Written Evidence Submission to the Net Zero, Energy and Transport Committee
On behalf of SSEN Transmission and SSEN Distribution

Scotland's electricity infrastructure: inhibitor or enabler of our energy ambitions?
15th March 2023

About us
SSEN Transmission and SSEN Distribution are part of SSE plc, the clean energy leader that develops, owns and operates low carbon infrastructure to support the net zero carbon transition.

SSEN Transmission, under licence held by Scottish Hydro Electric Transmission plc, owns, operates, and develops the high voltage electricity transmission system in the north of Scotland and remote Scottish islands.

SSEN Distribution, operating under licenses held by Scottish Hydro Electric Power Distribution plc and Southern Electric Power Distribution plc, owns, operates, and develops the electricity distribution networks in the north of Scotland and central southern England.

Our developments and business strategies follow a stakeholder-led approach to deliver jobs and economic benefits, support greater resilience, and create community wealth. Together we are delivering a network for net zero, connecting renewable energy and supporting the increased demand for electricity that is needed to support Scottish and UK emissions reduction targets.

As networks with aligned objectives but differing challenges, SSEN Transmission and SSEN Distribution are submitting a joint response to the Committee's inquiry on behalf of SSE's networks businesses.

Introduction
Scotland's electricity networks have a critical role to play and are arguably the key enabler in delivering Scotland's and the UK's net zero and energy security ambitions.

We do this by planning, developing, building and maintaining the electricity network infrastructure required to connect and transport renewable electricity generation from source to areas of demand across the country, and beyond.

Put simply, if we cannot plug in new renewable electricity generation, or provide the increases in network capacity required to transport that power to where it is needed, Government targets will not be met.

We therefore welcome the publication of the draft Energy Strategy and Just Transition Plan, and we look forward to working with the Scottish Government and its agencies, and the Scottish Parliament, to turn the ambitions contained within the Strategy and Plan into tangible actions.

With short timeframes to meet both Scottish and UK Government energy security, emission reduction and renewable energy targets, the efficient and timely delivery of essential infrastructure which enables Net Zero should be at the heart of regulatory and government policy and embedded within decision making frameworks to provide certainty and investor confidence for critical infrastructure investment.

Decision making for regulatory approvals and project consenting therefore needs to be more timely, streamlined, and efficient to reduce delays for future network investment to unlock renewable energy,

decarbonise heat and transport systems (including EVs and rail decarbonization) and achieve legally binding climate targets and energy security ambitions at the scale and pace required.

Electricity network readiness

1. Do the current business plans from SSEN and SPEN (in relation both to transmission and distribution) allow for sufficient investment in networks to realise the Energy Strategy's ambitions?
The current price control period and associated business plan for Transmission (RIIO-T2) runs from April 2021 – March 2026; and the next price control period for Distribution (RIIO-ED2) will start this year, running from April 2023 – March 2028.

Both business plans for SSE's Transmission[1] and Distribution[2] businesses during this price control period have been approved by Ofgem and outline a clear strategy for what needs to be delivered during this timeframe.

In the five years of the RIIO-ED2 price control, SSEN Distribution will invest at least £1.2bn across the north of Scotland, an uplift of c. 30% on the equivalent period in RIIO-ED1.

For transmission, the baseline investment totals around £2.6bn over the five-year RIIO-T2 period and mainly covers two types of investment:

- load related expenditure, which covers investments that will increase the capacity of the network to accommodate growth in electricity generation and demand; and
- non-load related expenditure, which covers investments in the existing network, for example asset replacements, maintenance, and refurbishment.

Through Ofgem's Uncertainty Mechanisms, additional infrastructure over and above what is included in baseline plans can be progressed as and when the need for these additional investments can be demonstrated and evidenced.

Based on our forecast of these Uncertainty Mechanisms, we expect total RIIO-T2 expenditure to increase to around £4bn, with this additional investment including expenditure related to the replacement of the Fort Augustus to Skye overhead line, which includes increased capacity to enable the connection of renewable electricity generation along its route; the upgrade of the transmission network in Argyll from 132kV to 275kV to support the forecast growth in renewables in the region; and the Orkney transmission link, which received provisional approval from Ofgem on 3 March 2023.

Combined, our baseline load-related expenditure and the impact of Uncertainty Mechanism expenditure is expected to increase the capacity of renewable electricity generation connected to the north of Scotland transmission network from around 8GW at the start of the RIIO-T2 period, of which around 7GW is from renewable sources; to around 13GW at the end of RIIO-T2, of which around 12GW forecast from renewable sources, marking significant progress in delivering against the ambitions of the Energy Strategy.

[1] A Network for Net Zero - SSEN Transmission (ssen-transmission.co.uk)
[2] Home - SSENFuture

However, the next transmission price control period will arguably be the most important for the Energy Strategy's objectives, 2030 targets and delivering a pathway to net zero. This period will see the delivery of the major reinforcements identified in Ofgem's Accelerated Strategic Transmission Investment framework (known as ASTI, or our "Pathway to 2030" projects[3]) which will be critical to enable Scottish and UK Government 2030 targets and unlock the first phase of the ScotWind leasing round.

Ofgem's ASTI framework and approval of need for these investments is a hugely welcome step forward in taking a more strategic approach to network planning, delivering against the recommendations set out in the publication of the Holistic Network Design Pathway to 2030.

The HND and subsequent ASTI framework establishes the onshore and offshore electricity network infrastructure required to meet 2030 offshore wind targets as a GB wide programme of reinforcements. This will enable around 11GW of ScotWind's 28GW ambition, with a follow up exercise underway to establish the system requirements to realise ScotWind's full ambition.

Whilst we welcome the step change in mindset from Ofgem and clear shift towards strategic network planning, extending this approach to electricity distribution and gas networks will be key to delivering local decarbonisation ambitions, particularly the electrification of heat and transport, unlocking the whole system benefits that grid can deliver for a zero-carbon society.

Sensible and evidenced low regrets anticipatory investment for Distribution would also be helpful to achieve required network enhancement within tight timescales and at the same time reduce costs to consumers, and impact to communities over the long term (taking a "do it once and do it right" approach). Strategic investment in critical infrastructure can significantly help to reduce the UK's carbon consumption and cost to consumers, by lowering the need to constrain off generation in the north of Scotland and turn up gas generators in the south of England, to meet demand when there are periods of high wind. At a distribution level, strategic investment can avoid costly disruption of repeated upgrades in step with gradual increase in demand, or of retrofitting the network after demand has emerged.

Our regulatory frameworks need to be much more agile than current processes allow, prioritizing the accelerated delivery of a net zero grid which will form the backbone of our future energy security and decarbonization ambitions. Without urgent investment in grid (both transmission and distribution) it will be impossible to realise renewable energy and wider decarbonisation targets. To put the required level of network growth into context, our transmission network in the north of Scotland needs to double in size by the middle of this decade, triple by 2030, and increase by five to six times by 2050 to support UK net zero targets. A significant proportion of this will be connected also at a distribution level and the need for a whole system approach to infrastructure investment and deployment will be crucial.

2. To what extent are SPEN and SSEN able to alter investment plans in response to a fast-moving policy environment?

Uncertainty Mechanisms are a crucial way of unlocking additional network investment over and above baseline investment cases as and when there is a clear need, such as responding to the forecast growth in generation or demand, and against the backdrop of a fast-paced and dynamic energy policy landscape.

[3] An overview of SSEN Transmission's ASTI, or "Pathway to 2030" projects, can be found in Appendix 1.

We continue to support the use of Uncertainty Mechanisms in the price control framework as it allows for further and critical network investment that was not certain at the time of business plan approval to be considered by Ofgem when the need becomes clear. This process also protects electricity consumers, with GB bill payers only paying for investment in the network when there is robust and certain evidence of need.

Our experience to date is that these Uncertainty Mechanisms are largely delivering as intended and we welcome Ofgem's efficient determination of the main Uncertainty Mechanism reopeners we have progressed in the RIIO-T2 period to date.

However, looking beyond the current price control it is clear that current regulatory approval processes need to continue to evolve to deliver a zero-carbon system, with long term strategic network planning, on a whole energy system basis, essential to support timely delivery and provide the certainty investors, the supply chain and renewable electricity generators need. The ASTI framework is a welcome first step and must be built on with an enduring regime, the Centralised Strategic Network Plan, which we welcome.

At distribution level, given the level of decarbonisation required, it remains unclear whether the uncertainty mechanisms associated with the RIIO-ED2 price control will be agile enough to allow for rapid changes in growth at a distribution level or development at a strategic scale. Recognising recent developments undertaken at a Transmission level, most notably the introduction of the ASTI process two years into the RIIO-T2 price control period, we believe Ofgem should keep this under regular review.

System resilience

3. What role will dispatchable* electricity sources - pumped hydro, battery technologies, thermal generation (hydrogen power, gas with CCS) - play in ensuring security of supply and system resilience? Should any other technology play a role in supporting Scotland's electricity system?
Our regulatory license requirements mean that we have a duty to offer connections to all customers from all technology types and promote competition in electricity generation. We are therefore technology agnostic and do not provide a view on what technologies should be deployed on the system and when. This question may be more appropriate for National Grid ESO, who operate the GB wide network, or Government to answer directly.

However, we believe that a range of technologies will likely need to play a whole system role in ensuring security of supply and network resilience as Scotland further decarbonizes the energy sector and as greater renewable sources of generation become even more dominant on the system.

In particular, we believe that we should be planning for prolonged periods of low wind output, in particular during winter when electricity demand is at its highest and will only increase further with the electrification of heat.

Whilst battery technology and flexibility can clearly play a role, long duration storage in particular could help to support system balancing at times when wind output is low and could help to strengthen energy independence to meet Scottish and UK demand, rather than reliance on interconnectors from

neighbouring countries which could increase consumer vulnerability to global price shocks and energy shortages.

4. What are the key barriers to deploying these technologies and how should they be addressed?
Our generation customers tell us that route to market, transmission charging and planning policy create barriers to deployment for these technologies. We refer to more detailed views shared by Scottish Renewables in their written response.

As we consider whole system planning as a fundamental element in planning our network developments, in our own Future Energy Scenarios (at both Transmission[4] and Distribution[5] level) thought was given to changes in other areas of the energy system such as heat, transport (including rail) and hydrogen. Although, there is still a significant number of unknowns with regards to the deployment and use of hydrogen at domestic scale, hydrogen has the potential to play a significant role in the energy transition. There are multiple pathways available to reach the net zero decarbonisation targets set forth by the Scottish and UK governments and all of them will consist of a mixture of energy sources and technologies.

5. Do proposed UK Government reforms to the electricity capacity market align with the Draft Energy Strategy?
As a Transmission Operator, we are not best placed to comment on proposals for the capacity market and defer to views shared by our generation customers.

However, as the Climate Change Committee's (CCC) report[6] on a *'Reliable, secure and decarbonised power system by 2035'* highlights, alongside using renewable electricity flexibly and boosting electricity storage, low carbon dispatchable capacity, such as CCS or long-duration pumped-storage, will be required to maintain security of supplies during extended low wind periods in a decarbonised power system.

To deliver on clean electricity objectives, feedback from our generation customers suggests that the Capacity Market will need to evolve coupled with bespoke investment mechanisms, to support lower carbon, more flexible capacity, from a range of different storage technologies and demand flexibility options.

Wind Energy

6. What are the key barriers to achieving the Scottish Government's ambition for onshore and offshore wind contained in the Draft Strategy; could the readiness of the electricity network to accommodate new projects affect the business case for the proposals?
Significant and accelerated investment in grid (both Transmission and Distribution) will be a key enabler for the deployment of further renewable generation, to connect the clean energy generated and take it to demand centers across the country. Across our Distribution and Transmission businesses, we are delivering 20% of the necessary upcoming electricity networks investment in the UK to connect

[4] North of Scotland Future Energy Scenarios (NoSFES) - SSEN Transmission (ssen-transmission.co.uk)
[5] SSEN Distribution Network Future Energy Scenarios - Regen
[6] A reliable, secure and decarbonised power system by 2035 is possible – but not at this pace of delivery - Climate Change Committee (theccc.org.uk)

renewable energy and enable the electrification of heat and transport. We stand ready to do much more, in partnership with the right policy environment and regulatory direction.

One of the key barriers to achieving the onshore and offshore wind targets set out in the Energy Strategy will be the timely delivery of the network infrastructure required to enable those targets. Early approval of need for these reinforcements, as set out in Ofgem's ASTI decision; alongside certainty of delivery body, i.e., who will be responsible for these works, will be key to timely delivery, particularly securing the supply chain in the global race to decarbonise and secure energy independence.

In its ASTI framework decision, Ofgem confirmed that those 2030 reinforcements will be exempt from proposals to introduce competitive ownership of onshore electricity networks, which are currently being considered as part of the UK Government's draft Energy Bill.

By confirming existing electricity transmission licensees will remain the delivery body for these reinforcements, Ofgem has provided the much-needed certainty required to support timely and accelerated delivery, including early supply chain engagement, which will be key to securing the supply chain in what is an extremely competitive and constrained global market. This is particularly true for HVDC cabling, Convertor Stations and the specialist cable laying vessels.

As we look beyond 2030 targets and the forthcoming HND follow up exercise, we encourage Ofgem to build on its ASTI framework and ensure early approval of need and certainty of delivery. This will be key to avoid delays and associated increased costs for consumers through higher supply chain costs as result of late procurement: and prolonged and increasing constraint payments for late delivery.

Our connection customers tell us that grid is only one of the factors that low carbon generation is dependent on. Other factors include planning, funding mechanisms, market conditions, consenting and network charging.

At a distribution level, the uncertainty mechanisms for the next Distribution price control, RIIO-ED2, will be a good test of Ofgem's recognition that a more anticipatory approach is required than five-year business planning cycles allow. We continue to work closely with renewable developers, communities and other parties to understand future plans for onshore wind, ensuring this is fully accounted for, alongside other technologies, in our annual Distribution Future Energy Scenarios process which will play a key role in building our evidence case for investment.

At a transmission level, we're focused on delivering our ASTI projects within accelerated programme timescales to unlock the ambitions in the draft Energy Strategy. This £10bn investment will collectively transmit enough power through our wires and cables to power up to 10 million homes, creating billions in GVA and supporting thousands of jobs in the Scottish and UK economies. Over above the economic and energy security benefits, this investment will also deliver industry leading Biodiversity Net Gain[7] and build community wealth in the areas that will play such an important role in supporting the UK and Scotland's legally binding 2030 targets.

The planning and consenting process will be one of the most important drivers in unlocking this ambition at scale and pace and therefore must be enabling of grid delivery within 2030 timescales. The current process has worked well to date, but with only seven years left to deliver 2030 targets there is a

[7] our-approach-to-implementing-biodiversity-net-gain-.pdf (ssen-transmission.co.uk)

collective need for all involved within it (including developers) to think and do things differently to accelerate decision making, whilst retaining those vital checks and balances in the current framework.

It also means creating certainty for grid investment in planning policy and decision making so that complex programmes, that enable Net Zero, can be achieved at scale and on time. The most pressing planning and consenting barriers should be prioritised with urgency, from a TO perspective these can be summarised as:

- **Modernising Section 37 processes in the Electricity Act 1989 (UK Government):** We believe that changes to existing processes, legislation and regulations are required to set out clear and fixed timescales for determining S37 applications, remove the automatic PLI trigger for objections not based on planning policy grounds, and enable TO's to make amends to S37 applications without having to start the process again from scratch. We understand that there are various mechanisms that could be used to deliver amends to existing S37 processes in Scotland and we are open to supporting all options that could effectively deliver this much needed change. However, given short timescales for the delivery of 2030 targets, we believe that including S37 amends to the Electricity Act, via the UK Government's Energy Bill (which is currently going through UK parliamentary approval), presents the most obvious and straightforward opportunity to deliver these timely changes quickly and with urgency. S37 amends are currently not included within the Bill.

- **Amending the ancient woodlands policy in NPF4 (Scottish Government)**: While strongly supportive of the vast majority of the NPF4, we continue to hold significant concerns on the potential implications of the ancient woodland policy wording for future grid development. While avoiding impacts on ancient woodland is our key priority, in some circumstances this will be unavoidable due to the extent of ancient woodland cover in our network area. A change of wording in the ancient woodland policy is urgently needed to ensure that Scotland's precious habitats can be both protected and enhanced whilst also enabling critical national infrastructure to be delivered with considerate environmental mitigation plans when no other feasible option is possible.

- **Coordination of marine and coastal spatial development:** To support the delivery and connection of ScotWind Leasing Projects, the marine and coastal environment, particularly in the North-East of Scotland, is becoming an increasingly busy space. This risks creating delays in the delivery of critical infrastructure projects should site conflicts arise, both with developers but also from other existing marine users that may potentially be impacted. An overarching plan for marine and coastal spatial planning is therefore urgently needed to minimise and mitigate development overlaps and ensure strategic coordination takes place to collectively deliver Energy Strategy ambitions.

Planning delays create unnecessary risk to critical grid investment timescales, and this risk also increases cost – in terms of constraints (which have cost GB consumers roughly £2bn over the last two years alone) - and increases in project spend. Neither of which are in the best interest of energy bill payers, or the climate and environmental crisis. Each project is a vital link in the transmission network chain, and delays to just one project can have much wider system impacts and consequences.

7. Given the generation potential, and market ambition, is there a risk of oversupply if options for use of surplus electricity (e.g. green hydrogen production) do not become reality?

To deliver a pathway to net zero, the ESO's Future Energy Scenarios forecast that between 46GW and 50GW of low carbon electricity generation will be required in the north of Scotland.

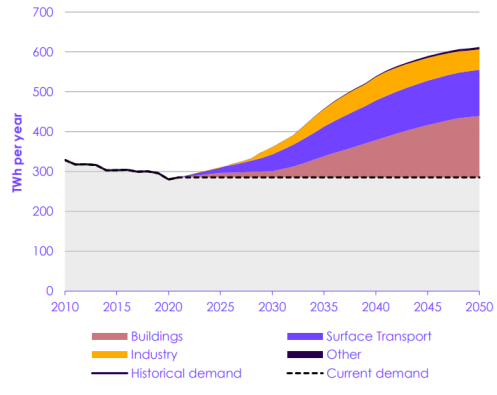
In its draft Energy Strategy, the Scottish Government forecast that 88TWh of renewable generation will be needed by 2030, with 160TWh by 2045 – the equivalent of roughly 37GW of capacity by 2030 and 65GW by 2045. In Scotland we currently have roughly 14GW of capacity across renewable technologies, with 9 GW connected in the north of Scotland. The Scottish Government's Energy Statistics Hub also confirms that there is currently 40GW of renewable energy projects in the planning pipeline, which would more than double the level of renewable generation currently deployed should all of these projects proceed[8].

Therefore, in all credible net zero pathways, significant growth in renewable electricity generation, way beyond that current and future network plans will enable, will be required, with these network investments clearly of low regret in the context of delivering net zero.

This is further evidenced by the CCC's most recent report, "*Delivering a reliable decarbonised power system"*[9]*,* which tells us that electricity demand is expected to increase in the UK with the electrification of key sectors such as transport, buildings and industry. On page 13 of the report, it states that: *In the CCC's Balanced Pathway for the Sixth Carbon Budget, there is a 50% increase in electricity demand by 2035 and a doubling in electricity demand by 2050 (with some CCC pathways projecting as much as a trebling by 2050) (please see Figure 1 graphic below). Alongside this, continued digitalisation is expected to further embed the critical role of electricity to the functioning of the UK economy.*

The CCC's analysis suggests that any projected risk of over-supply in electricity is therefore low, and the push for greater renewable electricity capacity is a low regret option for future climate ambitions and consumers. This also demonstrates that demand for greater network capacity is needed urgently to transport this electricity to where it is needed for the benefit of a zero-carbon economy and reduce network constraints for GB consumers.

Figure 1 Electricity demand in the Balanced Pathway



Source: BEIS (2022) *Energy Trends*; CCC (2020) *The Sixth Carbon Budget*.
Notes: Other category includes agriculture, aviation, direct air capture and shipping.

[8] Scottish Energy Statistics Hub (shinyapps.io)

[9] A reliable, secure and decarbonised power system by 2035 is possible – but not at this pace of delivery - Climate Change Committee (theccc.org.uk)

Written Evidence Submission to the Net Zero, Energy and Transport Committee
On behalf of SSEN Transmission and SSEN Distribution

Hydrogen and the electricity system

8. How much of the Scottish Government ambitions for 5 GW of hydrogen production capacity by 2030, and 25 GW by 2045 should come from green hydrogen?
As a regulated networks business, we are technology neutral and do not have a view on how much should be deployed. From a draft Energy Strategy perspective, it's important that investment in grid, to expand capacity for electricity export / import, is also prioritized alongside the progression of hydrogen technology to support a zero-carbon society.

9. What are the key infrastructure barriers to building a hydrogen economy in Scotland and how should they be addressed?
As a Transmission Operator, we are not based placed to provide a view and instead defer to views shared by Scottish Renewables.

Ofgem

10.Ofgem are "working with government, industry and consumer groups to deliver a net-zero economy". What changes have recently been made to support the delivery of net-zero? What more could be done to support a regulatory regime that delivers decarbonised energy supplies affordably?
We warmly welcome Ofgem's approval of the ASTI framework in December last year which provides a strategic and clear accelerated plan of what grid infrastructure is needed to enable 2030 ambitions. However greater ambition is needed to extend this strategic planning approach for grid investment, reduce reliance on international markets (for both energy itself and supply chain) and build a home grown, resilient energy supply.

Currently Ofgem's statutory obligations do not contain any requirements for enabling Net Zero, and we believe this would be a helpful starting point, alongside its existing consumer obligations, to modernize the regulator's approach to critical infrastructure investment. Including net zero as a primary objective for Ofgem will help to give more balance to their decision making, ensuring future consumers benefit from decision made today whilst consideration should also be given to extend this remit to include economic growth.

We also welcome confirmation that the projects identified in Ofgem's ASTI framework will be exempt from future plans to introduce competition in networks, which is currently being progressed in the UK Government's Energy Bill. We believe this exemption for ASTI projects is the right thing to do to unlock Net Zero goals. Certainty of network investment, and who is delivering it, between now and 2030 will be critical to unlock renewable energy and decarbonisation targets at the scale and pace required for Net Zero.

We remain concerned, however, at the potential impact, and unintended consequences that wider competition in networks could have on net zero delivery due to the risk of fragmentation in the market with little evidenced benefit to consumers on its introduction. We believe this creates risk and cost implications, not only from a net zero perspective but also for future network resilience. As the rest of the world also decarbonises at pace, demand in a global supply chain for key components become stretched – the importance of future certainty of network investment (who is delivering and when) will be vital to secure this early (securing manufacturing slots which are already booking up fast into the 2030's) delivering projects on time and at an efficient cost for GB bill payers. This certainty, alongside

early supply chain engagement, also creates opportunity for inward investment from our international suppliers if there is confidence that a steady pipeline of future projects are forthcoming.

There is also a clear need to learn lessons from the Energy Retail market and it is vital that we do not repeat these risks with national infrastructure. These failings act as a reminder of the need to carefully consider the applicability and consequences of competition in the transmission sector.

11.What are the most important issues for the UK Government's Review of Electricity Market Arrangements to address? What are the benefits of the current system, and the potential pitfalls of moving away from it? What are the implications for the Draft Energy Strategy of the Review?
We are actively engaging in the REMA consultation process and will continue to work with UK Government officials to understand how any future Market Reform processes could potentially impact the delivery of critical network investment in the north of Scotland. Our generation customers continue to highlight concerns about proposals for Locational Marginal Pricing which could have a detrimental impact on future renewable investment in Scotland. Further analysis and investigation is needed on the benefits and limitations of this proposal so that its full implications can be identified and that net zero delivery is not put at risk at this critical juncture. On behalf of our generation customers, we also refer to views shared by Scottish Renewables in response to this question.

It should also be recognized that full scale market reform takes time and creates uncertainty for future market investment. It's important that any reforms progressed through the REMA process help to maintain investor confidence and create positive opportunities for further low carbon investment (including route to market for less established technologies) as the UK and Scotland competes globally for decarbonized investment. Without this investor confidence, it may be challenging to achieve ambitions outlined within the draft Energy Strategy and Just Transition Plan.

Community energy

12. Are community and locally owned projects inhibited by the current electricity network?
As the owner of the Transmission and Distribution network in the north of Scotland, we are obligated to be both technology (and developer) agnostic, offering connections to all parties who request it. We recognise that current connection processes can make it difficult for community schemes to access the grid capacity they need - networks don't necessarily inhibit the connection of community schemes but the framework could be seen to inhibit due to cost (securities and liabilities) and grid access issues. Connection reform is currently underway, led by Ofgem, which could potentially help to address current barriers, particularly for small scale community led schemes.

We strongly support reforming the existing connections process and queue management arrangements which would improve processes for all types of generators looking to connect to the GB network. Around half of our generation customers that hold grid connection agreements are churning, effectively pushing back their connection dates each year rather than progressing their projects. These projects are holding capacity that could be used by projects that are progressing.

We support the ESO's 5-point plan including the TEC amnesty, however have seen limited capacity requested to be released. We continue to actively engage in the Queue Management CUSC modification process, on behalf of our generation customers, and would like to see its implementation brought forward urgently in the context of Net Zero ambitions.

As a DNO, our work is at the 'grid edge' of the energy system, and our service is shaped by local decisions and local challenges. We are currently reviewing the detail in the consultations recently published by Ofgem in relation to future energy system market development and management[10]. We recognise the need for the system to evolve to meet future needs, but we ask that the need to make changes and reform is balanced against the need for network operators to get on with delivering the investment to meet net zero, whilst avoiding any additional costs and delays. With regard to energy system planning, we acknowledge that there is a gap and we strongly support the need for Local Authorities and communities to be assisted with their net zero planning, but believe this is best delivered if driven locally. We will be fully engaging with the industry working groups and local stakeholders looking at these proposals. It will be critical to ensure that any changes to arrangements are considered holistically to avoid an incremental approach, creating delays and increasing costs across the piece.

13. What are the key infrastructure barriers to Scottish Government community energy ambitions and how should they be addressed? Is it enough to "encourage" shared ownership models, or should a more formal mechanism be implemented?

Grid access reform, as mentioned in response to question 12, could help to address connection issues for community energy schemes, however our connection customers tell us that grid is only one of the factors that low carbon generation is dependent on. Other factors include funding mechanisms, market conditions, consenting and charging. For more detail on the barriers experienced, and on whether a formal mechanism for shared ownership should be introduced, we defer to written views shared by Scottish Renewables in response to this inquiry.

Thank you for providing the opportunity to share our views, and for the invite to provide oral evidence which will be attended by Aileen McLeod, Director of Business Planning and Commercial for SSEN Transmission.

We look forward to discussing the topics above in more detail with members of the Net Zero, Energy and Transport Committee at the session on 21st March. If it would be helpful to provide any further detail on our answers above in the meantime please contact Kirstanne Land.

[10] Call for Input: The Future of Distributed Flexibility | Ofgem
Consultation: Future of local energy institutions and governance | Ofgem

Written Evidence Submission to the Net Zero, Energy and Transport Committee
On behalf of SSEN Transmission and SSEN Distribution

Appendix 1: Map of SSEN Transmission's "Pathway to 2030" ASTI projects

Main north of Scotland Electricity Transmission Network in 2030

Investments currently in discussion with Ofgem

1. Argyll 275kV strategy
2. Fort Augustus to Skye 132kV upgrade
3. Orkney 220kV AC subsea link

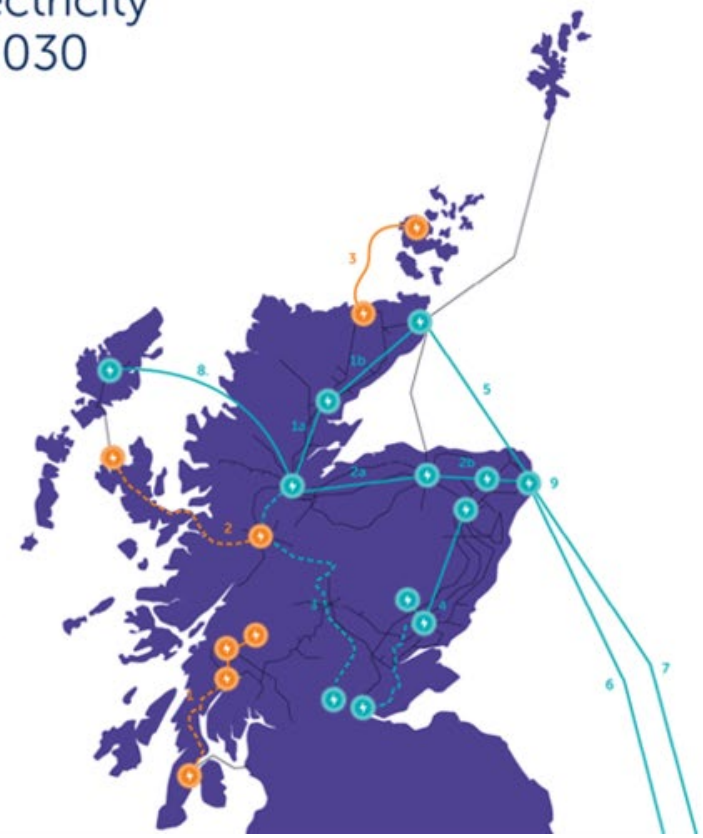
Pathway to 2030 Investments

1a. Beauly to Loch Buidhe 400kV reinforcement
1b. Loch Buidhe to Spittal 400kV reinforcement
2a. Beauly to Blackhillock 400kV double circuit
2b. Blackhillock and Peterhead 400kV double circuit
3. Beauly to Denny 275kV circuit to 400kV
4. East Coast Onshore 400kV Phase 2 reinforcement
5. Spittal to Peterhead 2GW HVDC subsea link
6. Peterhead to Drax 2GW HVDC subsea link (EGL2)
7. Peterhead to South Humber 2GW HVDC subsea link (EGL4)
8. Arnish to Beauly 1.8GW HVDC Western Isle link
9. Aquila Pathfinder - Peterhead DC switching substation

Public Consultation to Inform Project Development

All new reinforcements remain subject to detailed consultation and environmental assessments to help inform route and technology options

More detail on these projects, including how to sign up for updates, will be made available on SSEN Transmission's website, www.ssen-transmission.co.uk



New Infrastructure (Routes shown here are for illustrative purposes)
Upgrade/Replacement of Existing Infrastructure
Existing Network

Forecast as at 16 Sept 2022