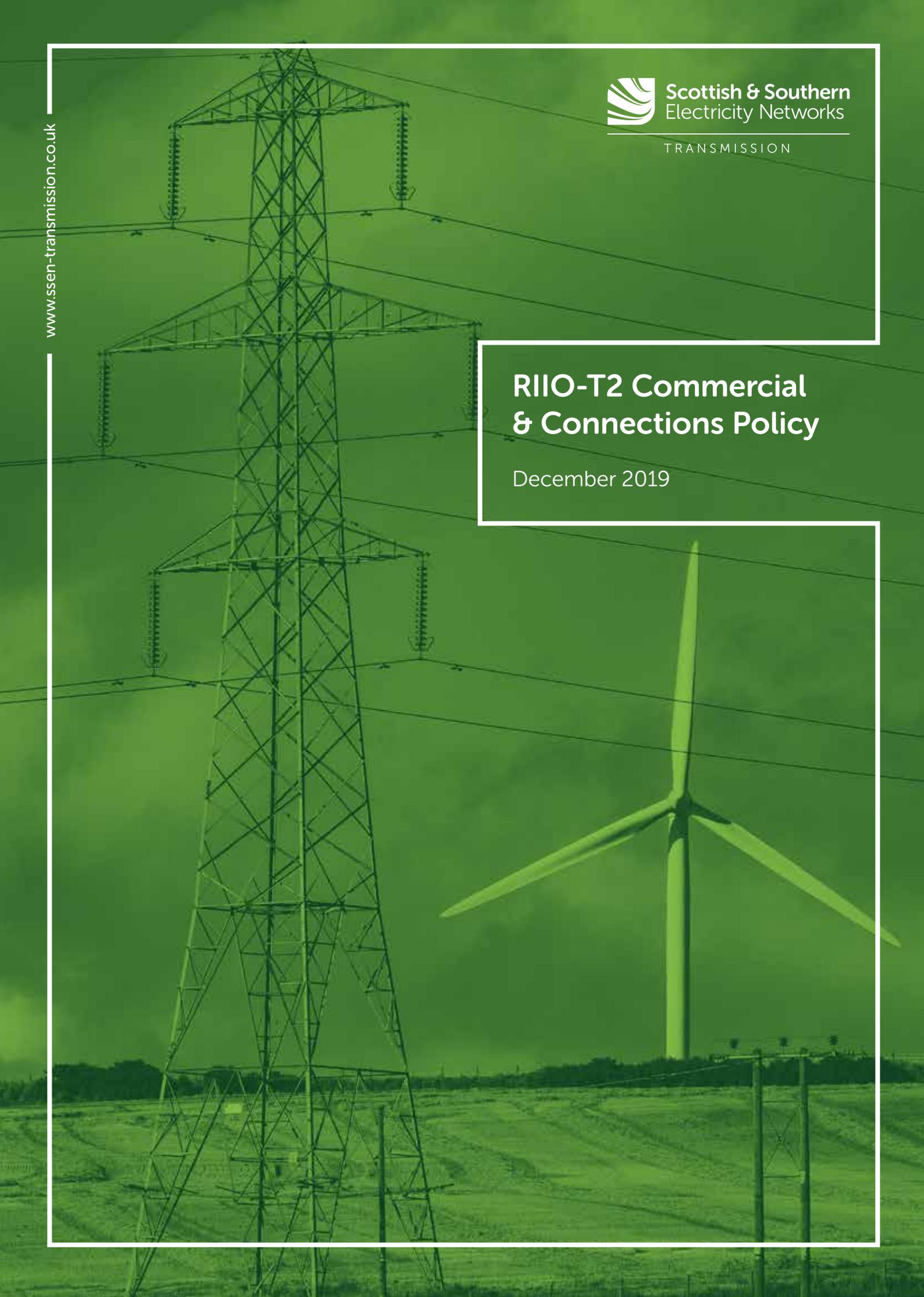




RIIO-T2 Commercial & Connections Policy

December 2019



Executive summary

Part of our role as a Transmission Owner is to provide a route to market for low carbon technologies and the motorway to transport the renewable energy they produce to meet the demands of consumers and large business customers. The service we provide to our 'network users' (we call them customers) is central to our RIIO-T2 strategy, to enable the transition to a low carbon economy, and is underpinned by our four strategic themes for RIIO-T2. This policy document supports our RIIO-T2 Business Plan.

By the end of 2020 we will have over 6.5GW of renewable generation connected to our network and, as a result of our experience in RIIO-T1, we are now seeking to transform our traditional role as a Transmission Owner, having an indirect relationship with customers, to becoming a customer centric business. During RIIO-T1, we worked closely with our customers to help remove barriers and get them connected to our network. This included innovative commercial approaches and physical connections solutions.

Planning to deliver our strategic objective, to enable the transition to a low carbon energy economy, brings its own challenges. As technologies develop the type or size of projects which customers may apply to connect to our network is uncertain. Recently, we have tried to mitigate this uncertainty through the development of North of Scotland future energy scenarios (NoS FES), which predict that there could be between 1 to 7 gigawatts (GW) of new renewable generation seeking to connect to our network over the RIIO-T2 period. Given this uncertainty, and the rate of change in the energy industry, it is critical that we are able to adapt our service and products to meet our customers' expectations.

Regardless of the size or type of customer connecting to our network, our connections aim for RIIO-T2 is to provide tailored solutions and services for all our connection customers throughout the customer experience (from project scoping to reviewing connections), that are optimal for the customer and the wider GB energy consumer.

In line with, and supporting, the stakeholder ambition laid out in the Stakeholder Engagement Strategy, we have been led by our customers and stakeholders in the development of our RIIO-T2 policy ambitions and initiatives (twelve new products and services). We've targeted engagement with commercial and connections stakeholders, engaging directly with over 100 stakeholders (not including those who attended industry events), facilitated four focused events, attended four industry events as well as gathering feedback from customers and wider stakeholders directly.

Based on our RIIO-T1 performance and stakeholder feedback, we developed three policy ambitions to achieve our overall aim and provide customers with:

- 1. Optimal connection solutions;**
- 2. Tailored customer services and products for our existing and future customers and;**
- 3. An accessible connections process.**

To achieve the above ambitions, we developed eight policy initiatives to deliver during RIIO-T2. To meet the needs of the customer whilst balancing the impact upon wider stakeholders and the GB consumer, we focus our initiatives on digitalising the connection process providing clearer and transparent information at the relevant points in the process, encouraging collaboration, whole system solutions and flexibility in the connection process.

We have proposed several new products and services allowing project requirements to be tailored, where possible, to meet customer expectations and to ensure that the connection process is accessible. In addition, we have proposed new customer advocacy and collaboration services.

Our policy aim, ambitions and initiatives are intended to meet the expectations of our current and future customers whilst acknowledging and minimising, where possible, the impact on wider stakeholders and the GB consumer. However, as we transform to meet this customer focus, we must also ensure that this is consistent with the regulatory framework and acknowledge the key roles played by other industry participants.

During RIIO-T2 we will continue to engage with connections stakeholders to measure our performance ensuring we continue to meet and exceed expectations. We will do so by continually reviewing and adapting our connections products and services enabling an accessible, straightforward and more transparent route to market for low carbon technologies.

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Introduction

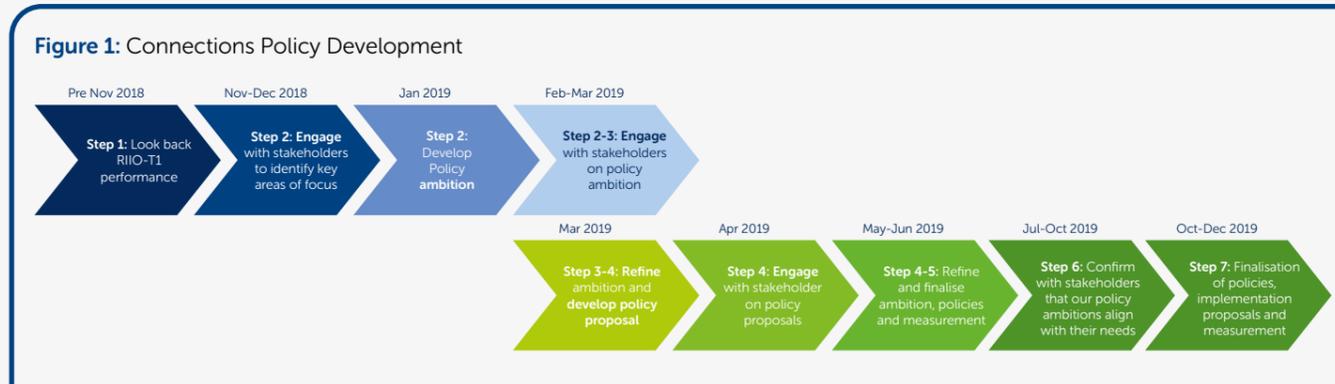
Throughout the Revenue = Incentives + Innovation + Outputs Transmission 1 (RIIO-T1) Price Control, our role as a Transmission Owner (TO) has transformed from having an indirect customer relationship in the connections process to delivering innovative arrangements in direct response to our customers' needs. We are becoming a customer centric business. Being led by our stakeholders means we better understand what our customers expect from our network and connections service.

Our Commercial and Connections policy has been developed in response to stakeholder feedback that we need to develop our processes to meet future customers' needs in RIIO-T2.

However, our future connections customer, who they are and what their expectations will be is still uncertain. Therefore, we need to ensure that we continue to review, improve and adapt our connections service to meet future customer expectations.

Meeting the expectations of connections customers is central to the transition to a low carbon economy by providing a route to market for low carbon technologies and transporting renewable generation to GB consumers.

The purpose of this document is to provide the detail and justification for our Connection Policy Ambitions, and how we plan to deliver these during RIIO-T2. This is a culmination of over 12 months of detailed work. A timeline of the process we have followed is shown below (see [Figure 1](#)).



In this document we explain how we have developed our Connection Policy Ambitions through a five-stage development process where we:

- 1** Look back at our performance and experience during RIIO-T1
- 2** Explain our focused stakeholder engagement plan; and then
- 3** Explain how this has shaped our RIIO-T2 Connections Policy Aim and three Ambitions.

The remainder of this document focuses on our three RIIO-T2 Connections Policy Ambitions explaining:

- 4** The associated policies initiatives to be implemented with indicative timescales; and
- 5** How we will measure our success against our commitments.

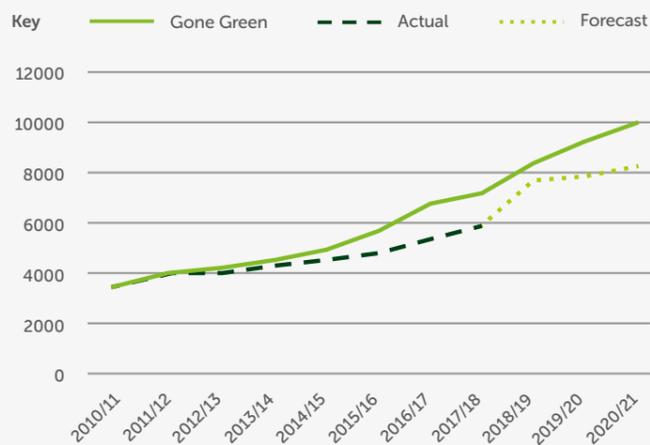
Stage 1: Performance under RIIO-T1

During RIIO-T1 our customers' expectations were largely centred around securing quicker connections, of which the timely receipt of connection offers was key.

Delivering quicker connections predominantly supported customer ambitions relating to subsidy led dates and requirements. We recognised that this was a key objective and we have delivered it. To meet this challenge required changing our ways of working, including delivery of flexible connections to speed up connection timescales. We did this whilst continuing to deliver a connection service which our customers are satisfied with (over 95% satisfaction rate in our recent 2018/19 Stakeholder Satisfaction survey, with an average of 96% during RIIO-T1).

By the end of the price control we will have over 8GW of generation connected to our network. Each year the Electricity System Operator (ESO) develops and publishes Future Energy Scenarios (FES). Looking back at the 'gone green' scenarios, from their outset in 2011 through to the current period, each shows that the renewables targets to meet 2020, 2030 and 2050 carbon emissions targets continue in an upward trajectory - meaning our connections customers are playing a vital role in achieving those decarbonisation targets, but more is required. Planning for this through RIIO-T2 and beyond, whilst ensuring our processes allow strategic and timely development of projects, is fundamental. (see [Graph 1](#)).

Graph 1: RIIO-T1 connections



RIIO-T1 also saw us deliver connections on time and facilitated quicker access to the network through the development of flexible and innovative solutions to meet customer requirements (see below).

RIIO-T1 example: Flexible solutions

Bhlaraidh wind farm required a quicker connection date from the contracted date of 2021 to 2017 as a result in changes to government policy (due to the closure of the Renewables Obligation).

Working together with the customer, we were able to arrive at an optimal solution for their connection that meant they were able to connect five years ahead of reinforcement on a non-firm inter-trip arrangement.

RIIO-T1 example: Commercial innovation

Orkney connection customers face several obstacles to connection, as there is currently no link to mainland GB. This resulted in significant costs and lengthy timescales to connect.

Working with our customers and Scottish Hydro Electric Power Distribution plc (SHEPD), the Distribution Network Operator for the north of Scotland, the Alternative Approach (AA) was developed. The AA proposed innovative commercial arrangements to Ofgem which tailored current industry arrangements to enable customers to overcome these barriers and connect.

The formal role of the TO has remained largely unchanged since privatisation. Under the current industry framework (licences and codes) we have an indirect relationship with connection customers (via National Grid ESO) and are tasked with delivering connections and initial design. During RIIO-T1 we have seen a change in the way that we engage both with the ESO and customers wishing to connect to, or whose connections have an impact upon our network. It is more collaborative and innovative allowing us the opportunity to react as industry or customer needs change. Our experience from RIIO-T1, alongside feedback from our stakeholders, has directly influenced our Connections Policy Ambitions for T2 and the next stage of our TO transformation.

Stage 2: Stakeholder engagement

We developed a focused stakeholder engagement plan for RIIO-T2 policy development, to ensure that our Connections Policy Ambitions were responsive to the needs of our current and future customers.

We have undertaken a targeted programme of stakeholder engagement to ensure that we fully understood what was required in order to meet customers' expectations. This was in addition to the stakeholder engagement we routinely undertake in our business activities. Through this two-pronged, general and targeted approach, we were able to ensure that our Connections Policy Ambitions were flexible and able to adapt to the needs of our current and future customers, as well as wider industry change.

Connections customers and stakeholders

We recognised that to develop policies which met both the needs of current and future customers, as well as wider stakeholders, we could not engage with those participants in isolation. We conducted an exercise to identify these key participants:

- Our customers include those directly connected to the transmission system (including SHEPD) and those indirectly connected via the distribution system (such as embedded generation) who are identified as having an impact on transmission network power flows¹.
- Wider stakeholders identified include: Network operators (DNOs and other TOs), industry parties, Scottish Government, local councils, contractors (who physically deliver the works), industry consultants (who can act on behalf of customers), academics, and other interested parties. In addition, we have engaged with the ESO to identify policy initiatives which will require collaboration in order to develop and implement in RIIO-T2.

Stakeholder engagement methods

We engaged with customers and stakeholders through a variety of methods including (please see appendix 1 for the full list of engagement activities):

- Attending industry events and seeking feedback from customers
- Hosting targeted engagement events
- Hosting online events
- Online consultations
- Bi-lateral meetings with customers: email, telephone, and face to face meetings.



Figure 2: February 2019 stakeholder round table event



Figure 3: May 2019 stakeholder round table event

¹ Please see our stakeholder engagement strategy for a full definition.

Targeted Connections Engagement Plan

We took a phased approach to our targeted connections engagement, as demonstrated by Figure 4 (below):



In total we hosted four targeted connections events, engaged directly with over 100 stakeholders, presented at four industry events, and engaged with stakeholders bilaterally to have over 100 pieces of stakeholder feedback which have led our connections ambition and policies. This feedback has led the development of our ambitions for RIIO-T2 Connection Policies and will **feature throughout this policy document** (Appendix 1 demonstrates how stakeholder feedbacks has shaped each Policy Initiative).

It should be noted that this section includes the stakeholder engagement carried out to develop our Business Plan for RIIO-T2. We will continue to engage with stakeholders throughout the RIIO-T2 period in the course of our business activities, as outlined in our Stakeholder Engagement Strategy.

Stage 3: Connections Policy Ambitions for RIIO-T2

As a TO, we play a key role in enabling the GB transition to the low carbon economy, by providing connections services and a route to market for renewable generators and large demand customers in the North of Scotland, as well as transmitting power to consumers throughout GB.

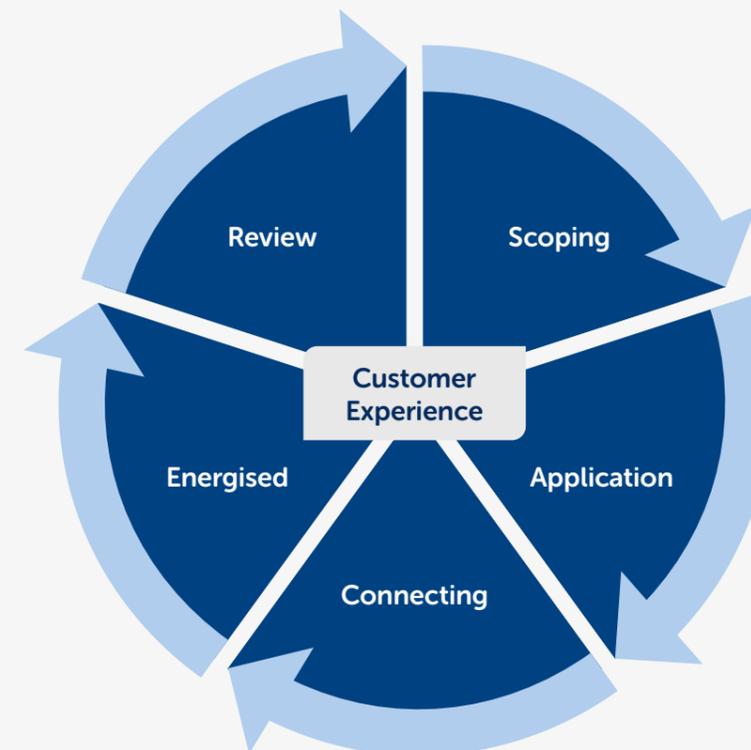
The energy system is changing as we make this transition. Through our NoS FES, we have considered the likely outcomes and requirements in 3 broad scenarios². Our NoS FES has shown that the number of customers connected to our network will continue to grow, even in the most conservative Cost Limitation scenario (1GW). In the Gone Green scenario we expect up to a further 7GW of generation to connect.

- large demand customers connecting directly into our network as transport electrifies;
- large off-shore wind or marine projects;
- a surge in onshore wind as the technology enters a subsidy free world;
- battery storage; or
- an increase in demand or generation at the local Grid Supply Point (GSP) levels from our local DNO SHEPD, for example due to increased community renewable schemes and electric vehicle update.

Who will make up our future connection customer base is uncertain, and could include:

Led by stakeholders our aim for our Connections Policy Ambitions RIIO-T2 is to:
Provide tailored solutions and services for all our connection customers throughout the customer experience that are optimal for both the customer and the wider GB energy consumer.

Figure 5: Connections customer experience



Customer's experience
Figure 5 demonstrates the customer's experience with us:

- **Scoping:** from the initial scoping phase of their project through pre-application
- **Application:** applying for a connection
- **Connecting:** physically delivering the connection to the network
- **Energised:** once the customer is connected and energised
- **Review:** the last stage of the customer experience is when a customer reviews their project (this could be in a number of circumstances for example, to re-power their project at the end of the original generation asset life; re-design; or de-energise).

Regardless of the type or size of the project, or what stage of the customer experience they are in, we want to ensure that the connection service and solution we provide is right for each customer's project whilst ensuring this is optimal for the wider GB consumer.

² <https://www.ssen-transmission.co.uk/media/3411/north-of-scotland-future-energy-scenarios-full-report.pdf>

We have broken our overall policy aim into three focused Connections Policy Ambitions which will frame our connection policies:

1. Optimal connection solutions
we will work with our customers to ensure that their connection solution is optimal both for the individual customer project economics and timescales, but also that it is also the optimal solution for the wider network, stakeholders and GB consumer.

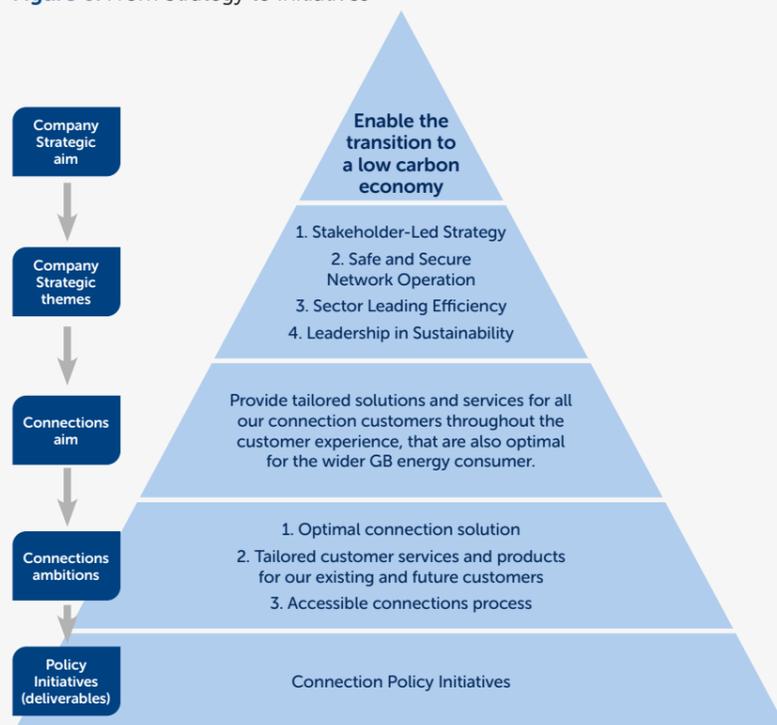
2. Tailored customer services and products for our existing and future customers from project scoping to review we aim to provide the services and products that matter to our customers today and in the future throughout the customer experience.

3. Accessible connections process we want the customer experience should be simple, transparent, efficient and fit for the future by advocating on behalf of our customers.

The diagram below (Figure 6) demonstrates how we have developed our RIIO-T2 Commercial and Connection Policy Ambitions and Initiatives to help us achieve our strategic objective at the top.

As we have seen, connection of renewable generation projects onto the GB electricity networks will play a pivotal role not just in our overall RIIO-T2 strategic ambition, but also in the significantly greater challenge to meet Scottish and UK government Net Zero commitments by 2045 and 2050, respectively.

Figure 6: From Strategy to Initiatives



Through the significant stakeholder-led work undertaken to identify and quantify our Strategic Themes, and subsequently our 5 Goals, we developed our Connections Aim, Connections Policy Ambitions and Connections initiatives.

We asked our stakeholders and customers what they thought of our Connections Aim and Connections Policy Ambition. On the whole, they were satisfied with our proposed level of ambition in RIIO-T2. When asked to rate how satisfied they were on a scale of 1 to 5, 67% of respondents were either satisfied or very satisfied, with 28% neutral³.

Realising our ambition

Following the endorsement from stakeholders and customers, we have proposed Connection Policy Initiatives, to realise our ambitions, which will be implemented up to and throughout the RIIO-T2 price control period.

We have also set out proposals as to how we will measure the successful implementation of our policy initiatives and ensure we continuously improve our connections service to meet customer expectations throughout RIIO-T2. This monitoring will allow us to review and refresh our policy initiatives to ensure they meet the needs of our future customers.

In the following section of this document we take each of our Connections Policy Ambitions in turn detailing the specific initiatives, associated requirements and implementation timeframes, before outlining our proposals to measure success in RIIO-T2.

Stage 4: Ambition 1: Optimal connection solutions

Our first ambition is to work with our customers to ensure that their connection solution is optimal both for the individual customer project, as well as the wider GB network and consumers.

To realise this ambition, we focus on the introduction of two policy initiatives to digitalise⁴ the connection process based on stakeholder feedback (please see 'you said we did' in Appendix 1 for stakeholder feedback):

- equipping customers with the information to scope an optimal solution.
- equipping customers with digitalised tools to provide an optimal customer experience.

Equipping customers with digitalised information

To realise our optimal solutions ambition, we are focusing on digitalising the information customers need in the first stage of the customer experience: the scoping stage.

Stakeholder Ask

Stakeholders asked us to make more information available from our network, so they can plan ahead for their projects and make better informed investment decisions. Network information is routinely made available at this stage through pre-application meetings, however we are proposing to develop digital tools which enable customers to view this information via our website.

Policy Initiative: Equipping customers with digitalised information

Network information being readily available digitally through a live 'capacity availability map' on our website. This map will show:

- where there are current and future opportunities for connection (for all types of customers covering generation, demand, flexibility solutions or storage) by outlining the capacity available (MW and MVA), including both contracted and indicative figures of potential generation in the application process but uncontracted
- what type of connections solutions can be offered (firm and non-firm)
- expected curtailment via a curtailment calculator
- spatial requirements around our substations
- where available, planning authority spatial plans; and
- working together with the ESO, an online connection costs tool estimator supported by user friendly guidance. This will provide a high-level budget estimate of project cost, as well as likely securities and liabilities sums and ongoing Transmission Use of System (TNUoS) costs.

Benefits

Digitalising this stage of the customer journey will support our existing pre-application service by equipping customers with the information they require, allowing customers to make better informed investment decisions on when and where best to connect to our network, what the likely connection costs and curtailment levels could be.

This information will facilitate market opportunities by equipping customers with the information needed to scope their project based on their timescales and economics. In time this will include current market opportunities, for example ensuring that any future flexibility services available from National Grid ESO are visible on the map.

Upon reviewing these proposals, our stakeholders were most supportive of our digitalised information initiative (92%⁵); however, they were concerned about keeping the map up to date, working together with other networks companies and development companies 'buying up' available capacity. To address these concerns, we propose to ensure the map is kept up to date by linking it to our internal systems. We are already working with our Internal IT Infrastructure team and external consultants to understand what is involved in those requirements and to develop the most efficient method of achieving these within the RIIO-T2 period. To mitigate the risk of development companies 'buying up' available capacity we are proposing to introduce a new queue management service (see the tailored products and services section of this document for further details).

³ Please see our RIIO-T2 Connections and Innovation and Whole system Outputs reports <https://www.ssen-transmission.co.uk/information-centre/industry-and-regulation/riio-t2/>

⁴ Digitisation means the use of new communications technology and analytical tools to improve the performance - in particular, the reliability and productivity - of electricity networks. As technology is developing quickly, value appraisal is required to maintain cost-effective outcomes for bill payers, and the resilience of the network to cyber threats.
⁵ 92% of customers who attended our May engagement events were supportive of the optimal solution initiatives the remaining 8% were neutral.

Equipping customers with digitalised tools

We are also proposing a new online portal allowing our connection customers to manage their connection application and post-energisation, and enabling new services and products in our Connections Policy Ambitions to be implemented as efficiently and transparently as possible.

Stakeholder Ask

Although we have received positive feedback from stakeholders regarding the pre-application process, stakeholders did feedback whether the application process could be more efficient and transparent as well as the ability to track their progress. Feedback from customers was that they were most supportive of our digitalised information initiative (92%)⁶; in particular Small and Medium Enterprise stakeholders who favoured the business efficiency savings.

Collaboration

Recognising that customers may access systems across the three TO licenced areas or via the ESO, we are working collaboratively with the other TOs and the ESO to develop a common and aligned approach and 'feel' for these digital tools, meaning that customers do not have to learn to use up to 4 different systems.

Conclusion

When we asked our stakeholder for feedback on our proposals, the optimal connection solution received the most support from stakeholders out of our three policy ambitions (92%). By digitalising the connections process, through the introduction of these policy initiatives in RIIO-T2, we believe customers will be able to achieve the optimal connection solution by having the information they require upfront, coupled with easier access and transparency to the connections process.

As we have set out, providing greater information at earlier stages in the process enables prospective customers to make better informed decisions about where and when they can connect a project. This leads to wider system benefits through optimising network capacity and promoting the displacement of carbon-dense generation by enabling more renewable generation to connect to the network earlier. Through this we are able to make an earlier contribution to Net Zero targets with the associated environmental and long-term cost benefits for consumers.

We will measure the successful implementation of Optimal Connection Policy Solutions via the qualitative information gained from the customer as explained in the stage 5 section of this document. To ensure customer solutions are optimal, we must tailor connections services to enable connections. We explain this in more detail in the next section.

The table below demonstrates which stages of the customer experience our proposed Policy initiatives will improve:

Table 1: Optimal Connections Solution Vs. Customer Experience Stages

Stage	Ambition 1: Optimal Connection	Policy initiatives 1.1 Equipping customers with digitalised information	Policy initiatives 1.2 Equipping customers with digitalised tools
Scoping	✓	✓	✓
Application	✓	✓	✓
Connecting		✓	✓
Energised	✓	✓	✓
Review	✓	✓	✓

Benefits

By making an accessible online portal available to prospective and current customers we can further optimise the connection process and solutions, enabling our accessible and tailored connections policy ambitions.

The new online portal would promote **greater dynamic collaboration** between the ESO, TO and the end customer as each party can view application progress and the current connection design, reducing barriers or inefficiencies in the process and enables whole system solutions and engagement.

Our **whole system strategy**⁹ focuses on creating efficient outcomes for the network via data sharing. Having an online portal will enable collaboration and whole system thinking between the ESO, DNO, TO and the customer.

Each party can discuss and debate the optimal connection solution to suit the economics and timescales of the customer's projects ensuring the offer provided to the customer has considered the options available from the whole system.

Stage 4: Ambition 2: Tailored customer services and products

Our second ambition aims to provide tailored services and products that matter to our customers today and in the future throughout the customer experience.

We have discussed previously the range of potential future connections customers and technologies we may encounter through RIIO-T2 and beyond. The connections processes and requirements have seen limited progression, still largely focused on traditional large-scale thermal generation methods, they have failed to keep pace with the changing participants and conditions of the industry.

To provide optimal connection solutions, we must tailor our products and services to reduce as many barriers as possible for connections customers, regardless of the size or technology type.

To realise this ambition, we are proposing **four policy initiatives** in RIIO-T2:

- an 'offer in principle' product
- a 'queue management' service including an acceleration and minor modification product
- a 'energised engagement' service with a new 'outage solution' product; and
- a new 'renew' product and service.

By utilising our optimal connections initiatives in conjunction with the tailored services and products, customers should arrive at the next stage of the customer experience cycle ready to proceed and equipped with an understanding of the options and new flexible solutions available.

The type of connections solutions we can provide has also changed throughout the RIIO-T1 period, with the introduction of non-firm physical and commercial arrangements such as intertrips, connect and manage and active network management, in addition to the traditional firm arrangements. The principles of firm and non-firm connections are explained briefly in **Table 2** below:

Table 2: Firm vs. non-firm connections

	Customer Choice	Physically	Commercially
Non-Firm	Yes. Non-Firm is driven by customer choice to vary standard designs or commercial arrangements.	A single or double circuit connection, during outages on the circuit the customer generation asset will be not be able to import from or export to the network.	A commercial arrangement where the connection can be switched 'off' during network constraints, likely associated with a flexible connection solution. The customer will not receive constraint payments when they are switched 'off'. This is usually a cheaper and quicker solution up front as it requires less network infrastructure.
Firm	Yes. Firm is driven by customer choice to conform to SQSS standards.	A double circuit connection, during outages on the first circuit the customer will be fed or can export through the second circuit. If there is an outage on both circuits, the customer will be switched 'off'.	A commercial agreement where in circumstances where the project is switched 'off' completely during a system outage or constraint, they will receive constraint payments (CAP048 payments), reflecting that they have opted for a more secure connection. This is usually a more expensive and slower solution up front as it requires more network infrastructure. In the longer term, it may provide more security of connection for customers or an ability to recover financially any losses where import/export is not possible.
Locally Non-Firm	No. Due to design requirements it is not possible to provide a locally firm connection. The local circuit is non-firm.	A single circuit connection, during outages on the circuit the customer will be not be able to import or export to the network.	A commercial agreement where if the projects is switched 'off' during a local system outage or constraint, they will receive constraint payments on the wider network, but not for local outages.

⁶ 92% of customers who attended our May engagement events were supportive of the optimal solution initiatives the remaining 8% were neutral.

⁷ we recognise that the application processes do not sit with us, but rather SHEPD and/or the ESO, and our proposal in this instance is to work with the ESO to understand how we can work together to best facilitate this customer ask.

⁸ This proposal needs to be developed in collaboration with the ESO to understand what would be required to facilitate such a service.

⁹ Please see Appendix: Powering an Efficient, Co-ordinated and Economical Whole System The Scottish Hydro Electric Transmission Whole System Strategy

An offer in principle

We want to ensure customers understand and choose the right connection solution for their project. This requires increased engagement with the customer to explore firm and non-firm solutions to understand what the most optimal solution for their project is, in terms of its economics and delivery timescales.

Following stakeholder feedback (see Appendix 1) we proposed in our draft Business Plan to introduce a new Offer in Principle product; which customers could choose to apply for during the scoping stage. However, we recognise that the application processes do not sit with us, but rather SHEPD and/or the ESO, and our proposal in this instance is to work with the ESO to understand how we can work together with the wider industry to best facilitate this customer request.

Stakeholder Ask

Currently there are two products available to customers before application: a budget estimate and a feasibility study. Data from our February 2019 event showed that most stakeholders felt neutral or satisfied about the ambition to introduce flexibility in the application stage (83%). Feedback from customers showed that the cost and information provided within these products does not meet their current needs. A budget estimate does not contain enough information and a detailed feasibility study can be expensive and time consuming. Both products are reflective of network requirements at a given point in time and do not guarantee a customer's place in the connection capacity queue while the study or estimate are being completed or subsequently. Meaning that the information provided could change if someone else applies for connection after the studies/estimates are conducted or before any formal offer accepted. The only viable option which provides greater certainty of solution, cost and timescales available to customers is via the formal application process. When we presented our concepts for new tailored products and services to customers, 77%¹⁰ were satisfied with the initiatives proposed. Stakeholders felt this introduced the flexibility requested, especially at the earlier stage of the process where the capacity applied for can change.

Policy Initiative: Offer In Principle

We propose that this new product should produce high level connections options for the customer, allowing informed decision making and discussion with our connection experts, ahead of a full application. This should include exploring flexible options which may provide customers with a more economically efficient or quicker connection to a traditional network reinforcement. The new 'offer in principle' product, should also hold the customer's place, for the optimal solution, for a limited period, providing the customer with enough time to consider the solution, ahead of any decision to progress to the formal application stage where more in depth studies and costings would be produced. Where a customer chooses to proceed with a formal application, our connections team can develop the initial costing and design works through more in-depth analysis.

Recognising our current role in the applications process, we propose to engage with the ESO and wider industry to raise the concerns that our customers have shared and to act as a catalyst for change, providing greater options to customers by removing barriers to connections across GB.

Benefits

The 'offer in principle' proposal responds to customers' needs for flexibility by allowing the customer the opportunity to explore options for connection at a limited cost, to arrive at the most optimal solution for their project. This may include flexible connections options which will make better use of existing network assets where it is more economically efficient for the customer than building new infrastructure. This also ensure the process is as efficient as possible without the customer having to start a new application with duplication of studies and analysis.

Queue management: a flexible approach to efficient connections

Following our innovative 'ready to connect' trial on Orkney via the Alternative Approach¹¹, we have worked with the ENA and wider industry to develop an approach to queue management which can be rolled-out across GB. By ensuring that we facilitate grid optimisation where possible, we are preventing capacity being held up by slow or non-moving projects, connecting renewable generation to the grid in a timely fashion with potentially significant cost savings for consumers, as well as contributing to Net Zero targets. In RIIO-T2 we will work together with the ESO¹², to implement a new queue management service and associated enabling products throughout our network.

Stakeholder Ask

From engagement with remote islands customers during RIIO-T1, and engaging with customers during our RIIO-T2 development processes, a recurring frustration and barrier to connection was the fixed capacity queue. Currently, this operates on a first in line is first to connect principle. It can cause blockers in the queue where a customer, who may have applied for their connection earlier, has not progressed (see Appendix 1), meaning projects further back in the queue which are ready to connect are prevented from doing so.

Stakeholders also asked for more flexibility in the connections process which would allow them to make minor modifications to their application or change their connection date without having to start a new application or go through the full modification process. The current modifications process applies a standard process irrelevant to the magnitude or materiality of changes required and can take several months to be approved.

Stakeholders also advised that if more information was available via the 'capacity availability map', queue management would be critical to ensure that capacity was allocated efficiently. When we presented our proposed new tailored products and services to customers 77%¹³ were satisfied with the initiatives introduced.

Policy Initiative: Queue Management

Queue management is the active management of the connection capacity queue via contract management of developer progression milestones. A customer would be required to provide evidence of progress for their project. Where the customer is unable or unwilling to provide evidence of progress upon reasonable request they may, subject to queue management rules, lose their queue position and be moved down the queue to a later connection date, allowing another customer who is progressing and able to evidence that progression to move up the queue.

Queue management would allow us to align connections delivery to when the customer is most likely to be ready to connect. Utilising the online portal, the customer will be able to view their project's progression and costs and identify if there are any potential opportunities to advance.

Benefits

Introducing the new queue management service will ensure that customers are able to get connected quicker and the capacity queue will be actively managed, rather than having queue 'blockers'. Queue management would also provide increased transparency of customer's timelines and requirements. This has a tangible benefit to GB consumers as capacity will be filled up quicker by the generators who are ready to connect facilitating grid optimisation where possible, connecting renewable generation to the grid earlier with potentially significant cost savings for consumers, as well as contributing to Net Zero targets.

The new tailored products to enable queue management will provide more customer choice and an incentive via the lower application fee to customers opting to free up capacity, so it can be utilised by other ready to connect customers.

New products to enable queue management: Accelerated connection

We understand that customers' requirements may change, and customers may wish to connect earlier or later than originally planned. Queue management will allow customers to accelerate their connection date, where technically possible to do so if there is capacity available or delay their connection date in a clear, transparent and fair manner.

New products to enable queue management: Minor modification

We understand that customers' requirements may change, and customers may wish to make minor modification to their original offer. For example, a reduction in capacity due to planning requirements. We recognise that there is an existing modification process through the ESO and we propose to engage with the ESO and wider industry to define and develop a quicker process to apply for minor modifications to project requirements.

¹¹ Please see page 5 of this report for further information

¹² And the Energy Network Association Open Networks project

¹³ 77% of our stakeholder who attended our May 2019 events were satisfied (62%) or very satisfied (15%) with the remaining 23% neutral

¹⁰ 77% of our stakeholder who attended our May 2019 events were satisfied (62%) or very satisfied (15%) with the remaining 23% neutral

Energised engagement service

As the number of customers connected to our network increases, we want to ensure that we are tailoring our services to meet the needs of not only those in the application process but also our energised customers. As more non-firm connection arrangements are being introduced, future customers will require regular and greater detail of information relating to network constraints and sufficient notice of outages. Based on feedback (see Appendix 1) we are proposing to provide an energised engagement service.

Stakeholder Ask

During our February 2018 event we asked stakeholders about our ambition for the energised stage of the connection process. Most stakeholders (61%) felt neutral about SHE Transmission’s level of ambition towards the energised stage for T2¹⁴. This may be because most had not reached that stage of a connection before. However, of those that had, one stakeholder said they wanted to see much more clarity on what outages were likely post-connection. We also asked what customers would use a post-connection service for, with over 85% opting for outage planning and 80% for curtailment assessment¹⁵.

Stakeholders also asked whether there is the opportunity to accelerate outages. When we presented our proposed new tailored products and services to customers in May 2019, 77% were satisfied with the initiatives introduced welcoming the proposed outage solution product, especially in light of the serious implications of outages for customers. The appetite for this product was also apparent in the stakeholder feedback received during our round table sessions at the recent National Grid ESO customer seminar event in Glasgow (Nov 2019).

Policy Initiative: Energised Engagement Service

Under our current obligations, we provide final notification of a planned outage to the ESO one year ahead. We also provide outage plans to customers upon request. During RIIO-T2 we are proposing to develop and introduce a new energised engagement service which will include providing customers with indicative* outage plans for local outages ('local' means electrically local to the connection which would not cause a wider system constraint), relating to their connection, up to 5 years in advance, irrespective of where they are in the in the customer experience cycle. Customers with non-firm arrangements would also be able to request network constraint data specific to their connection, which it is envisaged will be provided through the online portal. Our connected customers will have a dedicated contract manager and, following full implementation of our proposed digital tools, will be able to access all the information and services relating to their connection through the online portal.

**The 5-year rolling local outage plans will be provided on an indicative basis until plans are confirmed with the ESO one year prior to the planned outage. The plans may be subject to change and will not form any legally binding commitment or obligation.*

Benefits

We understand that outages can disrupt the business of our connected customers. By providing more access to long-range tailored data and engagement, we will provide customers with sufficient information to plan for this disruption as early as possible and consider potential options to minimise impacts, where possible.

We continue to work closely with National Grid ESO under the network access policy to ensure outages are delivered as economically and efficiently as possible for the customer and GB consumer.

New product: Outage solution

A new 'outage solution' product will provide customers with the option to apply and pay for an accelerated outage where this has no wider adverse impact upon network operation, other customers or the GB consumer (for example by paying for staff overtime/additional resource requirements to meet longer working patterns and shorten outage periods); or to have a temporary non-firm alternative connection arrangement in place (for example, by temporarily connecting to an alternative part of the network through ANM).

The customer would cover any extra costs (above those already planned to be spent under the Networks Access Policy) associated with acceleration of the outage or alternative connection arrangements.

It should be noted that we will consider all requests to accelerate a planned outage (longer than one month), when it is safe to do so and will work closely with the ESO to ensure that any changes to outage plans do not disrupt wider outage plans throughout GB.

Renew Service

Since the introduction of the renewables obligation¹⁶ in 2002, the amount of renewable generation connected to our network has grown significantly. By the end of RIIO-T1 we will have over 8GW of generation connected to our network. During RIIO-T2 we expect some of those who are have been connected to our network for some time may wish to review their connection solution for several reasons, such as re-powering their generation site, re-designing or de-energising their connection solution. To ensure that energised customers remain connected via the most optimal solution we are proposing to introduce a new renew service and product.

Stakeholder Ask

We want to ensure that we are ready to support our connection customers looking to renew their connections when their assets reach the end of their operational lifespan or where changes are required. In preparation for RIIO-T2, we conducted an online consultation on how wind re-powering could impact our network in the future; this was included in our future energy scenarios and suggested there could potentially be an additional 37MW of capacity during RIIO-T2¹⁷. When we asked customers what they would use a post connection service for, 26% said they would use this for design reviews¹⁸.

Policy Initiative: Renew Service

Throughout RIIO-T2 we will proactively review every renewable project directly connected to our network to ensure the connection solution remains the most optimal solution. The efficiency of the connection may have changed since the customer first connected to our network for example due to a new innovation in our network or new network reinforcement. If we identify a more optimal solution, we will approach the customer to apply for a connection renewal.

Benefits

Ensuring customers remain on the most optimal connection solution will ensure that their project and our network is able to perform as efficiently as possible. For example, knowing whether a customer is going to re-power, increase their capacity or de-commission their project will allow us to plan our network in an economic and efficient manner.

New product: Connection Renewal

We are proposing that a new 'connection renewal' product is available for customer via the online portal which will allow customers to engage with us on renewing their application.

Conclusion

When we presented our proposed new tailored products and services to customers 77% were either very satisfied or satisfied with the initiatives introduced.

We believe implementing our new tailored services and products in RIIO-T2 will result in customers arriving at the most optimal connection regardless of the customer's project type or size. We will continue to assess and review our products and services throughout RIIO-T2.

The table opposite demonstrates which stages of the customer experience our proposed Policy initiatives will improve:

Table 3: Tailored Connections Services Vs. Customer Experience Stages

Stage	Ambition 2: Tailored customer	Policy initiatives 2.1 Offer in principle	Policy initiatives 2.2 Queue management	Policy initiatives 2.3 Energised	Policy initiatives 2.4 Renew
Scoping	✓	✓	✓		
Application	✓	✓	✓		
Connecting	✓		✓		
Energised	✓			✓	
Review	✓	✓			✓

¹⁴ Results from our Feb 2019 workshops and March 2019 webinar

¹⁵ National Grid Slid do results from 5th and 7th of March customers seminar events. Based on 77 attendees across both days.

¹⁶ www.ofgem.gov.uk/environmental-programmes/ro/about-ro

¹⁷ www.ssen-transmission.co.uk/information-centre/industry-and-regulation/future-energy-scenarios/

¹⁸ National Grid Slid do results from 5th and 7th of March customers seminar events. Based on 77 attendees across both days.

Stage 4: Ambition 3: Accessible connections process

Our final ambition is to ensure our connections process is accessible and that the customer experience is simple, transparent, efficient and fit for the future. Through our transition to a customer centric business, we see our role developing so that we advocate on behalf of our customers on the matters that our customers tell us needs to change within the industry.

To realise this ambition, we focus on the introduction of two policy initiatives:

- Customer advocacy service
- Customer collaboration service

By introducing these policy initiatives in RIIO-T2, we believe the connection process will be as accessible as possible whilst enabling the policy initiatives from our tailored connection services and solutions and optimal connection ambitions.

Customer advocacy

As we enter a changing energy landscape (including Ofgem’s significant code review¹⁹ and BEIS’s energy code review²⁰) in RIIO-T2, we want to ensure that we are neutrally representing our customers and that customers are aware of the market opportunities available. Ensuring they are not omitted from any policy changes, debates or opportunities, we are proposing a customer advocacy service.

Stakeholder Ask

We learned from our experience during RIIO-T1, that the considerations of smaller parties such as local community projects were not factored into the industry policy development over the period and they were experiencing “consultation fatigue”. We also discovered that our larger commercial customers had market insights which we were not aware of and that could help us prepare for future connection opportunities.

During RIIO-T1 we facilitated several events²¹ in response to customer feedback, to ensure customers were aware of standard industry practices. We also engaged with customers to deliver commercial innovative solutions and to feed into industry policy change. During our RIIO-T2 development process, stakeholders also asked us for ways to improve industry frameworks and policies on their behalf. When we asked our stakeholders about our accessible policy initiatives 74% were satisfied²².

Policy Initiative: Customer Advocacy

Our new customer advocacy service aims to provide customers with up to date with:

- **Industry policy changes:** including targeted events to educate customers on current industry practices, seeking feedback on policy change and advocating on behalf of customers (for example from ENA workstreams, Ofgem and Scottish and UK Government).
- **Market opportunities:** we will horizon scan and make our customers aware of any new connections’ services, market reforms or access opportunities. For example, the ESO could offer a flexibility service for small DG customers during a black start event or the government has announced a new subsidy.

Benefits

By acting as an advocate for our customers, representing their views and keeping them up to date with market opportunities, we will ensure they are included in any policy changes, debates and opportunities as we transition towards a smarter and flexible energy system.

Customer collaboration service

During the scoping stage of the customer experience, a customer may not be able to progress with their application at that time as the project is not yet viable. We want to ensure that we are collaborating with customers to enable connection opportunities for them in the future. To achieve this, we are proposing to introduce a new customer collaboration service in RIIO-T2.

Stakeholder Ask

In our stakeholder engagement prior to and during the development of our Business Plan, our Stakeholders asked us if there was any way we could enable collaboration opportunities between customers and support local communities. When we asked our stakeholders about our accessible policy initiatives 74% were satisfied with stakeholders recognising the value of collaboration between customers and industry parties.

Policy Initiative: Customer Collaboration Service

Our customer collaboration service aims to enable greater collaboration between ourselves and customers and between customers. To achieve this, we propose to introduce:

- A ‘register interest’ feature on our availability map allowing customers to provide details of their potential projects and whether they are interested in co-location and/or consortia opportunities between customers, for example, in a constrained area of the network it may be prohibitively expensive for a wind project alone to progress reinforcement; however, combined with other wind projects, or another generation technology such as marine, storage or solar it may become economically viable. Our proposals could also consider options and opportunity for already connected customers to collaborate.
- A customer forum page on our website for customers to discuss key topics providing an area for customer knowledge and understanding to be enhanced. Areas of interest and debate for customers will provide greater insight, pinpointing which topics are of interest to customers and where we can make improvements to our services.

This will also provide us with additional data to better understand where our customers want our network capacity to increase. This can be referenced in the annual Networks Options Assessment process for the ESO.

Benefits

By enabling collaboration between customers via either co-location or consortia this will ensure that our network is being utilised as efficiently as possible which will provide an overall saving the GB consumer. The collaboration service will allow us to monitor and assess customer expectations and activities, providing us with additional data to ensure we plan our network as efficiently as possible. It will also allow us to ensure we are meeting customer expectations via the forum page.

Conclusion

The policy initiative for our final ambition aim is for SHE Transmission to provide a forum for knowledge transfer and collaboration between ourselves and our customers and to take on an advocacy role, acting on behalf of our customers to affect industry change where current processes are deficient or represent barriers to connection. By ensuring customers are aware and can access market and connection opportunities, we ensure the customer experience is simple, transparent, efficient and fit for the future. This ambition will also allow us to monitor and assess customers’ expectations and activities providing us with invaluable data to ensure we plan our network efficiently as possible, optimising grid capacity as we transition to a smart flexible system, providing an overall benefit to the GB consumer.

Table 4: Accessible Connections s. Customer Experience Stages

Stage	Ambition 3: Accessible connections process	Policy initiatives 3.1 Customer advocacy service	Policy initiatives 3.2 Collaboration service
Scoping	✓	✓	✓
Application	✓	✓	✓
Connecting	✓	✓	✓
Energised	✓	✓	✓
Review	✓	✓	✓

¹⁹ www.ofgem.gov.uk/electricity/transmission-networks/charging/reform-network-access-and-forward-looking-charges

²⁰ www.gov.uk/government/publications/energy-network-codes-review

²¹ We ran events on securities and liabilities (Nov 2018, March 2019) and Transmission Use of System Charges (May 2019)

²² 74% of our stakeholder who attended our May 2019 events were satisfied (65%) or very satisfied (9%) with the remaining 26% neutral

Stage 5: Measuring and reporting on performance

The size and scope of future connection customers in the changing energy landscape is uncertain. We want to ensure that we continuously improve and adapt our services and products for our current and future connections customers as we transform to a customer centric business in RIIO-T2.

Quality of customer experience

We have used our NoS FES in addition to the wider system scenarios to plan our business activities for RIIO-T2. These scenarios are based on assumptions meaning there will always remain a level of uncertainty as to what type of customers will connect to our network in the future. In RIIO-T1 we have seen a significant shift in the scale and rate of new technologies advancing and we must ensure that the processes keep up and adapt to meet that everchanging customer landscape.

Customers' expectations of the TO are high, for example they expect a service which allows for various flexible options to be explored. This is demonstrated by 92% of customers being satisfied with the flexible products and services we have proposed in our draft Business Plan and continued to develop for our final Business Plan. We are transforming from our traditional role of TO which has an indirect relationship with customers to a directly customer focused business.

This is a **behavioural and cultural change** for the SHE Transmission business; we need to ensure our business decisions and actions are dedicated to delivering and prioritising good customer service, which can range from a more probabilistic planning approach from our connections engineers to providing a post connection service from our contract managers.

How success will be measured: our proposal of placement survey questions

We believe customers and their feedback is central to measuring our success in RIIO-T2, and therefore to measure our performance we must gather that qualitative information through a separate targeted quality of connection survey for customers using our products and services. We are proposing that our success is determined by measuring customer's experience with short satisfaction surveys throughout **each stage** of the customer experience.

Following submission of our draft Business Plan we are engaging with Ofgem, the ESO and other TOs to develop an aligned process for transmission connection customers across GB. TOs should be measured against their previous performance rather than against each other, ensuring that even those at the top should be striving for continuous year on year improvement.

We are proposing that the survey would be automatically issued upon the completion of each stage of the customer experience with a follow up phone call from their contract manager to

discuss their experience, and then annually post energisation. The questions issued to customers will be targeted depending on the product or service involved in that customer experience stage. For example, the scoping stage question will focus on the information provision which is vital to completing that stage.

At every stage the customer will also be issued with a generic service satisfaction survey question to measure overall performance at each stage of the customer experience (an example survey is attached as appendix 3). The quick and simple nature of the customer survey, combined with our dedicated contracts managers aims to encourage a high response rate from customers. This type of placement survey is used globally to measure customer satisfaction by companies such as Netflix, Uber, Sky and Skype.

The placement survey will provide us with data, in real time upon the completion of each stage in the customer experience to ensure that we are meeting customer expectations at each stage of the process. The data will allow us to pinpoint areas of improvement and adaptability. This will also provide KPIs to measure the performance of our connections team and provides an incentive to change behaviour to improve customer satisfaction.

Stakeholder feedback

We asked our customers for their feedback on the placement survey questions. 48% of stakeholders²² agreed with the proposed placement survey question to measure customer satisfaction with stakeholders being generally supportive of a survey which covers each stage of the customer experience. However, opinion was divided, with almost half (44%) describing their position as 'neutral'.

We consider the feedback from stakeholders to be reflective of the infancy of our proposal. Before implementing the survey, we would work with stakeholders and market research experts, to develop and test the design and methodology of the survey.

The placement survey data, alongside customer feedback from events, the online portal, customer forums and from our contract management interaction, will provide us with feedback to ensure we continuously improve and adapt our products and services throughout RIIO-T2 to meet customer expectations.

Working together with National Grid ESO

National Grid ESO's role during the connections process is focused on processing the applications and contractual arrangements with the customers or relevant DNOs and ensuring compliance with the Connections Use of System Code (CUSC) for associated charges (including securities and liabilities) with the connection, checking the quality of the TO's connection design against technical design standards and investment planning co-ordination and agreement, as well as associated underlying methodologies²⁵.

Any survey should clearly distinguish between the role of the ESO and the TO, ensuring that both the ESO and the TO are not rewarded and/or penalised for actions undertaken by the other party. The quality of customer experience surveys should enhance the TO and ESO collaboration to deliver the optimal connections solutions for the end customer.

Measuring our success conclusion

Our proposals will ensure that we measure both the timeliness of our connections offer and the quality of the customer experience. Combined, the proposals will ensure we continue work together with National Grid ESO, to meet customers high and evolving expectations for connections throughout the price control period, whilst driving a behavioural and cultural change in our business ensuring the customer is at the forefront of our considerations.



²³ 92% of customers who attended our May engagement events were supportive of the optimal solution initiatives the remaining 8% were neutral.
²⁴ 48% of our attendees at our May event agreed with the placement survey questions 44% were neutral and 8% disagreed.

²⁵ Please see STCP: 16-1, 17-1, 18-1, 18-2, 18-3 for a full description of the role of the ESO in the connections process

Connection Policy Ambitions Conclusion

Following on from our RIIO-T1 experience, our business has begun to transform from the traditional role of a TO which has an indirect relationship with customers to a business directly focused on our current and future customers. The ambitions set out in our RIIO-T2 Commercial and Connections Policy, aims to provide tailored solutions and services which are optimal to both the connecting customer and the wider GB energy consumer.

Led by our stakeholders, we have proposed three main ambitions to deliver during RIIO-T2:

- optimal connections solutions;
- tailored connections services and solutions; and
- an accessible connection process.

To deliver these we have developed clear Initiatives that impact throughout the customer experience.

Implementing our connections ambition, alongside the proposed connections performance monitoring measures for RIIO-T2 will deliver the optimal connections solutions for customers now, whilst ensuring that the quality of our service continues to be fit for future connection customers. Implementing our Connections Policy Ambitions will facilitate the transition to a low carbon economy by continuing to provide a route to market for low carbon technologies throughout RIIO-T2 whilst optimising network use and minimising the impact on the GB consumer.

During RIIO-T2 we will continue our transformation focusing on the solutions and services we are providing to customers. Our Connections Policy Ambitions for RIIO-T2 are based on the current industry framework including codes and standards.

During the RIIO-T2 period Ofgem and BEIS are undertaking significant code reviews²⁶ which could have a significant impact on SHE Transmission’s business plan. The impact of these code reviews is uncertain²⁷, however, we will continue to engage with both Ofgem and BEIS to understand the potential outcomes and impacts of these code reviews.

	Indicative timeframe for implementation Short/Medium/Long term
Ambition 1: Optimal Connection Solutions	
Capacity Availability Map	Short
Curtailment Calculator	Medium
Connections Cost Estimator	Medium
Ambition 2: Tailored Services and Products	
Offer in Principle	Medium/Long
Queue Management	Short
Energised Engagement & Outages	Medium
Renew	Short
Ambition 3: Accessible Connections Process	
Customer Advocacy	Short
Customer Collaboration	Short/Mid

Appendix 1: Stakeholder feedback

We have gathered feedback through the following engagement methods:

- Bi-lateral discussions with connections customers and National Grid ESO
- Online communication including a consultation on our website and via email
- Targeted face to face events in February, May
- Targeted online webinars in April and May
- Attending industry events: National Grid Customer seminars, National Grid RIIO-T2 events, Scotland OC2 forum and All Energy.

The below table provides example of customer feedback from the above engagement and how this has fed into our policy ambitions and initiatives:

Stakeholder feedback	Our plans (Policy Initiatives)	Connections Policy Ambition
"Look at grid capacity availability and make this available to developers who could then tailor renewable offerings where capacity exists currently, without the need to reinforce the transmission network."	Equipping customers with digitalised information	Optimal Connections solution
"... If we knew in advance this area would have capacity over the next five years, we would be able to plan for that accordingly. We can see the capacity, but that capacity is virtual. Connection flexibility is crucial."		
"Let applicants know the feasibility and suitability of their connection before application."		
This is vital for battery storage customers who need to know the costs for sites."		
"I think SSE have listened and they're going to put a process in place. The data that will be on the portal is critical, but there are assumptions in there and vague descriptions. They've taken on a challenge in keeping that live with so many people in the background. I'm hoping that the developers will realise that SSE will be doing their best and that things change over the course of a project – there might be outages, or landowner disputes. It's a bit of a moving target, and keeping the data fresh in the system will be a huge challenge."		
"All these areas I would support. The drive for an online calculator and that sort of thing is really good. The challenge is working together as TOs, ESOs and DNOs."		
"About the tools, if the online systems are self-service, it relies on the information being fresh and current. Your existing capacity maps take too long between updates; it's every six months or a year. It's not useful if it's out of date; the information needs to be there straight away."	Online Portal	Optimal Connections solution
"It is good to see that there will be a cost estimation tool and an expected curtailment calculator. But we need to know quickly. Those tools are needed to work out budgets and as a small company, that can save us a lot of money. There's no time to trawl through everything looking for the information you need."		
"Customers would like to be kept up to date on their application, what stage it is at and what works has been completed."		
"collaboration! - greater collaboration during all stages of the process between all parties – customer/ DNO/ TO/ ESO."		
"There is an issue with the level and detail of information available. We regularly have to go back and query information because it isn't always accurate. Even when you can find the right people to speak to, then it can be quite slow. It could be over a week before you can hunt down the information you're looking for."		
"It's not SHE Transmission's fault, but they have to go through National Grid. The process is invisible and agonisingly slow. It can feel like going through treacle. Is there anything you can do about that? The process is quite rigid. It needs more transparency."		
"A simple summary sheet at the front of connections offers outlining who is doing what in terms of construction and planning and who is paying for what would be useful."		
"Online portal where customers can login to update application see documents, changes in costs/ timeframes etc."		
"We could be sharing documents between the various partners in a project team, for example, the contractors may need access to some documents on the portal. I would be interested in ways to innovate and improve, I would be open to discussions."		

²⁶ www.gov.uk/government/publications/energy-network-codes-review

²⁷ The significant code review could impact the business models for SHE Transmission's already connected customers and future connection customers. For example, an increase in costs could drive disconnection of already connected generation or a decrease in costs could cause a spike in connection applications and works in the future. Similarly, the energy code review which is not only looking at technical design standards but the whole energy industry framework could have an impact on the role of all TOs and in turn business plans and the price control.

Stakeholder feedback	Our plans (Policy Initiatives)	Connections Policy Ambition
"Customers do want a choice when they are connecting; non-firm arrangements maybe viable if they cost less and may be worth the risk especially for battery customers."	Offer in principle	Tailored connections services
"[I require] access to designers and willingness to adopt flexible alternative designs."		
"collaboration during the offer assessment stage and ability to iterate the requirement (within reason) to prevent the need for multiple applications."		
"Rigidity of application process verses offering some flexibility on timelines to offer and applications costs to make an offer (determined during scoping stage."		
"I don't think reducing the timeframe for an offer from three months is necessary as long as you know what it is in advance. However, some customers may be driven by shorter timescales. The important thing is flexibility."		
"I like the idea of the offer in principle in terms of giving the value proposition; it's a window. Maybe part way through a project, it allows you to put forward a proposition. It should be a consistent thing."		
"An offer in principle is a great idea for when you haven't formulated plans yet; when it's in development but the end connection is not ready."	Queue Management	Tailored connections services
"That's a great point. The challenge though is that projects are based on applications not viability. That's a problem we've got to work out together as an industry and more engagement on this is key."		
"... if a project is not progressing allow others to move forward."		
"Timelines: A summary of developer vs. SHE Transmission timelines would be useful to make expectations clear of both parties: if there are any delays transparency is key and let customers know as far in advance, so they can alter their own plans. It would also help customers understand when SHE Transmission is likely to incur significant costs."		
"Could it be counter intuitive to disclose capacity? You could have a mass influx of developers, rather than in other areas."		
"Continued engagement regarding project timelines and project spend."		
"The queue management is interesting. When a development is stuck in the planning stages and you've got consent, you end up having to compress the construction period. When you contract construction, that's when mistakes get made. You can't influence the planning process. So it needs some flexibility and it's good that you're recognising that..."		
"There has been work on queue management in T1. There's a lot of sensitivity. Collaboration and working with developers is key."		
"We have done a couple of applications. Some flexibility regarding capacity would be good. If we dropped capacity, some flexibility would be good to iterate the requirement so that others can use it."		
"...if a modification is required – even a small one – then you have to start all over again which doesn't seem fair. Two months might be sufficient for a reduction in megawatts, for example..."		

Stakeholder feedback	Our plans (Policy Initiatives)	Connections Policy Ambition
"A flexible connection may need to be extended into a flexible outage plan. Surely you have to have an equal amount of flexibility in term of outages."	Energised engagement service	Tailored connections services
"longer term outage notification enabling user choice on works to ameliorate outage impact including user funding of design changes if necessary."		
"A product which could allow customers to condense outages (for example paying for overtime or allowing an on/off arrangement)."		
"The rules state that the generator should not really communicate with the TO directly without going through the SO, National Grid. So all of our processes are geared to interface with NGENSO. However common sense and practical approaches mean we do interface with them and it is to everyone's benefit. The most important thing for us in control is to know about any changes as soon as possible ... The biggest issue generators face is that they often cannot determine the impact of an outage without asking a lot of questions – the more questions required, the more chance of someone being left out of comms, or of misinformation. More detail upfront detailing the scope of outages might help with that."		
"Outages are really serious for developers as they cost the companies a lot of money. When it comes to outage solutions, I'd hope the intention is to engage with construction companies to accelerate the works and shorten the outages. If you engaged with your construction partners early, you could get innovative ideas on how to shorten the construction period."		
"Planning a large project can mean knowing 4–5 years ahead of an outage. What would be the way to optimise that advanced notice, how early is too early to start engaging with contractors?"		
"Outage planning is becoming more fixed, so we need to break down the barriers."	Customer Advocacy	Accessible connections process
"I think both 'supporting thriving communities' and 'connecting for society' are important. Removing barriers in communities opens and enables other things to happen. Scottish Government commitments for social equality and access are important here."		
"Reviewing industry frameworks for possible improvement and fighting for ways to improve how the industry works, is clearly a good idea." Infrastructure / engineering representative."		
"Where do you draw the line between the role of a TO and a normal commercial operation, in terms of customer advocacy, for example? Some of these could stand outside the role of the TO."	Collaboration service	Accessible connections process
"A more open process would be great, collaboration across the industry."		
"... They have a tidal energy project and they're planning to put an Electric Vehicle (EV) charger onto that. How many more of these applications might be possible? We would very much want to work with the right organisations to enable that. There are opportunities that would be good to talk about."	Quality of connections incentive	Measuring success
"Firstly, it's important to align things with National Grid. With the second one, are you encouraging some kind of trading behind the meter of capacity? You have to think practically."		
"Uber and Netflix are very simple, but this is a complex process. I'd be happier having someone I could call who could sort out the problem."		
"You've got to be able to deliver it, but still demonstrate what the customer wants. This helps justify the money you are allowed to spend so that Ofgem allows it, it legitimises it."		
"If it's not said by your stakeholders, then it's not done because shareholders won't spend money on something if they don't know it's wanted."		
"The survey questions need more meat on the bone."		
"It's easier to get the feedback after each stage progressively. Sometimes it's a month afterwards, and you've forgotten – it's hard to go back to it."		
"In general, it sounds quite positive; it's opening a door and not closing it."		

Appendix 2: Getting ready for RIIO-T2

During our RIIO-T2 engagement we received feedback from customers from which we designed policy initiatives for RIIO-T2. Upon review we decided that we would challenge ourselves to deliver these policy initiatives before the end of RIIO-T1 to prepare for RIIO-T2 beginning in 2021. This includes improving the CION process and aligning our charges and fees to get ready for new products and services in RIIO-T2.

CION Process

Our role as TO also includes reviewing connection solutions for off-shore projects via the Connection and Infrastructure Options Note (CION) process. The CION process is coordinated by the ESO and ensures that through collaboration between Developers, TOs and ESO, the most economic, coordinated and efficient connection option is offered. This least cost solution considers the offshore works required plus the on-shore reinforcements plus additional constraints costs caused by the connection.

This is based on the assumption that this will result in the optimal outcome for the GB consumer. However, this methodology can threaten the viability of the offshore projects due to the deferred connection date, additional offshore capital cost and planning permissions (on-shore and off-shore) requirements.

This results in the GB consumer losing out on the benefits of increased renewable generation connected to the network and a potential lost opportunity for low carbon, including a reduction in wholesale prices and less Co2 emissions.

The announcement of the Scottish Governments 'off-shore deal'²⁸ may see an increased number of connection applications for off-shore connections as part of RIIO-T2. We will ensure that the industry methodology is reviewed to ensure that the customers economic and timescales are considered in the optimal solution well as the GB consumers.

This review will include advocating for a whole life costs CBA to ensure that the GB consumer does not miss out on the benefits of offshore connections via the Joint Planning Investment Committee.

Alignment of charges and fees review

The charges and fees facing connection customers change depending on whether they are connecting at distribution or transmission or have a distribution connection which will impact the transmission system. Charges and fees also depend on where the customer is connecting as all DNOs, TOs and the ESO have different charging methodologies.

Moving into a potentially subsidy free world for onshore wind and solar, connection costs are increasingly coming under focus from customers and Ofgem in their connection access and charging review. Stakeholders have stated that they require more clarity and certainty of connection charges to allow them to produce the business cases for their projects.

To ensure that our policy initiatives, included in our optimal and tailored ambitions are implemented as transparently as possible, we will review our charges. Allowing customers to accurately estimate the costs of application fees, new products or services and Transmission Connection Asset (TCA) works which fall within the control of the TO²⁹:

1. Following development with the ESO and we propose to introduce a cost reflective application fee for the 'offer in principle' product and use the efficiency savings by reducing the subsequent formal application fee.
2. Introduce a new post project reconciliation policy to ensure that costs paid by the customers are as accurate as possible with quarterly cost updates to the customer as the project is refined.
3. We also want to ensure that the all the cost information is available as part of a plain English guide connection process guide. This will include having all the charging information in the one place combining our charging statement with the Electricity System operator for our North of Scotland customers.

In conclusion, led by stakeholder feedback, we will review the CION process and our charging methodology to ensure we are ready to implement our new policy initiatives in RIIO-T2.

Appendix 3: Example customer experience survey

The below illustrates an example of what questions could be asked of connections customers in the customer experience survey. Upon completion of each stage a customer will be sent either by SMS; email or via the online portal a short three question survey; this will also be followed up by the customer's dedicated contract manager to discuss their experience.

Please note this is an example only: if this proposal was accepted, we would consult with customers and market research experts in the design of the survey.

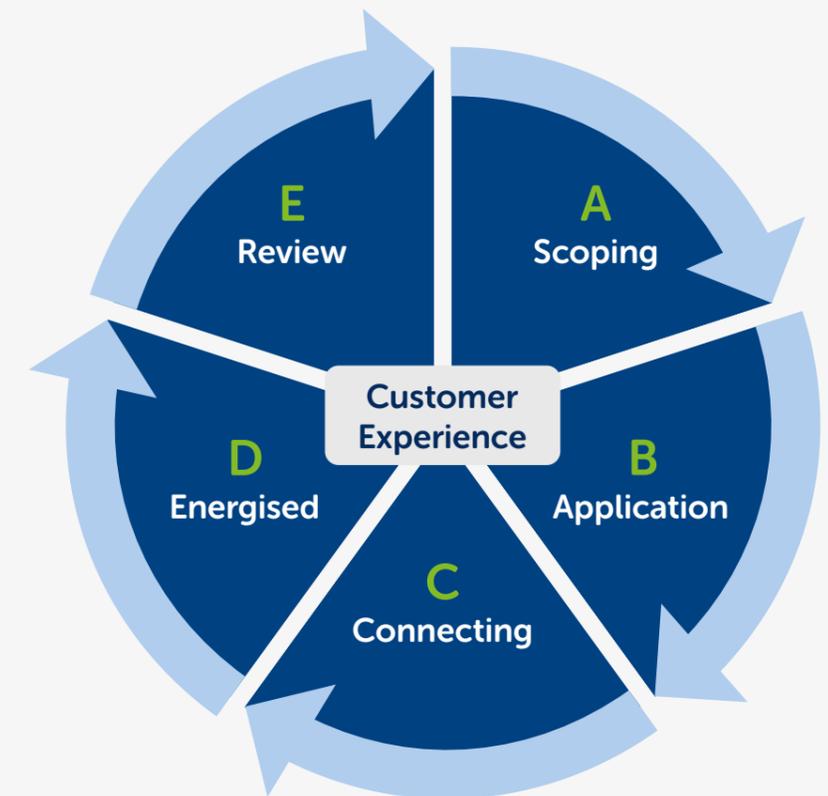
Question 1-2: Standard Questions asked at each stage

1. Overall how satisfied are you with the connections service from SHE Transmission?
2. [For those signed up to updates] How satisfied are you that SHE Transmission has engaged with you on energy policy and industry that would impact your connection?

Question 3: Tailored question depending on the customer experience stage

The third question will then be dependent on the stage of the customer experience and what the area focus is in that stage. For example, in the scoping stage information as well as engagement is important to customers before they can proceed to the application stage:

- **3A:** How satisfied were you with the **information** available from Transmission to you to prepare your application?
- **3B:** Thinking about your connection solution, how satisfied were you with SHE Transmission's **service** to arrive at the most **optimal solution** for you?
- **3C:** Thinking about your connection post offer acceptance and progressing to connecting to our network, how satisfied are you that SHE Transmission **kept you up to date on the project's** progress?
- **3D:** Thinking about your connection now it is energised, how satisfied are you that SHE Transmission kept you up to date **with the performance of your connection including outage plans?**
- **3E:** Thinking about the review of your connection project how satisfied are you with SHE Transmission's service helping you arrive at the **most optimal solution?**



²⁸ www.gov.scot/policies/renewable-and-low-carbon-energy/offshore-wind/
²⁹ We will work with the ESO to ensure customers can estimate their securities and liabilities and Transmission Use of System charges using our online calculator from our heatmap. These charges are out with the TO's control although the costs input into the calculation put the TO's role central to the fees calculations



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