A Review of the Connections Policy Framework in Northern Ireland

A joint DfE & UR Call for Evidence

SONI Response

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SONI

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Executive Summary

SONI (System Operator for Northern Ireland) is the licensed Transmission System Operator (TSO) in Northern Ireland and is responsible for planning and operating the Transmission System in a safe, secure and economic way to ensure a reliable supply of electricity. Under Article 12 of the Electricity (Northern Ireland) Order 1992 (the 1992 Order), SONI is required to develop and maintain an efficient, co-ordinated and economical electricity Transmission System in accordance with its TSO Licence. SONI discharges this duty in relation to connections through offering terms to customers for new connections, or for modification of existing connections, to the Transmission System.

SONI welcomes the joint Utility Regulator (UR) and Department for the Economy (DfE) Review of the Connections Policy Framework in Northern Ireland and the opportunity to respond to the Call for Evidence (CfE).

In our professional assessment, this much needed review and reform of the existing connections policy framework and supporting mechanisms is critical if Northern Ireland is to achieve the challenging decarbonisation targets efficiently and at least cost to Northern Ireland (NI) consumers. Different jurisdictions have their own unique characteristics and challenges, and we must ensure that any changes we implement best serve the interests of NI. A failure to use this opportunity for timely and meaningful reform would present a material risk to meeting Northern Ireland's legislative targets.

The Climate Change Act (Northern Ireland) 2022 (CCA) commits NI to achieving net-zero emissions by 2050. It also requires NI to supply at least 80% of its electricity from renewable generation sources (80% RES-E) by 2030. Achieving this target will require the connection of some 2 GW of additional renewable generation capacity in NI by 2030. Details on the composition of this renewable generation capacity are explored in SONI's recently updated Shaping Our Electricity Future (SOEF) roadmap[1]. Delivery of this volume of new renewable generation, ensuring there is sufficient capacity on the Transmission Network to accommodate this growth whilst continuing to operate the system in a safe, secure and economic manner is a significant challenge. However, it is our assessment that this challenge can be met with the right policy and regulatory landscape.

This CfE presents an opportunity to address some of the practical issues being faced by parties seeking to connect new generation and new supporting technologies[2] to the power system as well as the issues faced by stakeholders who play a key role in enabling these connections. This intervention is needed to support delivery of NI's 2030 ambition and 2050 net zero targets while at the same time considering the needs and interests of NI consumers.

SONI is aware and acknowledges industry concerns in relation to the specific issue of connections charging and we note that other stakeholders will make comment in this regard. From our perspective, any such change should considered be in the context of what is in the best interests of NI for both consumers and industry. We would note that it is important that any changes to the charging mechanisms are considered in terms of any potential impacts on the Single Electricity Market.

In our assessment, the key reforms that will support the ambitions of the CCA are as follows:

- Moving to a more efficient "Plan Led" approach for connections and system development;

[1] soni.ltd.uk/media/documents/Shaping-Our-Electricity-Future-Roadmap_Version-1.1_07.23.pdf
[2] For example, but not limited to, synchronous compensators.

- Reform of 3-month connection offer timeline to account for complexities and to facilitate whole system design;
- Planning permission being used as a prerequisite for applications to connect onshore transmission connections and large-scale distribution connections; and
- Planning reform to fast track and preserve critical electricity system infrastructure that facilitates decarbonisation and demand growth.

Movement to a "plan-led" approach

The enabling of a more systematic and plan led approach, which optimises and prioritises the connection of generation projects and supporting technologies that will best enable the energy transition whilst also allowing greater efficiency in future power system development. We believe this more coordinated approach will have positive outcomes for the electricity industry and most importantly the NI consumer.

Research[3] carried out by SONI which ultimately informed the development of the SOEF roadmap shows that a plan led approach has the potential to reduce the socialised costs of network investment down to around a third of that of the existing developer led approach. It is our view that some relatively minor licence modifications including some changes to the current three (3) month timeline to offer terms to connect, could enable much of this needed change.

It is important that the review, and any outcomes takes a whole system approach and is balanced against the socio-economic needs of NI consumers while supporting decarbonisation and the energy transition. In considering this whole system approach it is crucial that Distribution and Transmission connections and their associated charging policies, use of system charging, licencing, and funding mechanisms are not considered in isolation.

Connections charging mechanisms

SONI is aware and acknowledges industry concerns in relation to connections-related charging mechanism. From our perspective, any such change should considered be in the context of what is in the best interests of NI for both consumers and industry.

Whilst we do not consider it appropriate for SONI to comment definitively on this matter, it is important to note that policy change in this area has the potential for implications on the All-Island Single Electricity Market (SEM). Care is needed to ensure changes do not result in a skewing of competition both across Distribution and Transmission connection processes and at a jurisdictional level.

The existing locational signals provided by generator transmission use of system charges and transmission loss factors applied in the SEM algebra were designed to balance with a reduction in the scope of transmission connection charges in Northern Ireland. It is vital that appropriate signals are maintained and any changes to Distribution connection charging is balanced and ensures overall charges are cost reflective and non contradictory. This response assumes that the depth of charging for transmission connections remains a SEM matter and therefore out of scope of this Northern Ireland only call for evidence, however other aspects of transmission connection such as processes and procedures that differ between Northern Ireland and Ireland

[3] https://www.soni.ltd.uk/media/documents/SONI-Technical-Report-on-Shaping-Our-Electricity-Future.pdf

are within scope. SONI recommends that any policy changes that are to be progressed are following the completion of a full assessment of the impact on the SEM.

SONI recognises that the DfE is leading a separate work stream to deal with the Offshore Renewable Energy Action Plan[4], however, it is SONI's view that both onshore and offshore connections should be considered in any changes to existing charging mechanisms as both drive network investment and indeed the current connection charging and offer process mechanisms for both do not differ. Connection charging mechanisms for offshore is also not included in the scope of this DfE led group.

Reform of planning criterion and use of anticipatory investment

In our assessment, changes are needed to enable planning permission or relevant consents to be used as a prerequisite or as a prioritising criterion to apply for connection to the Transmission or Distribution systems. This would enable construction ready projects to be facilitated and the system to be developed more efficiently to support them. However, this in turn requires electricity grid infrastructure to support these projects that are ready to be delivered. Hence, a change to how grid infrastructure projects are brought forward for approval by the UR as well as change in the planning and consenting processes could help to enable a level of anticipatory investment to ensure that the grid development is delivered and ready to ensure that the commercial projects and the grid can support the timely delivery of the CCA.

Summary

In recent months, there has been notable public and industry discourse on the need to accelerate the integration of renewable generation onto the electricity system if the 2030 targets are to be achieved. In our professional assessment, timely and substantive reform of connections policy is mission-critical in this respect.

In summary, whilst SONI understands and acknowledges the concerns that have been expressed in relation to connections charging, we recommend that the primary consideration of this UR and DfE led Connections Policy Reform should be more focussed on reforming connections and electricity system planning related policies that supports a whole system approach to delivering the CCA by:

- Bringing about greater co-ordination and efficiency in network development;
- Ensuring the electricity system is designed around projects that have the certainty of planning permission **and** the attributes needed by the power system that enable the energy transition;
- Anticipatory electricity network investment so that grid delivery can happen in tandem with connection projects advancing thorough the planning process;
- Bringing greater certainty around electricity network delivery from a planning and consents perspective.

Together these changes could minimise overall costs to NI consumers whilst presenting NI as a much more attractive offering for developers and investors and thereby support meeting the CCA.

[4] https://www.economy-ni.gov.uk/consultations/draft-offshore-renewable-energy-action-plan

Response to Questions

1. What are the risks and opportunities in relation to the development of micro grids and what issues do these raise for the connections framework in NI?

SONI acknowledges the potential benefits in self-sufficiency for electricity users and how it can also contribute to meeting the CCA. As part of the consultation performed in developing the original Shaping our Electricity Future (SOEF) Roadmap, there was strong feedback[5] that there is no appetite for the cost of electricity to rise because of the transition to a low carbon electricity system. Within responses to this consultation, communities also expressed a strong interest in microgeneration and the desire for support and incentives to develop community-owned renewable projects.

In considering the impact of microgrids it is important to understand whether they are either:

- completely independent and not connected to the wider network in any way; or
- connected to the network but drawing power from the network less often.

A fully independent microgrid with no reliance on the NI electricity system is a relatively straightforward consideration for electricity network operators as they are not taking electricity from or exporting electricity to the NI electricity system. However, it is important that we understand their impact on NI's demand forecasts. At scale there is the potential benefit that network reinforcement work and associated costs may be avoided.

This becomes more complex for sites that utilise the NI electricity system on a more ad hoc or limited basis. For these partially connected microgrids there are a number of considerations including:

- the visibility and forecasting of load & generation patterns.
- How they are charged for the wider grid remaining available for them to use on the occasions that they need it; and
- understanding the various Network Code obligations that may impact on these grids depending on how they interact with the wider network.

SONI responded to NIE Networks' recent Flexible Connections Call for Evidence paper setting out similar challenges around visibility and forecasting. The impact on charging for "*part time*" or "*flexible*" connections was also discussed. Similarly, section 1.31 of the Call for Evidence infers that microgrids would pay less for grid availability albeit the "*flexible*" microgrid relies on the system being there when needed. There will need to be a mechanism in place so that the costs associated with the system being there are recovered. Our response stated:

> *"SONI believes that a careful balance is required in the recovery of connection charges. Ultimately any reduction in charges for a flexible connection, while it may have benefits elsewhere, must be recouped elsewhere either through charges levied on other connectees or socialised to the Northern Ireland consumer. More generally any change in the charging regime should be considered in the context of all related charges especially ensuring that use of system charges remain cost reflective."*

5 https://www.soni.ltd.uk/media/documents/Shaping_Our_Electricity_Future_SONI_Consultation_and_Engagement_Report.pdf

SONI would suggest that all the responses on the NIE Networks Call for Evidence on this matter should be taken into account in respect of this question.

Careful thought is also required as to how microgrids might be able to evolve and interact with the wider network. It is possible to envisage a microgrid becoming a part of and/or a form of Demand Side Unit (DSU) and there should not be a situation whereby a microgrid's connection costs or charging regime give them an unfair advantage in the provision of services.

2. Do you agree with our guiding principles? Please expand your answer.

Whilst SONI is in general agreement with the guiding principles of this review of connections policy, the scope of the principles appears to be limited and omits some key areas that we consider to be important.

The scale of the transition required in our electricity infrastructure is without recent precedent and with this we need transformative change around approaches to power system and market planning and operation, public and industry engagement if energy targets are to be met.

For the guiding principles SONI sees synergies between the required scope of this connections policy framework review and the work being undertaken by the SEM Committee with regard to System Services Future Arrangements[6]. This is set out in more detail below.

The objective of the project is:

> *"to deliver a competitive framework for the procurement of System Services, that ensures secure operation of the electricity system with higher levels of non-synchronous generation."*

In order to better facilitate the achievement of this objective, the SEM Committee has developed a set of criteria for assessing the proposed framework:

- **Consumer Value**: The pricing of services will be market-based in so far as these secure competitive outcomes in order to deliver consumer value, while taking into account levels of market power for each service;
- **European Compliance:** The arrangements will comply with relevant legislation including the Clean Energy Package (CEP) and the Electricity Balancing Guideline (EBGL) Network Code;
- **System Need:** The framework will operate in a manner which ensures the needs of the system including security of supply are maintained;
- **Alignment:** The SEM Committee will seek to ensure appropriate alignment between the markets in energy, capacity, and System Services, along with all other relevant revenue streams, to ensure an efficient overall outcome for consumers;
- **Accuracy:** The volume of services procured should match the requirements of the system as accurately as possible;
- **Adaptability:** The framework should be sufficiently agile to meet any system changes caused by future policy developments;

[6] https://www.semcommittee.com/publications/sem-23-043-system-services-future-arrangements-phase-iii-detailed-design-and

- **Simplicity:** The framework should be sufficiently simple and transparent to be readily understood and accessible to all stakeholders;
- **Enable the Energy Transition**: The arrangements will be cognisant of policy decisions in Ireland, Northern Ireland and the UK, and will enable the energy transition in so far as possible;
- **Clarity for Investors:** The arrangements will be clear in terms of how auctions will operate, in order to give a reasonable degree of clarity to developers in terms of financing; and
- **Transparency:** The framework will be transparent such that there will be no imbalance of information among market participants, and full sight of auction results and procurement requirements will be fully visible.

In addition to the above SONI would also urge that although perhaps already implicit, that the principles should also be explicitly underpinned by the fundamental need for security of supply as part of a just energy transition. The Review should also reflect the obligation on SONI and NIE Networks in Article 12 of Electricity Order 1992 to facilitate competition (and the UR and SEM Committee duty to promote competition). In considering changes to the Connection Policy Framework, we must be mindful of how competition is best supported and encouraged to the benefit of NI consumers.

It is SONI's position that the above specific and tangible criteria would help provide the focus required for effective delivery of targets.

SONI notes and welcomes the acknowledgment that legislative and regulatory changes will be required to meet the statutory targets established within the Climate Change Act (Northern Ireland) 2022. Given the scale of the work required SONI would stress the need for those with the powers to make such legislative changes to move forward with urgency. Indeed, SONI would welcome immediate stakeholder engagement to re-examine and re-assess the implementation of existing powers especially in areas focused on the active promotion of environmental policy. It is SONI's view that much could be done to clarify existing duties and obligations such that we can accelerate efficient change and meet various aspects of The Energy (Northern Ireland) Order 2003 e.g. *"…to secure a diverse, viable and environmentally sustainable long-term energy supply."*

Meeting the target of 80% RES-E by 2030, as required by the Climate Change Act, requires the connection of some 2 GW of additional renewable generation by 2030, and the delivery of c.14 significant network reinforcements (new circuits/ circuit uprates). SONI recognises that this is a challenging deliverable for all stakeholders in the energy transition. With this in mind, it is SONI's view that the focus of change should be around the enabling of a more plan led approach which optimises larger scale connections and efficiency in system development. Through this more coordinated approach there will be positive outcomes for industry and, most importantly, the NI consumer. SONI consider that some relatively minor licence modifications could go some way to enabling much of this needed change. For example, further refinement of Conditions 20 and 25[7] of SONI Licence could provide SONI with greater ability to plan and develop the Transmission system in a more efficient way to facilitate connections and the energy transition. This will be set out in more detail later in this response and as always we would be happy to engage directly with UR on these licence modification matters.

[7] https://www.uregni.gov.uk/publications/soni-transmission-system-operator-licence

3. Do you agree with our proposed scope in relation to this connection review? this includes:

- **Are there other issues which you consider we should take into account. If so, please explain why**
- **Are there any connection areas we should remove from the scope of our review? If so, please explain why**

SONI welcomes the generally open-ended nature of this review which ensures that all respondents should be empowered to raise the issues they consider most relevant. The scope of the call for evidence is consistent with the role of "trusted advisor" that the UR has identified within our performance framework, part of which is translated into our SOEF v1.1 objective: ***To support the policy makers in engaging society so we all deliver a just transition.***

It is important that the review, and any resulting reform takes a whole system approach and is balanced against the socio-economic needs of NI consumers while supporting decarbonisation. In considering this whole system approach it is crucial that both Distribution and Transmission connections and charging policies, use of system charging, licencing and funding mechanisms are not considered in isolation. It is unclear whether the intention of this call for evidence is to consider Distribution connection charging only. It is important to note that all generators with a MEC greater than 10 MW must participate in the SEM regardless of whether Distribution connected, or Transmission connected and that Distribution connected generators also have an impact on the flows on the Transmission system and drive the need for Transmission reinforcements which is part of the reason why Distribution connected generators are charged Generation Transmission Use of System charges, as per SEM11/078[8], if their MEC exceeds 5 MW.

Changes in connections related charging (particularly connection boundary) has the potential for far reaching implications for the SEM. Care is needed to ensure changes do not result in a skewing of competition both across Distribution and Transmission connection processes and at a cross jurisdictional level within the SEM. The review should therefore also reflect the obligation on SONI & NIE Networks in Article 12 of Electricity Order 1992[9] to facilitate competition (and UR / SEM Committee duty to promote competition). A change in Distribution connection charging also impacts on All-Island tariff arrangements and charges for use of the distribution system, therefore these should also be within the scope of this review to avoid any risk of effectively introducing either subsidy or disincentive. If 33kV connections are no longer charged for 110kV assets, those will need to be included in the all-island GTUoS and NI STUos instead, therefore a change to the distribution connection charging boundary will impact on both all-island and NI use of system charges. The drive to see a just transition has to consider the full scope of costs within the system. SONI recommends that any policy changes that are to be progressed are following the completion of a full assessment of the impact on the SEM.

Given that initial charges for connecting to the system need to work together with ongoing charges for using the system to ensure that SONI and NIE Networks can meet our obligations in relation to cost-reflective charging[10]. We suggest that both aspects are considered together.

It is SONI's view that both onshore and offshore connections should be considered in this thinking as both drive network investment and indeed the current connection charging mechanisms for both do not differ.

[8] https://www.semcommittee.com/publication/sem-11-078-gtuos-charging-decision.
[9] https://www.legislation.gov.uk/nisi/1992/231/contents/made.
[10] Regulation 2019/943 Article 18

In Great Britain, National Grid ESO has launched a Connections Reform[11] project. Its preferred future grid connections process, referred to as TMO 4, cites the harmonisation of the connections process across all customer groups for both onshore and offshore as an advantage.

Within SONI's SOEF v1.1 reference is made to the Irish Government document, ***'Accelerating Ireland's Offshore Energy Programme Policy Statement on the Framework for Phase Two Offshore Wind, March 2023 ('Phase 2 Policy')'*** as the most recent offshore wind policy decision. Section 5 of the Phase 2 Policy notes that alignment of offshore wind farm designated areas with available onshore grid capacity identified by EirGrid is a key consideration of the new plan led approach.

Analysis in SONI's SOEF v1.1 roadmap shows that the connection of at least 500 MW of offshore wind generation will be required to meet the target of 80% RES-E by 2030 as set out in the Climate Change Act (Northern Ireland). It is essential, therefore, that offshore generation is facilitated within whole system policy reform.

It is SONI's position that a specific Transmission clustering policy is now required and should be included in the scope. Distribution clusters successfully played a key role in facilitating the development of sufficient renewable generation capacity to achieve the 2020 target of 40% RES-E. SONI is presently seeing applications and proposals for new onshore generation of larger capacity than has been connected in NI to date. These applications typically propose, for example, to make use of larger and more efficient wind turbines than have been historically used in NI. In addition, the repowering of existing Distribution connected wind farm sites with new, significantly larger wind turbines, will likely result in some of these sites requiring a connection to the Transmission system. The development and implementation of a specific Transmission cluster methodology is vital to enable a more efficient and coordinated approach for facilitating these connections. SONI believes the principles and licence changes to facilitate this should be discussed expeditiously to enable this anticipatory investment.

Planning permission and other relevant consents play a critical role in the meeting of energy targets both from the perspective of deliverability and efficiency for system infrastructure and connections. As such we are of the view that this should form part of this connections policy review. It is essential that the planning process is improved to support necessary electricity system infrastructure projects to be prioritized to ensure timely delivery of system reinforcements needed to realise the energy transition.

4. Do you consider the current 'partially deep' connection boundary in NI appropriate? Please explain your rationale further and provide evidence.

See answer to Q 7 below

5. Do you consider a shallow connection boundary to be appropriate in the NI context? Please explain your rationale further and provide evidence.

See answer to Q 7 below

6. Do you consider a shallow-ish boundary to be appropriate in the NI context? Please explain your rationale further and provide evidence

See answer to Q 7 below

[11] ESO End of Year Report May 2021 (nationalgrideso.com)

7. Do you believe that moving to a more shallow connection boundary in NI will deliver NI renewable targets that otherwise would not be met? Please provide evidence to demonstrate your answer.

We are addressing questions 4, 5, 6 and 7 together as they are impacted by same fundamental principles.

Firstly, it is important to consider that a change in connection boundary will result in a reduction in connection charges. Whilst this would be beneficial to the connecting party, the reduction in costs will have to be recouped elsewhere, either through charges levied on other connectees, use of system charges levied on connecting parties or socialised to the NI consumer.

At present the charges for Transmission and Distribution connections are made on a different basis. These are mirrored in the charges for use of the two systems. The trading boundary in the SEM is at the point where the Transmission and Distribution system meet.

In 2008 following SEM go-live, Transmission connection charging methodology was harmonised between Ireland and Northern Ireland, while Distribution connection charging methodology remained jurisdictional. The move to shallower connection charging methodology introduced at that time was dependent on the introduction of locational signals into the charges that are paid by all Transmission connected generators and all Distribution connected generators with a MEC above 10 MW[12] for use of the Transmission system. Distribution connection charging is deeper in NI than for Transmission and as a result there are currently no charges levied on generators who use the Distribution system. Any change to connection charging methodology at Distribution voltages will need to ensure that the overall package of charges during the life of the project remains cost reflective. This obligation is placed on SONI and NIE Networks by Article 18 of Regulation 2019/943.

Further socialisation of Distribution connection charging with appropriate cost reflective rebalancing of Distribution charging may help encourage more connections to the Distribution system.

It is our view that giving prospective projects more assurance around their ability to deliver their energy to end users is of greatest value to developers and should be the focus of our collective efforts for reform. Some insights on this have been evidenced in our recent experience in preparing for the first phase of Low Carbon Inertia Services (LCIS). The price cap that has been set in the bidding for these contracts relates to the full cost of installing these units, however the saving that they will unlock are calculated to be more than twice this amount. Details of this analysis by independent consultants can be found on SONI's website[13]. Connection charges are only one element of the energy transition and therefore we must remember to keep focus on the whole system.

The extensive public consultation held to support the development of our SOEF[14] roadmap set out the sizeable cost saving for NI consumers in terms of new network infrastructure that a plan led approach brings when compared to the existing developer led approach. The estimated cost of £121m for a plan led approach compares favourably to the estimated £361m cost of the developer led approach. This issue is discussed in more detail in response to question 10.

By enabling a more plan led approach, larger scale connections would be optimised, and system development would be more efficient. This more coordinated approach will have positive outcomes for industry and most importantly the NI consumer. With a more plan led approach there are also opportunities in reviewing the

[12] This threshold was lowered to 5 MW in 2011 under SEM11/078.
[13] https://consult.soni.ltd.uk/system/files/materials/413/AFRY%20report%20-%20LCIS%20-%20Price%20cap%20and%20imbalance%20price%20proposals.pdf.
[14] https://www.eirgridgroup.com/site-files/library/EirGrid/Full-Technical-Report-on-Shaping-Our-Electricity-Future.pdf

current firm Transmission access methodology in NI similar to the recent review in Ireland[15]. Within a more plan led approach changes could be made to the methodology to provide greater certainty for projects around the delivery of networks developments required to provide them with firm Transmission access.

The above changes along with a well-designed renewables support scheme will do much to attract and incentivise the projects that are best placed to support decarbonisation.

Focusing on a more coordinated plan led approach strongly aligns with the five key principles of the 2021 DfE Energy Strategy-Path to Net Zero Energy. These being as follows:

1. ***Placing the consumer at the heart of the energy future;***
2. ***Growing the green economy;***
3. ***Do more with less;***
4. ***Replacing fossil fuels with renewable energy (ultimately ending the importing of fossil fuels into Northern Ireland); and***
5. ***Creating a flexible, resilient and integrated energy system to deliver our power, heat and transport needs.***

1. Placing the consumer at the heart of the energy future

The balance between the cost of Connection Assets and the allocation of the cost of investment in System Assets[16] triggered by connections that is recovered through enduring use of system charging is important. The balance should ensure that the costs to connecting customers reflect the works required for their connection and any works they trigger on the wider network. At present generators connecting to the Distribution system in Northern Ireland do not pay any ongoing use of system charges related to investment that they trigger at Distribution voltages that is outside their initial connection charge.

Connection charges or the boundaries that apply to them cannot be looked at in isolation from Use of System charges without the risk of undermining fairness in competition. Obligations around cost reflective charging must also be kept in mind.

The instinctive first consideration in placing the consumer at the heart of the energy future is to think about reducing energy cost, both short and long term. The wider economic benefits and wellbeing that come from security of supply issues and our obligation to promote competition in the energy markets must also be considered.

It is acknowledged that much of the increase in renewable generation expected in the coming years will be located in areas where the existing infrastructure needs to be improved which plays into a debate about how we address and improve these weak parts of the network.

Our ongoing engagement with stakeholders is vital in allowing us to both understand and anticipate their needs. A variety of societal benefits have been cited for the move to a low carbon future. Any increase in costs to the consumer resulting from further socialisation of distribution grid investment must be explicitly identified as delivering societal benefits that could not be attained under a different charging scenario. The obligation placed on network companies to ensure that their charges are cost reflective also acts as an important consumer protection measure.

[15] https://www.semcommittee.com/publications/sem-23-004-firm-access-methodology-ireland-decision.
[16] Connection Assets and System Assets are defined the SONI Transmission Connection Charging Methodology Statement.

2. Growing the green economy

SONI plays an important role in helping facilitate economic growth and in the green economy in particular. Our plan to develop the Transmission Network is set out in the Transmission Development Plan Northern Ireland (TDPNI)[17] and the speedy and efficient delivery of that plan is vital. The latest TDPNI consultation[18] has been published covering the 2023 – 2031 timeframe.

We can support economic growth by helping to efficiently deliver a Transmission Network that is robust and flexible. The deployment of private capital across multiple sectors which will deliver sustained economic growth is best achieved by instilling confidence and creating clarity. It is our experience that developers want to know where and when they can connect and that they can do so paying a fair and reasonable price for the work their connection costs.

There are several things that need to happen to enable the required level of development on the networks. These include supportive government and regulatory policies, timely planning decisions, resolving supply chain challenges and access to use public road networks to deliver infrastructure. Overall, significant updates to network infrastructure alongside new technology solutions are needed to achieve the Renewable Ambition. Engagement with the public, industry and government is at the heart of successfully getting the network ready to achieve the Renewable Ambition.

Whilst a shallower connection boundary may be perceived to encourage investment by lowering the initial cost of connection, consideration of the areas and issues mentioned above may have a much more significant impact on the speed of delivery. The initial funding of anticipatory investment to create a Transmission network capable of delivering the clarity and certainty developers want around access to market may need to be socialised in some way. The actual connections to the network should not need to be.

3. Do more with less

This concept further feeds into discussion on plan led v developer led approach. Any socialised funding for the network has to be part of an integrated and co-ordinated plan which ensures efficiency and value for money for the consumer. We cannot "do more with less" if we are frequently having to adjust plans and accommodate connection applications in a reactive manner with no ability to use selective criteria to prioritize schemes or technologies.

Ensuring value for money in enhancements to the network cuts to the very core of a debate around plan led or developer led approach. Greater consideration may need to be given as to what connections avail of the network that has been paid for through increased socialisation and what societal benefit they deliver. In referring to a "***plan led "approach*** our view is that this plan would determine (at least to some extent) what connections go where and for what technology to ensure that the right connections happen in the right locations. Such prioritization, if done via well-defined criteria and rule sets is not without precedent and could still be done in a way that encourages competition but maximises the chances of delivering on our climate targets.

[17] Latest published version can be viewed here: soni.ltd.uk/media/documents/Transmission-Development-Plan-Northern-Ireland-2021-2030.pdf

[18] https://consult.soni.ltd.uk/consultation/draft-transmission-development-plan-northern-ireland-and-sea-2023-2032

4. Replacing fossil fuels with renewable energy (ultimately ending the importing of fossil fuels into Northern Ireland)

The reasoning behind this principle is well understood. Meeting the challenges of increased electrification will require huge change. There is likely to be an even greater focus on how the design and functioning of the Electricity Infrastructure and Markets benefits society. In the context of this review of the Connections Policy Framework SONI would emphasise that it is vital that full consideration is given as to how any changes impact on SEM and the principles on which it operates.

Consideration needs to be given to the fact that many market participants connecting at both Distribution and Transmission level in Northern Ireland are competing in SEM with their counterparts in Ireland. We have an obligation to facilitate competition. The open-ended approach to this review must therefore include consideration of the existing level of harmonisation/alignment with the Policy Framework in Ireland and the role of the SEM Committee in determining the approach to SEM matters. We note that the ESB processes and methodology (distribution) are not described in Annex 2, while the transmission processes, where charging is already harmonised, are described.

5. Creating a flexible, resilient, and integrated energy system to deliver our power, heat and transport needs

All three of the characteristics mentioned above are likely to require some form of advanced anticipatory investment and considerable change across areas mentioned in previous sections of this response. We are not convinced that changes to the connection boundary would be the primary driver for success in these matters. Indeed, changes to the connection boundary regime that are not accompanied by significant changes in other areas could be counterproductive. If the changes do not result in cost reflective charges over the lifetime of the connecting project, they could also be subject to legal challenge.

8. Please provide evidence on the potential impacts on energy affordability in NI if reinforcement costs where socialised further? What would the impact on energy affordability be in NI if household bills where to increase per annum by;

• 1-3% • 4-7% • 7-10% • > 10%

Network charges, including the cost of system operation are currently estimated by the UR to make up 18% of the overall tariff paid by a domestic consumer supplied by Power NI[19] shown below in Figure 1. We would estimate that if the further socialisation of Distribution connection charging resulted in an approximate 10% increase in network charges (i.e., UoS - use of system) this would result in changes at the lower end of the scale identified in the question (i.e., 1-3 %) being experienced by households as a result of this change in policy. An increase in network charges in the order of 50% in network charges would be required to directly impact bills in the order of 10%.

[19] See Figure 1 in https://www.uregni.gov.uk/files/uregni/documents/2023-06/Briefing%20paper%20for%20Power%20NI%20tariff%20review%20-%20July%202023%20change.pdf.

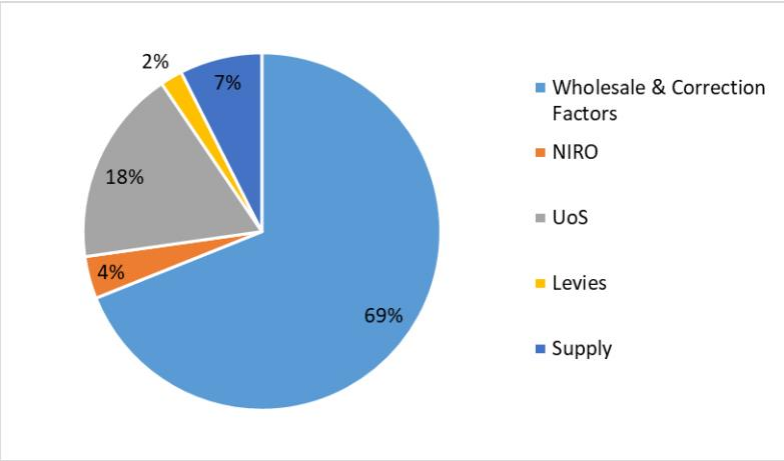

Figure 1 Makeup of the maximum average tariff - 1 July 2023 [20] [Source UR]

Efficient long-term planning of the networks should also minimise the increase in costs to end users. This is a view also held by industry. Through our call for inputs on the SOEF Version 1.1 Roadmap over summer 2022 and regular engagement with the Shaping Advisory Council – a collection of around 30 subject matter experts representing various sectors of the electricity industry in Ireland, Northern Ireland and further afield.

Feedback from the industry has remained consistent. Key highlights include:

- Calls to reduce grid connection costs and minimise costs to all electricity consumers,
- to build required grid infrastructure as quickly as possible while considering new technologies available.
- A call for electricity markets and operations to evolve.
- The need for future proofing and to look beyond 2030 with a version of Shaping Our Electricity Future that has the longer-term in mind.
- Emphasis on the need for SONI to have the resource and funding to get the job done.
- Support for increased renewable targets and the need for a greater focus on carbon emissions and building onshore wind and solar as early as possible.

It is important to consider that the overall bill seen by customers is made up of system costs and underlying energy and support services costs. Many of the new connections will be lower cost sources of energy, or will contribute to overall cost reductions[21], therefore a holistic view of the rebalancing of costs between all aspects of the bills is essential.

The design of underlying energy markets and implementation of appropriately designed renewable energy support schemes will also impact on consumer bills and have the potential to far outweigh the differences caused by variations in any socialised reinforcement costs.

The Path to Net Zero Energy [22] sets out that:

[20] See Figure 1 in https://www.uregni.gov.uk/files/uregni/documents/2023-06/Briefing%20paper%20for%20Power%20NI%20tariff%20review%20-%20July%202023%20change.pdf.
[21] For example, the benefits that are expected to accrue from the connection of low carbon sources of inertia far outweigh the cost of installing and connecting those units.

Focusing on energy-related sectors, the scale of capital investment required to meet net zero emissions to 2050 is substantial. However, the CCC advises that these investments also deliver substantial operational savings in the medium to long term; by 2050, it is estimated that 94% of the total investment in clean energy will have been recouped. Taking into account these operational savings, the net annual cost of meeting net zero energy emissions from 2021 to 2050 is £62m, which is equivalent to around 0.7% of baseline estimated annual energy spending.

SONI is focused on ensuring that we fulfil our licence obligation *to*

" .....plan, operate, and shall co-ordinate and direct the flow of electricity onto and over, the transmission system in an efficient, economic and coordinated manner."

As we look ahead to what the future Transmission Network will look like we see a network where the cost per kWh of energy consumed entailed in maintaining and operating the network should be lower than today.

This longer-term saving is evidenced from our recent experience in preparing for the first phase of LCIS. The price cap that has been set in the bidding for these contracts relates to the full cost of installing these units, however the saving that they will unlock are calculated to be more than twice this amount. Details are of this analysis by independent consultants can be found on SONI's website[23]. Connection charges are only one element of the energy transition and therefore we must remember to keep focus on the big picture.

It is also likely that we will need to see a greater focus on the behavioural aspects of consumption and how that impacts on the final cost to the consumer. Advances in technology with regard to EV's, metering, generation and storage will impact on when and how consumers use electricity. We have already mentioned Flexible Connections in the context of microgrids and it is likely that we see more of such flexibility which can both help the operation of the network and deliver consumer savings.

9. Can NIE Networks differentiate between RP6 allowances, RP7 business plan connection requests and how these differentiate and have been factored into the analysis that has been done on potential reinforcement connection costs analysis NIE Networks have completed?

This appears to be a question related to regulatory reporting direct solely at NIE Networks. Any Transmission elements of this, including Transmission investments required to facilitate Distribution connections (for example via Distribution clusters or deeper reinforcements) will be visible to UR through our normal reporting mechanisms and their approvals of NIE Networks' funding.

10.Do you think that a developer led or plan led is the best approach for the future development of connections in NI? Please explain your answer

Analysis performed as part of a wide-ranging public consultation to help inform the development of SOEF sets out compelling evidence to support the use of a plan led approach for the development of new connections to the Northern Ireland system. This consultation presented a number of different approaches to delivering an at the time assumed target of 70% RES-E in Northern Ireland by 2030. The cost of new Transmission network infrastructure needed to support each approach was provided in the consultation report.

[23] https://consult.soni.ltd.uk/system/files/materials/413/AFRY%20report%20-%20LCIS%20-%20Price%20cap%20and%20imbalance%20price%20proposals.pdf.

The relative cost of delivery of a plan led approach is a third of that when compared to continuing to use the existing developer led approach. These costs are set out in Table 1 below.

	Northern Ireland Reinforcements [£ Million]	
Reinforcement Category	**Plan Led**	**Developer Led**
Uprating of existing circuits	52	84
Up voltage of existing circuits	0	0
New circuits	68	254
New equipment	0	23
Total	***121***	***361***

Table 1 - SOEF Plan led v Developer led

The current developer led approach, as the name suggests, is driven by the decisions of developer; they determine where they would like to locate their project, the scale and technology and SONI and NIE Networks are obligated under their respective Licences to facilitate the connection and where appropriate address any networks reinforcements the connection of the project might drive. Under existing system operator licencing the system operators have limited vires to refuse to offer a connection to the system. The ad hoc nature of the developer led approach can result in significant inefficiencies in developing the system with many of the following overlapping including:

- Projects connecting in already significantly constrained areas;
- Scale of individual projects too big/small to benefit the system;.
- The need to rework system development projects.
- Connection projects utilising infrastructure that would have been used for system reinforcement projects.

Article 12 of The Electricity (Northern Ireland) Order 1992[24] sets out the general duties of electricity Distributors and Transmission licence holders must adhere to. These are set out in greater detail in the respective system operator licences.

SONI is bound by the following licence[25] conditions with respect to the connection offer process and the development of the Transmission system.

> **Condition 20**: *The Licensee shall plan, operate, and shall co-ordinate and direct the flow of electricity onto and over, the transmission system in an efficient, economic and coordinated manner*.
>
> **Condition 25(2)**: *On application by any person, the Licensee shall (subject to paragraph 6) offer to enter into a Connection Agreement (or amend an existing Connection Agreement) for connection (or modification of an existing connection) to the All Island Transmission Networks at entry or exit points on the transmission system, and such offer shall make detailed provision regarding*:…

[24] The Electricity (Northern Ireland) Order 1992 (legislation.gov.uk)
[25] SONI transmission system operator licence | Utility Regulator (uregni.gov.uk)

> **Condition 15**: *In undertaking the Transmission System Operator Business, the Licensee shall not unduly discriminate as between any persons or class or classes of persons (including itself in undertaking any activity other than the Transmission System Operator Business).*

It is SONI's view that changes are required to our licence to enable us to manage the volume of connection applications and the supporting Transmission system developments to enable us to meet energy targets more efficiently.

Condition 25 of the SONI licence dates back to a time when electricity was supplied from large conventional power stations located close to demand centres. With the Energy Strategy - Path to Net Zero Energy and now the CCA, the energy transition is transforming where our electricity is supplied from. Instead of a small number of large conventional power stations, we now manage a large number of smaller generators distributed across the system, in addition to these conventional power stations. Hence the connections landscape has significantly changed with the need to further decarbonise the electricity system that was not built into the design of Condition 25 of the SONI Licence.

Before the Energy Strategy - Path to Net Zero Energy was established, electricity applications to connect to the Transmission system would have been relatively infrequent other than modifications or new applications at the conventional generating sites. The developer led approach worked well for these limited applications particularly when the established industry practice was that a prerequisite to these applications was to have secured relevant consents, such as full Planning Permission for onshore connection. This meant that SONI could treat them as credible projects that had a high degree of certainty that they would proceed and therefore fully consider them in planning the system.

SONI is experiencing a continuing increase in transmission connection applications. **Between 2014 and 2022, there were an average of 4 - 5 connection applications received annually. As of 26 September 2023, 20 connection applications have been received this year, with further applications anticipated** by the end of the year and many of these are submitted without the relevant consents being in place. There has been a notable increase in Battery Energy Storage Systems (BESS) and Synchronous Compensator applications driven by the need for new system services to manage high volumes of renewable energy on the system.

The high volume of applications is expected to continue with SOEF highlighting the potential benefit of long duration energy storage in supporting the RES-E target, and the Department for the Economy's (DfE) proposal to extend the UK's Contracts for Difference (CfD) scheme to Northern Ireland likely to drive applications to connect renewable energy technologies. Future phases of LCIS are also expected to be required to transition to the levels of SNSP required to achieve our targets.

The volume of connections now seeking to connect through the current developer led approach has become very difficult to manage particularly from the perspective of the assumptions we must use in assessing their application and also those needed in determining the best solutions for network reinforcements to support them. Managing these assumptions is made more challenging as the determination of a dispute[26] means that it is considered to be inappropriate under the current statutory framework to use relevant consents such as planning permission as a prerequisite for submitting an application to connect, and that to do so could create a legal risk to SONI. In practical terms this means that we have much less certainty over what connections will proceed and what we need to factor into planning of the system. The ad hoc application and indeed withdrawal of projects through the connection process can be very disruptive and can also directly

[26] Utility Regulator (UR) Determination DET 572 https://www.uregni.gov.uk/files/uregni/media-files/DET-572_Determination_of_Solar_Ventures_connection_dispute_with_NIE.pdf

impact on other connection projects which is less than optimal and can delay issuing a connection offer or having to re-issue a connection offer due to the changing assumptions.

As reflected in SOEF moving to a more plan led approach along with supportive changes to the connection offer process would reap significant benefits for NI consumers and in the industry in reaching our decarbonisation targets. A plan led approach would ensure the best combination of technologies would locate in the most effective areas and be quickly facilitated and supported with any system reinforcements they would require.

As part of this proactive approach SONI are of the view that a specific Transmission clustering policy should be developed. Building on the success Distribution clusters played a key role in facilitating the achievement of the 2020 target of 40% RES-E a similar mechanism at Transmission level is now required to facilitate the scale of generation required to meet the 80% target. This need is further driven by the considerable step change in typical turbine size, previously 0.5 to 1.3 MW and now in excess of 4MW), and the removal of over install[27] limits enabling increased capacity factor. This increase in turbine size will also impact the repowering of existing Distribution connected wind farm sites that may require a move to connect to the Transmission system. The development and implementation of a specific Transmission cluster methodology is vital to enable a more efficient and coordinated approach for facilitating these connections. Expressing such a policy within the Transmission Connection Charging Methodology Statement (TCCMS) should not require legislative change and could be implemented with the required urgency which would include funding mechanisms for transmission cluster works. It is SONI's position that the principles and licence changes to facilitate this should be discussed expeditiously to enable this anticipatory investment.

As discussed in our response to questions 4 – 7 SONI are of the view that this should also help the commercial viability of projects seeking to connect in Northern Ireland while minimising the cost on consumers.

At a high level a plan led approach to connections would have the following requirements:

- Planning permission [28] as a pre requisite to apply for a large scale onshore connections;
- System operator's ability to apply locational specific criteria;
- System operator's ability to apply technology specific criteria; and
- System operator's ability to apply scale specific criteria
- Review of current funding mechanisms for transmission investment.

While the role of locational signals within the SEM remains useful, it is our view that the current developer led approach informed by those alone is the most effective or efficient way to try and meet our collective climate goals.

We believe some clarification and modification to our existing licence to ensure we can meet condition 20 of our licence. This condition sets out our duty to *"plan, operate, and shall co-ordinate and direct the flow of electricity onto and over, the transmission system in an efficient, economic and coordinated manner*." The scale and need of applications has meant that current associated licence conditions are no longer fit for purpose in supporting our duties under condition 20.

[27] https://www.soni.ltd.uk/how-the-grid-works/ds3-programme/ds3-consultations-and-pub/Changes-to-Over-Install-Policy-6-Oct-2023.pdf
[28] https://www.soni.ltd.uk/media/documents/SONI-Connections-Policy.pdf

Condition 25 and 15 speak respectively to our duty to offer terms to connect to the Transmission system and to not unduly discriminate. Some clarification to these conditions would enable us to more appropriately manage and coordinate connections and our planning of the Transmission system.

11.Do you think the current 3-month timeframe for SONI and NIE Networks to issue a connection offer is appropriate? Please explain your answer

The overall timeframe to deliver a connection and for the new assets to contribute to the system is the most important time horizon for the energy transition.

Condition 25 of the SONI licence dates back to the original drafting of 2007, hence the connections landscape has significantly changed with the need to further decarbonise the electricity system that was not built into the design of Condition 25 of the SONI Licence.

The 3-month timeframe for SONI and NIE Networks (in their role as Transmission Owner) to issue a transmission connection offer is a legacy arrangement, outdated and no longer appropriate. The increase in requests to the UR to extend offer issuance dates support this. SONI supports the concept of having a framework and a process that provides a level of certainty with regards to timeframes for delivery of a connection offer to those wishing to connect to the Transmission system as we acknowledge that commercial considerations and decisions can be dependent on the receipt of a connection offer.

As highlighted earlier in this response SONI is experiencing a continued increase in connection applications. Between 2014 and 2022, there were an average of 4 - 5 connection applications received annually. As of 26 September 2023, 20 connection applications have been received this year, with further applications anticipated by the end of the year. It is important to note that of this 3-month timeline to issue a connection offer SONI only have 25 business days (and does not consider any bank holidays or public holidays that might fall within that period) to determine optimal connection method and submit a construction application to NIE Networks. The complexity of applications has also increased alongside this volume and outpaces our ability to efficiently plan the Transmission system required to facilitate them, because the need of the system is to be designed to meet are continually evolving with each new application received.

It is SONI's view that the timeframe to issue a connection offer should reflect these challenges and complexities as oftentimes SONI has had to formally seek the consent of UR to extend the 3-month period for the issuing of connection offers.

Suggestions had previously been made with regard to use of a "complex" designation automatically giving an extended period of time for any offer to be issued within. The mechanism within Condition 25 allowing SONI to seek an extension to offer timelines (in certain scenarios) is administratively burdensome on both SONI and the UR, and with the increasing volume of applications being received, is inefficient use of resource.

It would be beneficial to explore how applications could be categorized using different indicators (technology, location, consents etc.) which could determine time frames and/or processes under which offers are issued.

SONI is conscious of other jurisdictions with, or moving towards, application gates/windows, with groups of applications being processed together. Although there is merit in this approach which delivers more visibility in the pipeline of projects and can help planning and resourcing, a move to application gates/windows in isolation may not be suitable. A modified version of this approach, allowing System Operators to consider 'the bigger picture' of applications and their impacts may be favourable.

In summary and with particular regard to the guiding principle that the outputs from this review will facilitate the delivery of the CCA, SONI is of the view that the ability to prioritize, accelerate and decelerate the delivery

of given projects would be of greatest impact. Continued adherence to a legacy 3-month offer issuance rule set will not benefit the delivery of those targets.

12.If our legislation facilitated it, should obtaining planning permission be a pre-requisite in order to receive a grid connection? Please explain your answer.

SONI is firmly of the view that the use of planning permission should be used as a prerequisite for applications to connect to connect onshore transmission connections and large-scale distribution connections. Planning permission being required at application stage would help filter out "speculative" applications.

SONI would propose that existing policy is maintained for large scale marine projects such as offshore wind, tidal and interconnector projects due to the longer lead times.

We are in an environment where bay capacity at substations is limited, and we are focused on accelerating the speed at which projects can be delivered. It would therefore seem logical to try and ensure that the applicants who receive Connection Offers are most likely to proceed with their project and are reasonably well advanced in developing the project. Trying to ensure that the projects used in study assumptions have the greatest chance of coming to fruition will deliver more credible studies and should reduce the need for rework and help deliver the optimum design outcomes. It will mean a more efficient use of resources for both SONI and NIE Networks.

We would note that in our response to Q11 we have expressed a desire to explore how the issuance of an offer could better reflect our Licence obligations around *efficient, economic and co-ordinated*. We believe that the re- introduction of planning permission at application stage is consistent with that approach.

13.If our legislation facilitated it, do respondents consider any other issues associated with the current queue process? Or that a different approach to managing the connection queue, would result in quicker connections? If so, what would that be? Are there any lessons to be learned from other jurisdictions?

The general theme in other jurisdictions aimed at speeding connections is one of planning and prioritization. If we look to connection reform in GB and the initially recommended Target Model Option 4, we see that it virtually removes the concepts of interactivity and a connections queue. We have application windows giving maximum potential for coordinated network design and identifying the full scope of anticipatory investment. This collective planning then gives rise to the production of connection offers with long stop connection dates reflecting the complexity of delivering the connection. Effectively a "queue" as we would have known it is replaced by a schedule of Longstop Connection dates with the more advanced and deliverable projects connecting first. We do note however that this TMO4 was the worst scoring option considered with regard to time to implement citing uncertainty over regulatory and legislative change.

EirGrid have utilised an application gates/window approach for some time and may be seeking to further evolve the connections process by introducing locational scalars and prioritization.

A key feature of the GB approach is establishing the criteria by which the ESO can reject or accelerate connections. That would seem to be a characteristic very much aligned with questions around due or undue discrimination. We have touched on such issues in our responses to Q7 and Q11. Such a shift in our approach would require intensive consultation. In many ways these are changes that are at the very core of a move

towards a more plan lead connections policy. Establishing our collective priorities and the framework by which we will achieve them. If an applicant project does not meet the criteria as set out it is deprioritized and this will be reflected in the time to receive a connection offer or the nature of that offer. Applications that meet the pre-defined criteria can proceed as normal or indeed might even be accelerated.

14.Do you have any other information relevant to the subject matter of this Call for Evidence that you think we should consider?

We have mentioned a number of relevant publications throughout this response. However, in summary:

- Our work on Shaping our Electricity Future quantifies a range of factors that are relevant to this policy refresh.
- The original SEM harmonisation work between 2005 and 2011 on connection and locational use of system charging contains a number of helpful considerations.
- Our expert report on the costs and benefits of LCIS sets out how new technologies can reduce overall costs to consumers.
- We expect to publish a paper around Long Duration Energy Storage that also considers the whole system cost savings that are available.

15.Please list any connection issues you have raised in order of priority. Please explain your reasoning behind your priority.

1. SONI has the view that the implementation of a Transmission Cluster Policy would play a major role in helping to deliver change at pace and would be something of a cornerstone to a “plan led” approach.
2. In envisaging legislative change that supports a plan led approach it is SONI’s view that it would be useful to quickly establish the “assessment criteria” to apply if changes to Conditions 15, 20 & 25 were to be considered which empowered SONI to implement a more selective connection process , including planning permission as a pre-requisite to connection application.
3. Amendment of the legacy 3-month Connection offer timeline for transmission connection offers.
4. SONI see benefits in an immediate review of existing legislation and licencing to allow SONI to more efficiently plan the transmission system. This could deliver some “quick wins” and efficiencies without the need for legislative change.
5. Importance of considering connections charging and Use of System charges together. We see this as a vital first step to prevent any potential conflicts between different aspects of the charging regimes and the legislation which underpins this.
6. Considering the whole system costs, especially the benefits that new technologies can unlock.