IA does not adequately consider and monetise the costs of the proposed early competition framework on users of the network and the network itself. We do not think that monetising risks is spurious – it is essential to have a balanced view of the challenges and costs a new and untested regime could introduce. We caution overly optimistic expectations without robust comparative data and evidence, for example dynamic benefits, such increased innovation and introduction of new products, services and technology, which currently there are limited examples.

It is essential to monetise costs related to potential delay or failures or project, delay of Net Zero targets and impact on security of supply. These risks should be included, at the very least, as sensitivities given the value and importance of these attributes to GB economy and society. Excluding these factors results in a misleading portrayal of net benefits for consumers. In particular, consumers have indicated they are willing to pay more, to ensure higher reliability²⁰. Electricity is becoming even more central to GB consumers' daily lives, as our dependence increases with electrification of transport and heat. Keeping the lights on is essential for a productive and thriving economy in GB. As such, any analysis of the benefits of competition generally or specifically (where related to projects) must at a minimum acknowledge, reflect, and plan on potential risks and adverse impacts on the operability and performance of the wider network.

Any assessment of early competition proposals must include detailed analysis of the potential wider impact and cost of failure. Comprehensive analysis on the practicalities and impact of piecemeal development and management of the network, to mitigate and address failures, is crucial. We continue to be concerned about the absence of such fundamental evaluation by Ofgem and BEIS in addressing these very real and critical issues of network fragmentation and how to address network need, should a third-party solution fail, or a tender exercise be unsuccessful. Competitive benefits should be considered alongside potential significant costs of transferring liabilities and maintaining reliability and security on the network.

Other variables to be considered include:

- Costs to natural environment (i.e. if third parties *do not* invest into the natural environment in the same manner as SSEN Transmission and other TOs);
- Loss of investment in local communities (e.g. third parties operate contracts to generate profit, however SSEN Transmission invest in facilities and amenities within the local communities we serve such as into schools and parks (eg Shetland LOTI));

²⁰ <https://www.ssen-transmission.co.uk/media/3455/consumers-willingness-to-pay-final-0107.pdf>

- Carbon costs from the implementation of the solution;
- Time value of resources spent setting up the framework for the wider Ofgem/ESO engagement with competition since beginning the ITPR project;
- Increased intergenerational consumer costs due to piecemeal development and loss of future proofing; and,
- Layering of O&M teams (and costs) for each separately owned piece of a future fragmented network, etc.

Unresolved practical implications (Fails Test 1, Test 2, and Test 3)

Ofgem has been progressing the introduction of competition in the transmission market for a decade, yet we remain deeply concerned that in that time it has not set out clearly how it will address the real practical concerns of its implementation that will affect current and future consumers. We ask both Ofgem and BEIS to respond directly on all the points set out in our Appendix A.

Effective design and implementation considerations are essential for the success of policy goals²¹. The transmission network is complex in design, nonlinear, and has multiple interdependencies. Without full and thorough consideration of practical challenges, there is a major risk of a gap forming between policy aspiration and implementation; a common source of policy failure.

SSEN Transmission has identified over 50 issues throughout the early competition framework²². As part of our response, we have collated evidence based practical issues that have not been considered during the development of the early competition framework. As we have seen from the Pathfinder “Learning by Doing” approach, severe implementation issues arise when the practicality of the network is not considered during policy development.

Some practical issues we have identified include, but are not limited to: security and liabilities for increased interface physically and relating to cyber; fault response capability and timeliness; and management of statutory stakeholders and local communities.

²¹ <https://www.tandfonline.com/doi/pdf/10.1080/25741292.2018.1540378?needAccess=true>

²² Please also view SSEN Transmission’s response to the ESO’s Phase 3 Consultation:
<https://www.nationalgrideso.com/document/190366/download>