

SSEN DISTRIBUTION RIIO-ED2

CONNECTIONS STRATEGY

RIIO-ED2 Business Plan Annex 10.2



Scottish & Southern
Electricity Networks

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EXECUTIVE SUMMARY

Part of our role as a Distribution Network Operator (DNO) is to provide connection services to existing and future customers making it easier for customers to connect on to our network whilst ensuring we are fully prepared to accommodate future capacity requirements including the anticipated increase in Low Carbon Technology (LCT) connections in RIIO-ED2 and beyond.

Increases in both domestic, commercial demand and Distributed Generation load will, in some cases, require investment ahead of need to ensure we continue to operate a smart, flexible, and efficient network. Further information on these investments can be found in ***Load Related Plan Build and Strategy (Annex 10.1)***.

The connection service we provide to our customers is central to our strategy to enable the transition to a low carbon economy and is underpinned by our three strategic themes for RIIO-ED2 which drive our Business Plan.

This annex covers our strategic approach to Connections within the RIIO-ED2 Business Plan. Based on our RIIO-ED1 performance and initial stakeholder feedback, our connections service is a key enabler of realising our strategic outcomes for RIIO-ED2:

- 1) A valued and trusted service for our customers and communities**
- 2) A safe, resilient and responsive network**
- 3) Accelerated progress towards a net zero world**

To achieve our strategic outcomes, our proposals will:

Deliver a valued and trusted service for our customers and communities

- Delivering improved customer service through communication, engagement, and timely delivery of our connection requests.
- Recognising that our people and their skills are critical to delivering on our commitments to our customers we will nurture and empower our employees to allow them to accommodate the digitalisation of our processes and support the increasing number of connections that will utilise flexible connection agreements.
- Removing waste to deliver a cost-efficient service through digital enhancements to allow greater self-service, competition, and improved delivery partnerships.

Deliver a safe, resilient and responsive network

- Providing our customers with optionality and choice such as flexible connections solutions and other options to ensure our networks are utilised and efficient.
- Where there is a need for network reinforcement driven by customer requests, we will strategically plan for future load growth by investing in our network at the right time.

- Developing internal process, systems, and competencies to effectively meet the growing demand of LCT requests and the drive to net zero.

Accelerate progress towards net zero

- Increase the data we share to allow our customers to 'self-serve' in a manner which supports network resilience.
- Implementing automated checking and notification systems that allow an accelerated rate of connecting Electric Vehicle (EV) chargers and Heat Pumps (HPs).
- Drive the development of products which promote and enhance the provision of flexible services.

To enable our network to allow the connection of new customers and increased demand of existing customers we are requesting net capex spend on reinforcement related to Connections requests of **£212m**. The SHEPD element of this is £53m and the SEPD £159m¹. This number is after any forecast customer related contributions have been taken into account. The Gross Capex within our plan is £288m split SHEPD £81m and SEPD £207m.

We plan to grow flexible connections and services, avoiding significant reinforcement cost and time to connect for both generation and demand customers. The use of Active Network Management (ANM) and flexible connections will continue to play a major role in our Connections business and strategy for RIIO-ED2. More information on our benefits as we transition to a Distribution System Operator (DSO) role can be found in our **DSO strategy (Annex 11.1)**.

To help our customers move towards net zero we will socialise the costs associated with domestic load increases which will support the uptake of Electric Vehicles and Heat Pumps. This aligns with recent discussions with Ofgem and other DNOs to ensure a consistent approach to the charging policies for these customers. This approach sees an increased cost in Distribution Use of System (DUoS) funded activities of approximately £22m over RIIO-ED2.

For Minor Connections customers, we will prepare ourselves for an anticipated exponential growth in EV and HP connection applications. The domestic level volumes connecting to our network may increase to approx. 250,000 new installations per year by 2028, a potential increase of 3,000% on the current volumes that have been submitted to us in 2020/21. This is key in enabling the UK to hit net zero targets and create a more sustainable energy system.

- We will implement automated systems that are linked to network information to carry out load checks and automate some minor connections quotations.
- We will target Broad Measure Customer Service scores of **9.2** or above through customer service initiatives such as our improved website and content. Customers will have a digital interface that allows a seamless transition through their connections journey as we provide an excellent, trusted and valued service.

¹ Scottish Hydro Electric Power Distribution (SHEPD) & Southern Electric Power Distribution (SEPD)

- We also commit to reducing the average number of working days we take to provide a connection offer by **10%** (based on 2019/20 performance) and the average number of days we take to provide a connection following acceptance by **1 day in SHEPD** and **2 days in SEPD** (again based on 2019/20 performance).
- **For domestic LCT customers**, we will focus on assessing our performance in this area, creating new and efficient processes, and learning quickly to provide confidence to our customers and support the transition to net zero.

For Major Connections Customers we have developed and proposed new strategies to ensure that these customers are provided an ever-improving level of service by delivering commitments and proposals that:

- Support connection stakeholders prior to making a connections application by providing accurate, comprehensive, and user-friendly information
- Deliver value for customers by ensuring simplicity and transparency through the applications process
- Facilitate the delivery of timely and economical connections that meet customers' needs

To meet these expectations, we are committed to improvements in several areas:

- Increasing communication channels and support throughout the process including the continued offering of account management.
- We are committing to increase the level of network data available to our customers to ensure that they can make informed decisions on their connection, aiming to reduce the number of 'speculative' applications by 10%.
- With our improved Customer Relationship Management (CRM) platform which will handle all applications, quotations and subsequent project delivery information and further integration with our website, we will offer greater ability to 'self-serve', through improved web application functionality, online payments, real-time tracking, and progress updates. Initial benefits of this include a saving of **23** full time personnel from the beginning of ED2 rising to **32** by the end of the period with modelled workload increases.
- We will continue to deliver an enhanced programme of stakeholder engagement, through which our customers can shape our products and services as the industry adapts and their needs evolve and change.
- Our processes will ensure that customers are advised on changes they can make to allow them to connect more quickly and more economically whilst also offering flexible and smart solutions to customers increasing the efficient utilisation of our networks.
- The implementation of more robust processes to manage the capacity secured on our networks will allow us to improve the time and cost implications of customers connecting in areas with large demand and generation requests.

To ensure that we continue to provide the level of service that our customers expect of us we are developing common metrics with Ofgem and other DNOs and have also proposed appropriate targets and performance measures in this strategy paper, to give clear visibility of our performance against our commitments.

We will develop whole system approaches including:

- Continuing to work with the GB System Operator (GBSO), National Grid Electricity Transmission (NGET) and SSEN Transmission to pursue development of more aligned planning processes.
- Engaging with property developers and other utilities (e.g., water companies) on new connections.
- Engaging with water and gas companies where major works are planned to minimise disruption.
- Seeking early sight of EV enquiries and orders to pre-empt connections and reinforcement required.
- Working closely with Local Authorities to ensure we have clear sight of Local Area Energy Plans and Local Heat and Energy Efficiency Strategies through our CVP - “Embedded Whole Systems Support Services for Local Authorities”.

In summary, our strategy detailed within this annex sets out how we intend to improve the service we already provide and details the initiatives required to fulfil the expectations detailed within Ofgem’s Sector Specific Methodology Decision document. We have documented funding requirements that allow us to achieve not only our strategic ambitions and fulfil our customers’ requests but also allow us to continue to connect new customers and facilitate the changing needs of our existing customers.

During the RIIO-ED2 period our target outputs are shown in Table 1:

Outputs Summary: Detailed below are outputs relating to Major and Minor Connections				
Output	Output type	RIIO-ED2 target	Cost in baseline plan	Consumer benefits
Time to quote/ Time to connect	ODI-F	By 2028 meet our targets and further reduce average Time to Connect by 1 day in SHEPD and 2 days in SEPD compared to 2019/20	Incremental	Faster access to LCT
Improving our connections process	SSEN Aim	Improve the end-to-end process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic LCT and minor connections customers by 2025	£10.8m	Our Open Door and Connections+ IT projects will provide more granular detail on our available capacity and real-time updates on network load. <ul style="list-style-type: none"> ▪ £4.6m cost efficiency benefits delivered over RIIO-ED2 ▪ £3.8m additional societal benefits delivered to connections customers through saved time and increased satisfaction. These benefits are attributable to the last 2 years of RIIO-ED2 once the improved process is in place. We expect these benefits to be ongoing beyond RIIO-ED2
Minor connections customer satisfaction	ODI-F	Achieve an average customer satisfaction score for connections of at least 9.2		Improved customer service and satisfaction.

Output	Output type	RIIO-ED2 target	Cost in baseline plan	Consumer benefits
Improving Service Standards for Major Connection Customers	LO, ODI-F	Deliver high quality services to our major connections customers achieving a customer satisfaction of 9/10 or above by the end of ED2		Major connection customers provided with tailored services thanks to more flexible connection options and enhanced communication throughout the connections process.
Guaranteed Standards of Performance (GSOPs)	LO	Meet our obligations under GSOPs for connections on an ongoing basis and aim to reduce the number of failures over the period	N/A	Customers receive guaranteed levels of performance for connections services.

LO: licence obligation; PCD: price control deliverable; ODI: output delivery incentive (F: Financial, R: Reputational), CVP: Consumer Value Proposition, SSEN Aim: company goal

Table 1 Outputs Summary

1. ENHANCED ENGAGEMENT



Our Connections strategy has been informed by our Enhanced Engagement programme, full details of which are set out in **Enhanced Engagement Strategy (Annex 3.1)**. Our draft plan was underpinned by three phases of stakeholder and customer engagement (illustrated in the diagram above). The details of this engagement and insights are set out in Appendix D to this Annex and provide a clear line of sight between what stakeholders told us and our Connections strategy and outputs.

1.1 FINAL CONNECTIONS STRATEGY TESTING AND ACCEPTANCE

We have refined our final Connections strategy and outputs based on Phase 4 of our Enhanced Engagement, which involved direct testing of the strategy, outputs and costs with 1,839 stakeholders through 13 events. The table below sets out the clear line of sight of the changes between our draft and final Connections strategy and outputs based on this engagement.

1.2 ENGAGEMENT EVIDENCE TRIANGULATION AND CHANGES BETWEEN DRAFT AND FINAL PLAN

The table below summarises the clear line of sight between stakeholder and consumer insights and our Load strategy and outputs. For our **draft Connections strategy** and outputs, based on phases 1 to 3 of our enhanced engagement program, we demonstrated how engagement insights had informed our outputs using these keys:



Findings converge to support proposals.



Findings generate new insights that lead to further refinement of proposal.



The proposed approach diverges from the findings.

To demonstrate the line of sight between the scope of **change between draft and final**, based on testing our draft proposals with stakeholders and consumers, we use these keys:

NEW – a new output for the final plan **ENHANCED** – the draft output has increased in ambition for final plan

REFINED – more clarity is provided in final plan

Strategy/Output	Phase 1-3 (pre-Draft)	Phase 4 refinement (post-Draft)	Acceptability
Connections strategy	<p>Stakeholders said Socialisation of costs for domestic may not be equitable for vulnerable customers, e.g., because they cannot afford the high up-front cost of investing in EVs or LCTs, rent their homes so cannot chose to install LCTs, or cannot drive because of their vulnerability</p> <p>Our response</p>  <p>In line with recent discussions with Ofgem and other DNOs to create a consistent approach to charging policies, we will socialise the costs of works required to enable the connection of domestic EV charge points and heat pumps.</p>	<p>Stakeholders said Self-serve and automation was good but that there is still a balance to be achieved with planners. They also sought better generator heat maps, ideally standardised across DNOs. Domestic customers felt connections were quite expensive and should be delivered without customers having to pay for it.</p> <p>Our response Our increased provision of data will reduce the need for planner access. We will also continue to explore offering a service providing planner support to individuals as well as via Connections Surgeries. Heat maps will be enhanced and further standardised as part of network data improvements. Aspects of domestic connections charging is under review as part of the Access SCR.</p>	79% for <i>Accelerated Progress Towards a Net Zero World</i> strategic outcome

Strategy/Output	Phase 1-3 (pre-Draft)	Phase 4 refinement (post-Draft)	Acceptability
<p>ENHANCED</p> <p>Output: Improve the end-to-end process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic LCT and minor connections customers by 2025</p>	<p>Stakeholders said Stakeholders want a full-function, self-service portal in which they can make applications, see progress updates, make payments, and see all of their projects in one place.</p> <p>Our response</p>  <p>We will integrate our CRM system with our website to create a self-service portal that provides customers with a simple applications process and instant access to information, allowing for personalisation and saving valuable time of business resources.</p>	<p>Stakeholders said 50% of customers in the south and 45% in the north felt this is a medium priority, and a further 33% in the south and 31% in the north felt it was a high priority.</p> <p>CEG said A novel, efficient and supportive connections journey will be key to unlocking LCT. It will be important for SSEN to get the online self-serve processes right.</p> <p>Our response As well as an intuitive application portal including an automated quotation system, in the first year of ED2 we will have dedicated LCT connections teams in each Licence Area.</p>	<p>Not tested</p>
<p>REFINED</p> <p>Output: Deliver high quality services to our major connections customers achieving a customer satisfaction score of 9/10 or above by the end of ED2</p>	<p>Stakeholders said Stakeholders want access to data</p> <p>Our response</p>  <p>Through our Open Door and Connections+ IT projects we will be able to provide more granular detail on our available capacity with interactive methods through which customers can find real-time updates to our network loading information.</p>	<p>Stakeholders said Most ICPs and IDNOs deliver projects across all DNOs in GB, so they seek standardisation of approached.</p> <p>Our response We will continue to engage in areas where there is scope for standardisation with other DNOs via the ENA working groups.</p>	<p>Not tested</p>

Strategy/Output	Phase 1-3 (pre-Draft)	Phase 4 refinement (post-Draft)	Acceptability
<p>REFINED</p> <p>Output: Achieve an average customer satisfaction score for connections of at least 9.2 by 2028</p>	<p>Our response</p> <p>Customers should receive the best level of service possible.</p>	<p>Stakeholders said</p> <p>50% of domestic customers in the south and 51% in the north felt this was medium priority, and a further 31% in the south and 24% in the north felt it was a high priority.</p> <p>Our response</p> <p>Our digitalisation work in the small connections area, such as additional automated quotations, will contribute to increased customer satisfaction, along with wider SSEN improvements in customer service training.</p>	<p>77% for all customer service categories</p>
<p>UNCHANGED</p> <p>Output: Meet our targets and further reduce average Time to Connect by 1 day in SHEPD and 2 days in SEPD compared to 2019/20</p>	<p>Stakeholders said</p> <p>This was a low priority relative to other initiatives amongst all customer segments apart from non-domestic customers in the South, for whom this is a medium priority, relative to other initiatives.</p> <p>Our response</p> <p> Again, customers should receive the best level of service possible.</p>	<p>Stakeholders said</p> <p>56% of customers in the south and 49% in the north felt this is a medium priority, and a further 26% in the south and 29% in the north felt it was a high priority.</p> <p>Our response</p> <p>Our plans will drive efficient delivery of minor connections.</p>	<p>Not tested</p>

2.OVERVIEW OF CONNECTIONS BUSINESS

The objective of our connections business is to provide a service for our customers which is simple to access, cost effective, and uses the latest methods and technologies to deliver projects as safely and efficiently as possible.

In 2020/21 our connections business provided more than 40,000 quotations to our customers across our North and South licence areas. The types of quotations we issue vary significantly based on the request of the customer and our proposed solution will be determined by variables such as: the number of services to be connected; the capacity of demand or generation to be connected; location; and existing network infrastructure in the area of the request. We facilitate and provide a number of different products which include:

- Budget Quotations
- Feasibility Studies
- Formal Quotations
- Flexible Connections Offers

These quotations cover a range of different types of connections including:

- New demand connections
- New Distributed Generation connections
- Increases in capacity or alterations to existing connections
- Diversions and disconnections

The end-to-end process can be split out into 5 key stages. These are:

- Pre-Application – Our website contains a lot of information for our customers to guide them towards the most appropriate type of application that they would need to submit. Customer guides, FAQs and flowcharts document the types of applications that we offer, the processes that these need to go through and requirements for them to proceed. We also have Network Capacity and Generation Availability maps which customers can use to check whether the local Grid Supply Points (GSP's) or Bulk Supply Points (BSP's) have constraints and what estimated capacity is available when connecting to them. We also offer support to our customers during this part of their journey through pre application meetings with our designers, system planners and account management team.
- Application – Once our customers have decided which connections product is right for them, we offer multiple routes for an application to be submitted. This can be done via telephone, post, email or via our web application portal. Help from our team of experienced advisers is available for any questions and if a customer has not submitted all the required information, we will identify what is missing and support them while they develop the necessary information.
- Design and Quote - Once an application is received this will be handled by the appropriate team depending on type and location of the connections. Network studies are carried out on the majority of connection types to ensure that the connection of the new customer or increase in capacity required does not adversely affect the reliability and safety of our network. Subsequent designs and costing are then gathered to be issued to the customer via email or post.

- Project Delivery – When a customer wishes to accept their quote our acceptance team will support them through this journey and then pass on the project to one of our dedicated Project Delivery teams who are based across our areas North and South. These teams will then discuss work requirements and scheduling with the customer to progress the installation and connection of any new equipment.
- Project Closure – After the physical completion of all works associated with a connections project, we will ensure that any updated network information is captured within our systems. We will also obtain feedback from our customers in order to improve our service going forward.

3.ED1 PERFORMANCE AND LEARNING

In this section we will detail the performance and lessons learnt within three main connections related incentives as follows:

- Broad Measure of Customer Service (BMCS)
- Time to quote (TTQ) & Time to Connect (TTC)
- Incentive on Connections Engagement (ICE)

3.1 BMCS

The BMCS framework in RIIO-ED1 incentivises improvements in performance through three components:

- Customer Satisfaction Survey (CSS);
- Complaint's metric; and
- Stakeholder Engagement and Consumer Vulnerability Incentive (SECV)

The incentive is symmetrical with a maximum possible reward or penalty of +/- 1.5% of base revenue (CSS +/- 1%, Complaints -0.5% and SECV +0.5%). It has delivered significant improvements in service over RIIO-ED1. As evidenced in Ofgem's 2020 annual report on DNO performance in 2018/19 "All DNO groups met or exceeded the Customer Satisfaction Survey targets, building on their performance in RIIO-ED1 to date. The industry average score is now 8.9 out of 10".

Since the start of RIIO-ED1, our customers' needs and expectations have evolved and, by working collaboratively with our customers and stakeholders, we have tailored our services to provide a better customer experience throughout the connections journey. We learned that for many of our customers, understanding the steps required in altering their existing service or, indeed, applying for a new service can be a daunting task and we developed a set of simple guides to provide the information required. This was also supported by clear communication from the outset on areas such as breakdown of costs for the work to be completed; next steps including timelines; and proactive contact throughout the stages of a connection to keep the customer fully up to date.

As digital channels became more prevalent throughout RIIO-ED1, we responded by redesigning our webpages to provide online applications with greater self-serve functions and developed a series of short animation videos to provide information and guidance for each stage of the connections journey. Our Connections Customer Satisfaction levels have risen from 82% at the start of RIIO-ED1 to 89% in 2019/20.

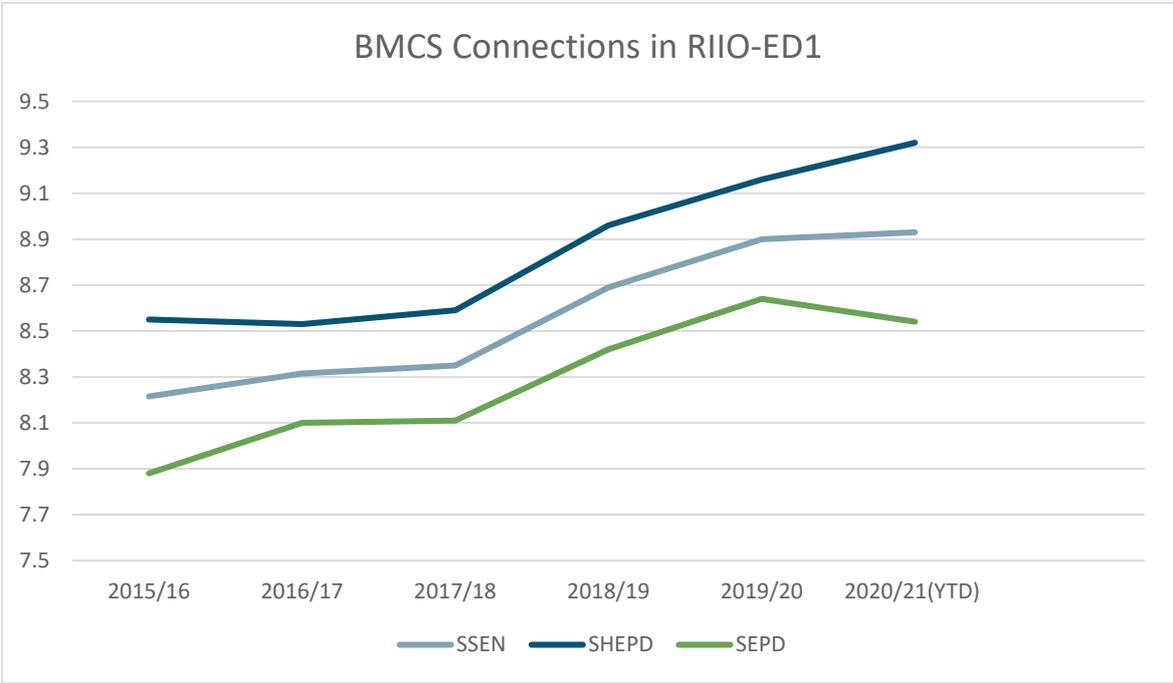


Figure 1

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
SSEN	8.22	8.32	8.35	8.69	8.9	8.93
SHEPD	8.55	8.53	8.59	8.96	9.16	9.31
SEPD	7.88	8.1	8.11	8.42	8.64	8.54

Table 2 RIIO-ED1 BMCS Scores

However, there is still work to do, particularly in our SEPD region, to improve our customer service and deliver what our customers want. Our scores were adversely affected by the COVID-19 pandemic during 20/21 because we had to prioritise key operational work with a reduced pool of staff. This has not affected the focus we have to improve. We are currently implementing a BMCS improvement plan throughout the remainder of RIIO-ED1 which will form the foundation of our ED2 performance.

This plan has been put in place to achieve the following outcomes:

- Put Connections (SEPD) in a position to enable delivery of the Broad Measure Targets across all service types by improving the lowest scoring Regions and bring performance in line with other SEPD regions.
- Provide our customers with a continuously improving service.
- Reduce the level of ‘work in progress’ connections at any given time and,
- Reduce the Time to Connect back in line for delivery in 2021/22

3.2 TIME TO QUOTE AND TIME TO CONNECT

The current TTC incentive provides a financial reward for outperformance against a target for smaller, less complex connections. Targets reduced during the price control following an update in 19/20 financial year. The financial reward is currently up to 0.4% of base revenue. While this has delivered significant performance improvements over RIIO-ED1, and it is evident that our TTQ performance has matched Ofgem’s expectations with SSEN achieving maximum incentive in this area through ED1 to date, it is important to note that the Coronavirus pandemic had a greater impact on our SEPD region. Most employees worked from home which made changes to the way they work difficult to embed and impacted on recruitment and subsequent training. The charts and tables below show performance in these areas throughout RIIO-ED1.

Table 3 TTQ

			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Time to Quote	LVSSA	SSEN	2.58	3.12	3.82	2.99	3.14	3.68
		SHEPD	2.50	3.55	4.22	2.86	3.26	3.79
		SEPD	2.66	2.69	3.41	3.11	3.01	3.56
	LVSSB	SSEN	6.02	7.22	9.15	7.00	4.33	4.96
		SHEPD	5.10	7.22	9.02	5.34	4.13	4.46
		SEPD	6.94	7.23	9.28	8.65	4.53	5.47

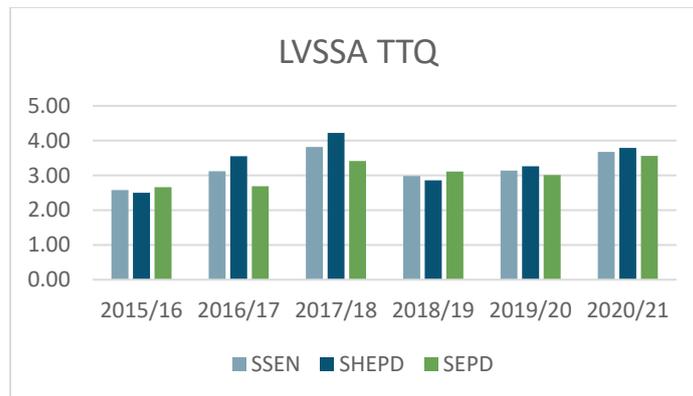


Figure 2

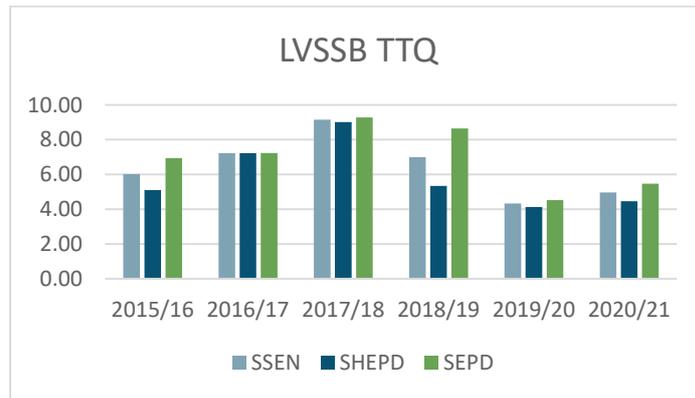


Figure 3

Table 4 TTC

			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Time to Connect	LVSSA	SSEN	32.34	37.14	36.77	26.97	23.21	30.75
		SHEPD	31.50	29.98	27.84	22.10	17.13	19.51
		SEPD	33.18	44.29	45.71	31.84	29.29	41.99
	LVSSB	SSEN	42.53	52.06	46.38	34.05	27.99	39.51
		SHEPD	40.02	40.44	28.76	27.80	21.11	24.68
		SEPD	45.04	63.68	64.01	40.29	34.87	54.35

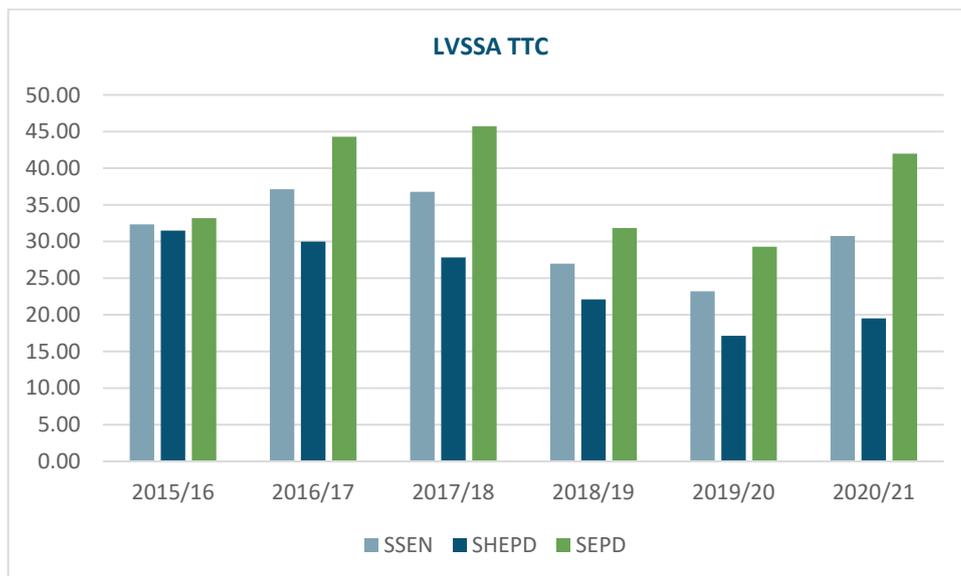


Figure 4

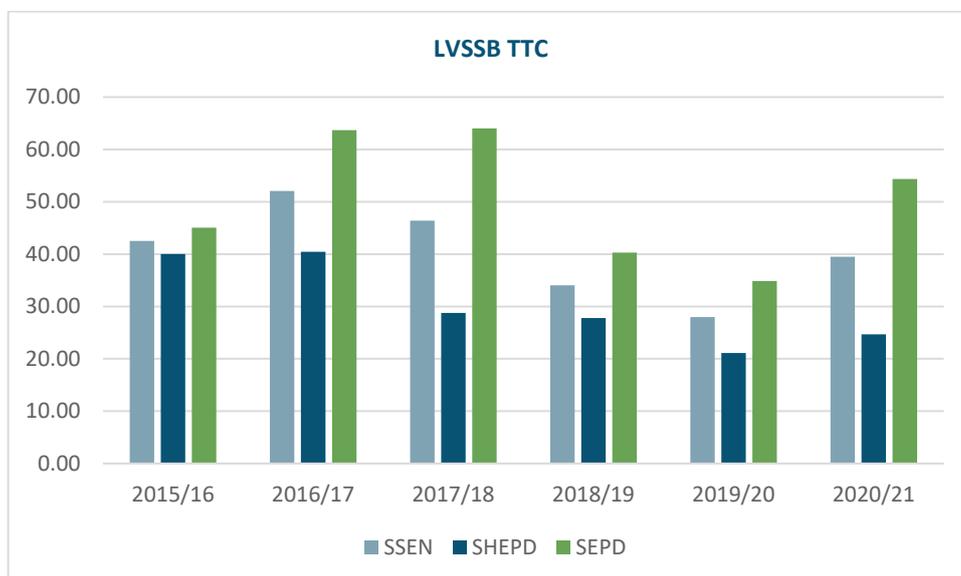


Figure 5

Broadly speaking there are 3 main issues that have impacted our TTC performance at times during RIIO-ED1.

1. Initial job assessment - Time taken from when the job is paid to a work request form being sent to the coordination centre.
2. Wayleaves - Time taken to clear any consents.
3. Customer Readiness - The customer not being ready for the work on payment.

Throughout the remainder of RIIO-ED1 we are addressing these issues through improvements to our internal processes and communication with customers. We believe we can reduce TTC further by:

1. Initial job assessment – Improving current processes for this occur more quickly targeting 48 hours maximum.

2. Wayleaves - We will be more proactive in working with 3rd parties to secure consents quickly. We will also look to give customers options at the design stage that may reduce wayleave and consenting risk through promoting a different design, but which more closely meets their requirements.
3. Customer Readiness – We will proactively communicate and inform our customers about being more ready for the work at the time of application. If the customer is looking for indicative costings, we will ensure that our online pricing tools and information is clear and simple.

3.3 INCENTIVE ON CONNECTIONS ENGAGEMENT PERFORMANCE

Throughout the first 6 years of RIIO-ED1 we have not received any penalties on the Incentive on Connections Engagement(ICE). This is due to our structured and comprehensive stakeholder engagement strategy and our commitment to delivering projects and improvements that our customers want and need as the industry adapts to rapid development and change.

In 2020/21 we engaged with 1503 stakeholders and hosted 217 engagement sessions. Our satisfaction score across all events and webinars for the year was 8.8/10 an increase from 2019/20 and we completed 27 out of 27 commitments on time.

In 2020/21 we created our Connections Expert Panel. The panel members were appointed by their peers through a volunteering and voting process. Our involvement in this process extended to seeking volunteers, spreading awareness, and facilitating the voting, however we took no part in the voting itself as this was governed by our stakeholders. A total of 33 candidates applied to be considered for the panel and 203 votes were cast resulting in the appointment of 10 Expert Panel members. The panel is made up of an equal number of representatives in both SHEPD and SEPD licence areas and covers 5 groups of stakeholders:

- Distributed Generation
- Independent Connection Provider (ICP) & Independent Distribution Network Operator (IDNO)
- Local Authority and Community Energy Group
- Housing Developers
- Commercial, Industrial and Consultants

Feedback through all of our channels and events is vital to our continual improvement of the services we offer. We have delivered consistently high numbers of commitments which have been driven by our stakeholders.

3.4 GUARANTEED STANDARDS OF PERFORMANCE

The tables below show our SLC15A GSOPs pass rates in RIIO-ED1 to date across our licence areas.

SEPD		SHEPD	
Year	Pass %	Year	Pass %
15/16	99.9%	15/16	99.9%
16/17	99.7%	16/17	99.9%
17/18	99.4%	17/18	99.9%
18/19	98.3%	18/19	99.9%
19/20	99.5%	19/20	99.9%
20/21	99.1%	20/21	99.9%

Table 5 RIIO-ED1 GSOP

At the start of 2018/19 in our SEPD area we implemented a programme of work to address and close a backlog of unmetered fault repairs due for restoration. This resulted in a higher volume of Unmetered Connections (UMC) fault repair failures being reported 2018/19. Unfortunately, this means we did not meet the 90% target in Quarter 1 and Quarter 2. While this is disappointing our focus has been on rectifying the backlog and this has now been cleared. Annually though we have met the targets required.

We are focused on improving our guaranteed standards performance and delivering our customers with a timely service. We continually review our resource levels and processes to ensure that our performance in this area improves through the remainder of RIIO-ED1 and we start RIIO-ED2 in a position to deliver an excellent service to our customers.

4. OUR CONNECTIONS OUTCOMES AND OBJECTIVES

The Connections business is central to us achieving our strategic outcomes for RIIO-ED2. This section covers our high-level approach and central objectives for the price control and sets out the proposals that are key to achieving this. Further details on these proposals can be found within the minor connections and major connections sections. We have ensured that a thorough and enhanced approach has been used to engage with our stakeholders and customers and our proposals have been created with their input. The proposals described in this paper fully align with Ofgem’s minimum requirements (Appendix A) decisions.

4.1 OUR STRATEGIC OUTCOMES AND OBJECTIVES

Following a fundamental review, the Connections business have established a central vision for the future and a series of objectives to ensure we deliver our ED2 strategic goals.

To deliver these key strategic goals we have established a number of central objectives which will allow us to track our progress and support our vision.

Provide a trusted and valued service for our customers and communities

- Delivering first class customer service through communication, engagement, and timely delivery of our connection requests. Including designated domestic LCT teams.
- Recognising that our people and their skills are critical to delivering on our commitments to our customers we will nurture and empower our employees to allow them to carry out their role to the best of their abilities.
- Removing waste to deliver a cost-efficient service through digital enhancements, competition, and delivery partnerships.

Deliver a safe, resilient and responsive network

- Providing our customers with optionality and choice such as flexible connections solutions to ensure our networks are utilised and efficient.
- Where there is a need for network reinforcement driven by customer requests, we will strategically plan for future load growth by investing in our network at the right time.
- Progress with industry leading digital enhancements and increase the data we share to allow our customers to 'self-serve' in a manner which supports network resilience.

Accelerate progress towards net zero

- Improving internal process, systems, and competencies to effectively meet the growing demand of LCT requests and the drive to net zero.
- Implementing automated checking and notification systems that allow an accelerated rate of connecting EV chargers and HPs.
- Drive the development of products which promote and enhance flexibility such as curtailment and flexible demand connections.

4.2 CUSTOMER CENTRIC SERVICES

We have translated our objectives into key actionable components or services that underpin our RIIO-ED2 plan. We have proposed what we think are the important Customer Centric Services through which all customers will benefit (Figure 7). Each of these actions are detailed in our Minor Connection and Major Connections strategy elements through this document.

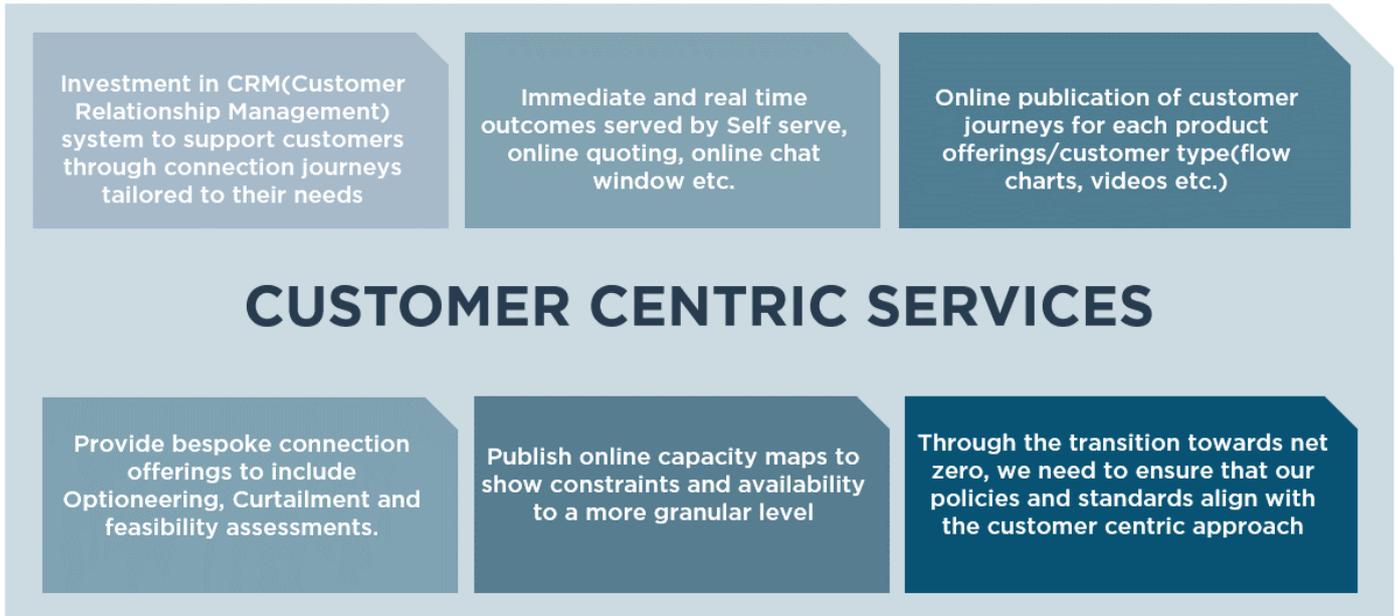


Figure 6 Customer Centric Experience

5. CONNECTIONS REINFORCEMENT

5.1 CONNECTIONS REINFORCEMENT EXPENDITURE

Our **Load Related Plan Build and Strategy (Annex 10.1)**, describes, in full, the processes we have undertaken to estimate the entire impact of this new load and generation on our network. Through this work we have estimated the allowances needed to fulfil this growth and have completed detailed cost estimates considering a range of available options and using a standardised approach where required.

The gross reinforcement required in RIIO-ED2 is £288m and this is split between SEPD £207m and SHEPD £81m shown in the waterfall chart below. These numbers include both the DNO and Customer Funded direct costs. This allowance will ensure that our customers can continue to connect new assets and increase their load requirements on our network whilst providing a safe and resilient network.

After forecasting a level of customer contribution and other adjustments our net capex values will be SEPD £159m and SHEPD £53m respectively. This cost will be recovered through our DUoS charges.

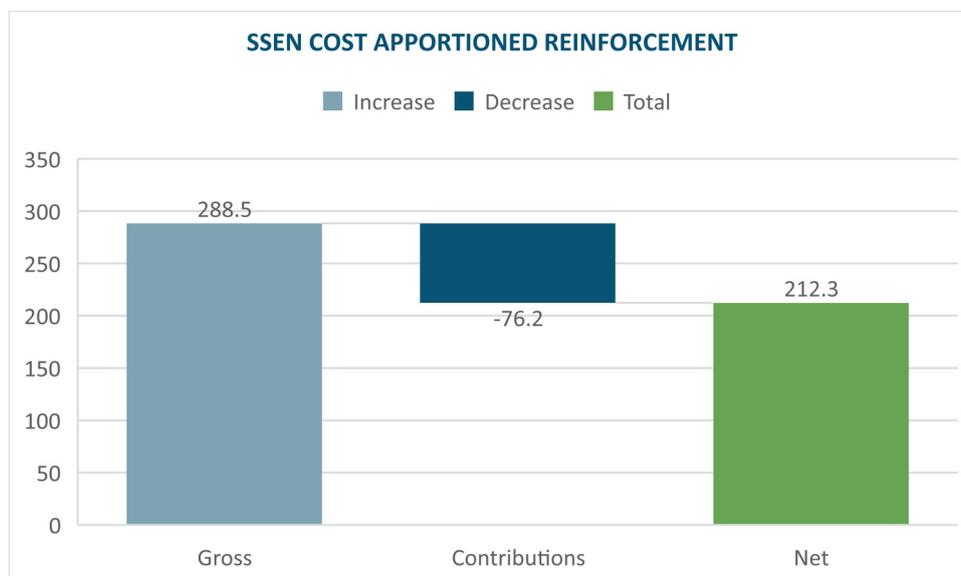


Figure 7

***Please note that the figure above includes customer funded direct costs, contributions to indirects and then oncost adjustments. It also excludes the impact of costs associated with Access Significant Code Review (Access SCR) as per the guidance to complete M30a & M30b tables. These costs are detailed in Appendix E.**

5.2 HOW DO WE CALCULATE CONNECTIONS REINFORCEMENT?

The new load can be added to our network in several ways: new connection applications; domestic EV charger installations; or increase in load requests. In many cases this new or additional demand or generation will require reinforcement works at the point of connection, not specifically via general reinforcement.

When an application is submitted by our customer, we will study the existing network, applying the new connection load in order to determine the minimum cost connection scheme. If the study identifies the need for network reinforcement, this work will be quoted as per our Connections Charging Methodology.

If reinforcement is required, generally the cost will be split between a customer funded and DNO/DUoS funded element, assessed through the application of the cost apportionment methodology within the Connections Charging Methodology Statement (CCMS). There are also scenarios where the DNO or the customer will fund the required reinforcements in its' entirety. All our reinforcement works are deemed to be costs occurred 'within the price control' and are included within the tables in C2 tab of the Business Plan Data Tables (BPDT).

To assess the full costs allocated to our customers through DUoS we add the totals of the DUoS funded and Customer funded elements and then remove the Customer Contribution from that number. An allocation of income relating to closely associated indirects, business support costs and non-op capex is then made to give a more reflective Net Cost in each financial year.

5.3 RIIO-ED2 FORECASTING

5.3.1 Overview of Approach

As Connection related reinforcement costs are solely customer driven it is difficult to forecast an accurate view throughout the RIIO-ED2 period. Customer behaviours may change rapidly as more innovative solutions to the decarbonisation of heat and transport come to market. This section sets out the analysis and forecasting we have carried out to give a most accurate view of the impact of connections on our networks.

For our RIIO-ED2 submission we have developed a baseline forecast level of Connections related reinforcement costs to include in the BPDT submission. To allow us to split an estimated cost out from our total Load forecast costs we started by analysing the impact that the scenarios contained within the Distribution Future Energy Scenarios (DFES) reports might have on our current workload.

To project the DFES impacts on to current workloads we firstly looked at the workload of connections types by market segment using our 19/20 volumes. We split this in to appropriate connections types to align to the main categories in the DFES scenarios, i.e. EVs, HPs, new developments, and Distributed Generation.

Using the Consumer Transformation as the most likely scenario we overlaid the DFES projections to give an estimated increase in workload across these segments. Using current acceptance rate levels, we converted this into an increase which was then applied to each of these market segments.

This has allowed us to develop a forecast Connections related investment that we could split out from the full Load related expenditure (LRE).

5.3.2 LARGE CONNECTIONS SCHEMES

We currently have a number of live schemes which are currently in development or delivery. These projects have been studied, quoted, and accepted by our customers and will proceed to be delivered in the RIIO-ED2 period. We have included these projects in our forecasts and have checked for any double counting within our Load and Non-Load related schemes.

Where the investment required for these projects is greater than £2m we have submitted an Engineering Justification Paper (EJP) that sets out the background and analysis completed to arrive at the solution and the outputs. This list can be found in Appendix B of this annex document. During the period between draft preparation and final Business Plan submission we have had an unprecedented increase in connections applications and offers being accepted by customers. The number of large schemes with an accompanying EJP has increased from 11 to 18. This has considerably increased our C2 tables, specifically within the SEPD licence area.

Whilst we have forecast our known large schemes, it is high likely that further schemes will develop through the RIIO-ED2 period. These projects will need to be captured through the proposed Strategic Investment ***Uncertainty Mechanism see Annex 17.1.***

The changes proposed in the Access SCR will be captured as part of our annual DFES cycle which factors in the requests experienced over the preceding year. It is therefore necessary to specify that “large impact connection requests” will be assessed for network impact immediately and funded through the UM in the same way as if they had been found through the normal DFES cycle.

5.3.3 C2 Costs

The figures below show the impact on our gross reinforcement's costs for the remainder of RIIO-ED1 and throughout RIIO-ED2 using this forecasting method (inclusive of customer funded elements):



Figure 8 SEPD Gross Reinforcement

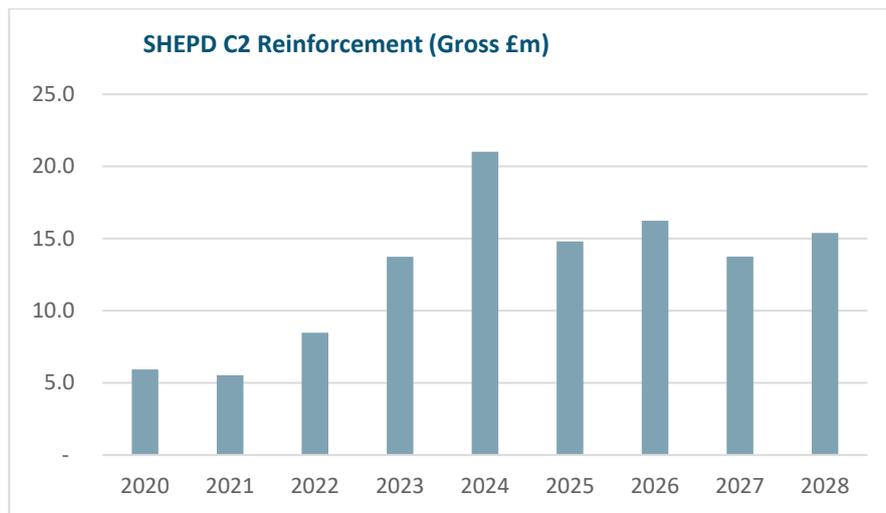


Figure 9 SHEPD Gross Reinforcement

RIIO-ED2 necessitates us to significantly scale up our activities and extend benefits to customers. We plan to grow flexible connections and services with the potential to avoid reinforcement cost and time to connect both generation and demand customers. The use of ANM and flexible connections will continue to play a major role in our **DSO Strategy (Annex 11.1)** and this Connections Strategy. However, the impact of the changes pertained in the Access SCR minded-to position suggests that we will see an appetite for short term rather than long term flexible connections and ANM schemes.

We plan to grow our flexible connections to enable low carbon technologies to connect to our network. More information on flexible connections and flexibility services can be found in our **DSO Strategy (Annex 11.1)**.

We will also design enhanced schemes where that solution is the most economical design taking a view of projected growth of demand or generation on that circuit. In accordance with the current CCMS, if we decide to design an Enhanced Scheme, the Connection Charge that will apply will be the lower of the Connection Charge associated with the Minimum Scheme and the Connection Charge associated with the Enhanced Scheme.

These approaches will deliver the most cost-effective solutions for our connecting and connected customers.

5.4 SOCIALISATION OF DOMESTIC LCT COSTS

To enable the drive to net zero we propose to fully fund works to sole use asset and elements of reinforcement that are required to facilitate the connection of all EVs and HPs to existing domestic premises which will include all domestic load increases. This aligns with recent discussions with Ofgem and other DNO's to ensure a consistent approach across the UK. Our current charging approach aligns with the requirements of the CCMS with customer funding the majority of costs associated with works to sole use assets and wider reinforcement. This change would see all customers with fuses smaller than 100A who submit an application have works funded via DUoS to increase to a 100A supply suitable for their increased demand requirement.

Changing our approach will ensure that there is a just and fair transition for all to net zero. We anticipate the funding from DUoS require to support this change to be approximately £22m. We have calculated this total based on current average costs associated with the load increases and by using the projected numbers of EV and HP installations expected in RIIO-ED2

Extent of Works Required	2024	2025	2026	2027	2028
Fuse Upgrade Only	0.82	0.86	0.93	1.23	1.25
Fuse upgrade with Reinforcement costs	0.00	0.00	0.00	0.01	0.01
Fuse upgrade with extension asset costs	1.55	1.63	1.75	2.32	2.36
Fuse upgrade with extension asset and Reinforcement costs	1.22	1.28	1.37	1.82	1.85
Total	3.59	3.77	4.06	5.38	5.47

Table 6

5.5 ACCESS SCR – MINDED TO POSITION

The numbers presented above from our C2 tables in the BPDTs are exclusive of any impacts driven by the minded to position issued by Ofgem, in June, on the following three key areas:

- Distribution connection charging
- Definition and choice of access rights
- Transmission charges for small, distributed generators

These proposed decisions will have a significant impact on the costs we will need to recover for works undertaken in RIIO-ED2. For more details on the areas that will be impacted, and our approach please see Appendix E.

6. MINOR CONNECTIONS

This section provides detail about our plans which we will deliver in the RIIO-ED2 period to ensure we provide all Minor Connections customers with excellent customer service, delivered in a timely and cost-effective manner.

Minor connections can include up to 4 new domestic connections or alterations to existing arrangements where any works required is carried out on Low Voltage apparatus only and does not require any diversion or reinforcement elements. It also includes the new connection or alteration to one single commercial unit of up to 100A per phase (69kVA). Minor connections works exclude any connections associated with multiple commercial units and those with a load requirement greater than 69kVA, unmetered connections, developments larger than 4 plots and any connections involving generation equipment.

6.1 DRIVERS FOR CHANGE

Any changes to the service that we provide our minor connections customers can be evidenced back to outputs from the two main 'drivers for change' associated with this section in RIIO-ED2, namely:

- Stakeholders - including the views of our connection's stakeholders gathered throughout the RIIO-ED1 period and through stakeholder engagement carried out in the development of this business plan. For more details on this please see Appendix C.
- Forecast uptake of LCT - Volumes of connections applications throughout the RIIO-ED2 period, predominantly driven by the decarbonisation of heat and transport as we head towards net zero targets.

Uptake of Low Carbon Technology (LCT)

Forecasting our expected increase of minor connection applications volumes, it is predominantly associated with the high numbers of LCT's in domestic properties which will include Electric Vehicle (EV) charging points and Heat Pumps (HP). We have used the outputs from the REGEN DFES Consumer Transformation data sets and reports to estimate our future volumes. These forecasts form an integral part of our business plans, and more detail can be found within our ***Load Related Plan Build and Strategy (Annex 10.1) and this Connections Strategy (Annex 10.2)***.

The impact on our network driven by the expected load growth associated with these connections will require strategic investments decisions to be made which are also detailed within ***Network as a Net Zero Enabler (Chapter 10)***.

Current application levels for domestic EVs and HPs connecting to our network are managed effectively as part of business as usual, and we are seeing trends align with the forecasted increase set out by the DFES scenarios in ED2. Currently domestic LCT falls into 3 categories which determine how they are processed:

Connect & Notify – Installer completes the IET ‘Adequacy of supply assessment’ and determines that the load is lower than 60A per phase they can complete the notification form and submit to us for our records.

Load Check – Installer completes the IET ‘Adequacy of supply assessment’ and determines that the load is greater than 60A per phase they must submit the notification form and await further information from ourselves. In this case we will assess the network and check the fuse rating of the property and either confirm that the install can continue with no works or a replacement fuse or convert the application to an increase in load to determine the further works required.

Increase in Load – Are necessary where works are required on the existing network to allow the LCT to be connected.

Between 19/20 and 20/21 there has been an increase in volumes of 98%. The table below shows the categories into which the 20/21 volumes fall.

2020 - 2021	Connect and Notify	Load Check	Increase in Load	Total
Total	5,070	2,960	360	8,390
	60.4%	35.3%	4.3%	

Table 7

Using information provided in the DFES Consumer Transformation datasets it is suggested that the total number of domestic EV chargers connected throughout the RIIO-ED2 period could be approximately 600,000 across our SHEPD and SEPD regions combined. The below data outlines a potential annual forecast for EVs.

EV Chargers	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
SHEPD	585	1,109	2,261	5,754	6,669	9,220	17,732	17,260	16,306
SEPD	2,821	22,056	45,801	50,094	63,242	117,207	116,910	117,196	22,056
Total	3,406	6,772	24,317	51,555	56,763	72,462	134,939	134,170	133,502

Table 8

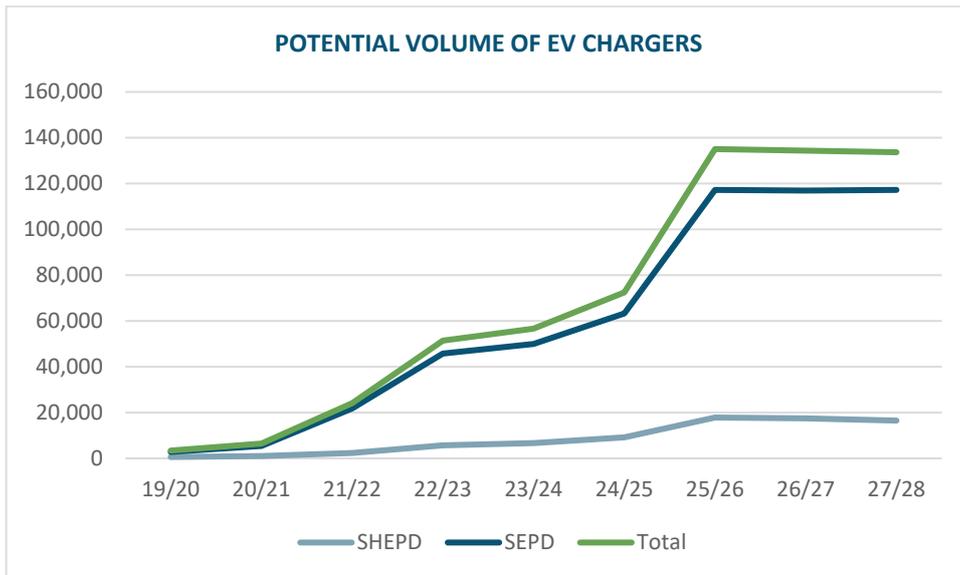


Figure 10

We could also see similar significant increases in heat pump applications with potential installation volumes of approximately 470,000. This is driven largely by government strategies and policies to reduce the impact that gas and oil-fired heating systems have on the environment, therefore. In light of recent government policy announcements these forecasts may be lower than reality however we will continue to carry out full annual forecasting as part of our DFES work.

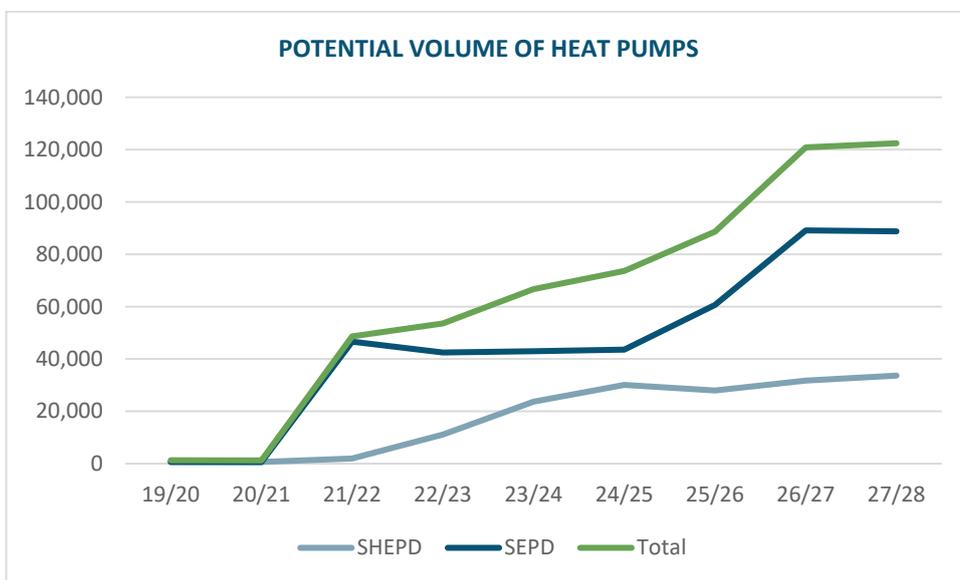


Figure 11

6.2 OUR PROPOSALS

6.2.1 BROAD MEASURE FOR CUSTOMER SATISFACTION

A large portion of our minor connections customers will be ‘one time’ customers who have decided to install LCTs at their property or are looking for a single new domestic supply to energise their new property. It is imperative that they, alongside our repeat customers, receive the best level of service possible. In RIIO-ED2 we will strive to achieve a score of at least 9.2 across all categories by 2028 for BMCS.

In order to deliver on our outcomes, we have developed a Customer Experience Programme focused on delivery in two areas: our Strategic Improvement Plan encompassing our Digital Experience and Customer Experience Strategy with focused project resource to oversee successful implementation; and our Tactical Improvement Plan which focusses on empowering our local teams to improve their existing customer journeys without corporate governance obstacles. Both approaches are underpinned by our Culture Change Programme which continues our journey to become a customer centric organisation as well as our Digital Transformation Programme. Further details on these initiatives can be found in ***A Valued and Trusted Service for Customers and Communities (Chapter 4)***.

As highlighted in section 4 we have implemented new minor connections hubs in RIIO-ED1 which will drive an improvement in the level of service provided, these hubs create small teams of local designers, support teams and delivery managers who understand the needs of our customers and can provide a streamline process that suits our customers.

For customers looking to connect their EV charger or HP in RIIO-ED2 we will be reviewing our end-to-end processes and allocating resource to create an LCT Team dedicated to processing applications and advising our customers. These advisors will be trained to provide the right advice to our customers and recognise where a customer needs further support from a vulnerability perspective.

We have had feedback from our domestic and minor connections customers through engagement sessions that we should improve the information and clarity we provide on our processes and requirements at all stages of the connections process. To address this, we will improve our website functionality and content through the remainder of RIIO-ED1 to ensure our customers are guided to the correct information regardless of the type of connection they wish to make. The work completed in RIIO-ED1 will be continually developed throughout the RIIO-ED2 period. This includes:

- A website with improved functionality and user interfaces.
- Videos, flow-charts and FAQ documents that clearly set out the customer journey for each type of connection. They will detail the expectation of the customer, DNO and any third parties. And include all the information that a customer requires to submit their application.
- Automated quotations for some minor connection and domestic LCT applications to be delivered in RIIO-ED2.
- Estimated timelines of projects and the major milestones throughout the process.
- Providing clear and upfront information to customers explaining what products and services we currently offer, the estimated timelines for each of these services and what information would be required from the customer at the application stage. Through this information and guidance customers will be able to identify where they are on the connections journey and be able to make informed decision.

6.2.2 TIME TO QUOTE & TIME TO CONNECT

During the RIIO-ED2 period for minor connections customers our target is to improve our performance by 10% in both licence areas against our Time to Quote, and by 1 day in SHEPD and 2 days in SEPD for Time to Connect against 2019/20 levels.

This will be achieved by continuing the improvements already in progress towards the end of RIIO-ED1, especially focusing on improving initial site visit timescales, earlier wayleaves discussions to influence design decisions and discussing site readiness options with our customers.

We will also do this through enhanced automation of our applications process, making it easier for customers to apply digitally will drive efficient processing of this data through integration of our website and CRM database. The intention, through the implementation of new systems and processes at the end of RIIO-ED1 and into the beginning of RIIO-ED2, is to be able to provide automated quotations for the large number of domestic LCT customers who will require load checks and/or increase in load quotations. We are targeting that this option will be available for customers to use by in 2025.

Our Connections+ project (36_SSEPD_IT_CONNS_CONNECTIONS+) will enable the capability for customers to request various types of small connections (Minor Connections, Domestic EV Charging Point, Domestic HPs etc) via an online portal. The portal will provide real time information to advise customers of whether works or further analysis will be required (more details can be found in our **Digitalisation Strategy (Annex 5.1)**).

Further development of this offering through RIIO-ED2 will allow more customers to select the required connection and go from application to payment in one seamless transaction. However, for some more complex connections or constrained networks it may still be required for the offer to be reviewed before payment can be made.

This potential to self-serve is becoming a key customer driver as the world evolves around data availability and digital interfaces, with more individuals wanting to access and gain information as and when they want it, without the reliance of human contact (set call centre hours etc). Self-service provides customers with instant access to information, allowing for personalisation and efficiency.

6.3 OUTPUTS AND DELIVERABLES

Outputs Summary: Detailed below are outputs relating to Minor Connections				
Output	Output type	RIIO-ED2 target	Cost in baseline plan	Consumer benefits
Time to quote/ Time to connect	ODI-F	By 2028 meet our targets and further reduce average Time to Connect by 1 day in SHEPD and 2 days in SEPD compared to 2019/20	Incremental	Faster access to LCT
Improving our connections process	SSE Goal	Improve the end-to-end process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic LCT and minor connections customers by 2025	£10.8m	Our Open Door and Connections+ IT projects will provide more granular detail on our available capacity and real-time updates on network load. <ul style="list-style-type: none"> £4.6m cost efficiency benefits delivered over RIIO-ED2 £3.8m additional societal benefits delivered to connections customers through saved time and increased satisfaction. These benefits are attributable to the last 2 years of RIIO-ED2 once the improved process is in place. We expect these benefits to be ongoing beyond RIIO-ED2
Minor connections customer satisfaction	ODI-F	Achieve an average customer satisfaction score for connections of at least 9.2		Improved customer service and satisfaction.
Guaranteed Standards of Performance (GSOPs)	LO	Meet our obligations under GSOPs for connections on an ongoing basis and aim to reduce the number of failures over the period	N/A	Customers receive guaranteed levels of performance for connections services.

Table 9 Outputs

6.4 INNOVATION

Achieving net zero will see an unprecedented rise in the deployment of new LCTs across the network, in many cases this will be in domestic settings with the potential for both EV charging and electric heating demand. Our existing innovation portfolio has helped to develop key learning about the impact of the technologies on the network via projects such as My Electric Avenue or 4D Heat. This learning combined with our partnership working with key stakeholders such as the Scottish Governments Strategic EV and Heat partnerships have helped to shape our understanding of the impact of these technologies on the network; where these technologies may be deployed; as well as developing appropriate interventions to help manage their impacts.

Going forward in ED2, delivering net zero and the Energy System Transition will be at the heart of our Innovation Strategy, where we will be looking to further develop our capabilities in this area. Within, our existing innovation portfolio, we have a range of projects aimed at further understanding of the impact of LCTS, including:

- Skyline – Working across the energy and EV industries in a data-driven initiative in support of the transition to net zero in the transport and energy sector to provide early visibility of new EV registrations and charge point connections to provide timely and effective network information for DNO planning whilst providing seamless experience for EV.
- Equal EV – which looks at the particular requirements of disabled drivers when charging electric vehicles. The project looks at their charging needs, potential solutions including wireless charging and also the potential for V2G to support resilience.
- Local Energy Oxfordshire – working with a wide range of stakeholders including local authorities and academics to demonstrate a local energy system with high volumes of LCTs and flexibility.

In ED2, we will continue to engage with key stakeholders across the energy value chain and look to co create further projects to ensure that we develop the knowledge we need to facilitate the transition to a low carbon economy. This will include a range of topics including further electrification of heat and transport, progressing domestic and LV flexibility and domestic storage.

7.MAJOR CONNECTIONS CUSTOMER STRATEGY

As part of our RIIO-ED2 business plan we are pleased to submit a Major Connections Customers strategy which replaces the ICE mechanism. The intention of our strategy is to ensure we provide an excellent level of service to all our major customers, that we listen and reflect on their feedback and adapt our offering over time. The industry is likely to go through huge change over the next 5 years and we must ensure we continue to adapt for our customers.

Through the development of this strategy framework with DNOs and stakeholders, Ofgem has issued high level major connections principles that underpin the baseline expectations which DNOs are expected to achieve in RIIO-ED2.

Connection Principles	
Principle 1	Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information
Principle 2	Deliver value for customers by ensuring simplicity and transparency through the applications process
Principle 3	Facilitate the delivery of timely and economical connections that meet customers’ needs

Table 10

We have reviewed each of these baseline expectations against what we currently provide and through engagement with our major connections stakeholders captured their requirements which we have then aligned to each of the three principles. The detail of how we intend to meet these principles and baseline expectations provided below and summarised in the table in Appendix A.

For the avoidance of doubt, the outputs and proposals contained in this section cover both the contestable and non-contestable activities in all relevant market segments where applicable.

7.1 DRIVERS FOR CHANGE

Any changes to the service that we provide our major connections customers can be evidenced back to outputs from the two main ‘drivers for change’ associated with this section in RIIO-ED2, namely:

- Stakeholders - including the views of our connections stakeholders gathered throughout the RIIO-ED1 period and through stakeholder engagement carried out in the development of this business plan, and
- Major Connections Customer Strategy – new framework for the assessment of how we meet key principles and baseline expectations for these customers.

Stakeholder's views

In the development of our strategy, we have carried out an extensive stakeholder engagement programme, of which the full details can be found within appendix D.

Our stakeholders have been central to the creation of our proposals. We have carried several expert panel and wider focus group session with these customers to find out what is important to them and what can we do to help them. Where our stakeholders were unable to attend our sessions, they were given an opportunity to submit their views through our online survey.

Some of the outputs from these engagements include:

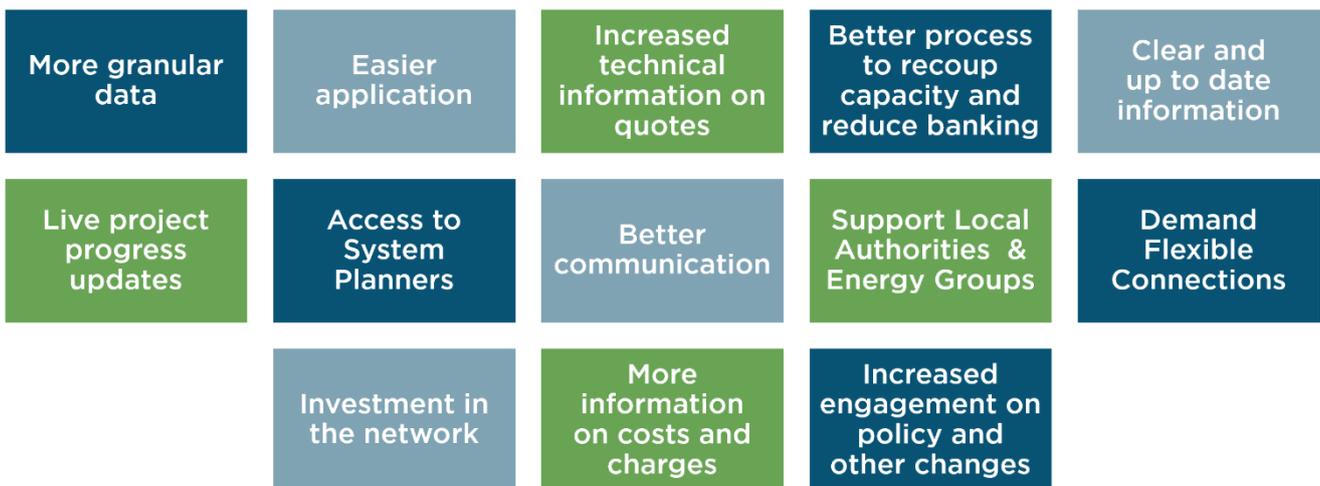


Figure 12

Taking on board this feedback, along with the baseline expectations we have developed proposals and main outputs for our major connection customers. We have reviewed our ideas to our Connections Expert Panel to get some further feedback. 100% of our Connections Expert Panel agreed with each of our main outputs relevant to their types of work.

We also asked the Panel to rank our other areas of improvement by importance to them. The results showed that the most important thing for our stakeholders was a full review of our website and the information and guidance that is published on it. Also ranked highly were the expansion of current offerings of flexible connections services at both demand and generation and improved communication and processes on how customers can connect cheaper and quicker.



Figure 13

Major Connections Customer Strategy

As detailed at the beginning of this section Ofgem have engaged with DNO’s and stakeholders to create a new framework for our Major Connections customers. Some changes to the service we provide our customers are driven by the expectations contained within this new framework.

7.2 OUR PROPOSALS

Our proposals are formed on the basis of our stakeholders' expectations for the RIIO-ED2 period. However, we fully appreciate that the industry must adapt quickly to developments and technology changes, so it is critical that we continue to engage with our stakeholders on these proposals to ensure they evolve as required.

To measure our success, we propose that a common customer satisfactions survey should be carried out by DNOs, and questions should cover all relevant baseline expectations at different stages.

Given the wider ranging scope of works and more significant external influences on Major Connections Projects to Minor Connections, we have considered our past performance, and averages across other industries on informal satisfaction scores to set our target.

There is variation in scores across the industries and therefore, we have chosen to set our target to rise to 9.0 or above by the end of RIIO-ED2. We believe that a target of 9.0 or above by the end of the price control for the satisfaction of major connections customers is above average of current Distribution, Transmission, Gas and Water performance levels for large connections customers.

7.2.1 SUPPORT CONNECTION STAKEHOLDERS PRIOR TO APPLICATION BY PROVIDING ACCURATE, COMPREHENSIVE AND USER-FRIENDLY INFORMATION

At SSEN we understand that it can be difficult for customers to understand the requirements of a DNO at the application stage of their project and that their knowledge and understanding can vary significantly. Some customers will want and need clear and concise summarised information and significant support while other will want raw network data to undertake their own network analysis. We must be flexible and enable the needs of all customers.

With this in mind we propose to have in place for the start of RIIO-ED2, and continuously improve throughout the period, the following services and information to support our stakeholders prior to submitting their application. This will ensure that our stakeholders can make informed decisions about their connection and understand what is expected of them and the DNO throughout. To meet this key principle, we are proposing to offer services and improvements that cover:

- Provision of data, information, and up-front support
- Customer service, communication, and stakeholder engagement
- Provision of tailored and bespoke products and services

To help our customers, both experienced and new, we propose the following commitments to ensure that they receive the best quality service before submitting an application to allow them to make informed decisions on where and what they would like to apply for.

PROVISION OF DATA AND INFORMATION

Our stakeholders have asked us for as much information and data about our networks at the pre-application stage as possible. Examples of what we have been told include:

“More detailed network data. Trying to find capacity is a challenge” – Distributed Generation

“Increase provision of data and better access to your data including provision to sign post spare capacity accurately” – Commercial & Industrial Customer

To support our customers in both licence areas to make better informed decisions about the type, capacity, and location of their connection requests, we will:

- Provide easy access to our relevant network asset information in our Geographical Information System so customers have the ability to see our assets in proximity of their project and understand their specification. Customers can log into our asset information portal and search by address to find their local network.
- Update our website to contain up to date version of the Embedded Capacity Register. This register provides information on generation and storage resources ($\geq 1\text{MW}$) that are connected, or accepted to connect, to the electricity distribution networks owned and operated by us and it will be updated on a monthly basis.
- Continue to make available our Long-Term Development Statements which are updated 6 monthly for both of our licence areas. This document contains existing network data and development plans for our networks including identifying areas of our network which are likely to reach capacity limits in the coming years.
- Make available our Transformer Loading Spreadsheet to all customers to download from our website. We will review the functionality of this data sheet to ensure it is user-friendly and will update the information within it on a monthly basis.
- Continue to publish our HV network schematics updated on a monthly basis on our website. This will allow our customers to view the most up to date single line diagrams of our network.
- Continue to update ECCR registers daily to inform customers of potential rebate to DNO charges where reinforcement works have been carried out in the area they wish to connect.

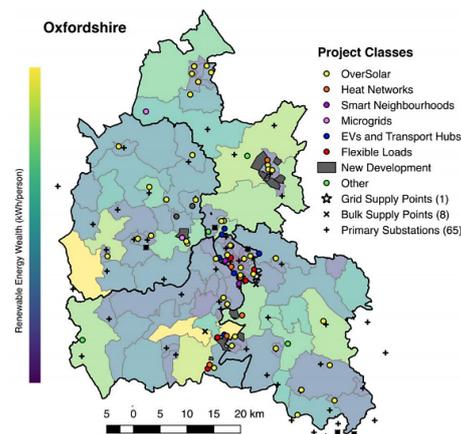
Through our Open Door and Connections+ IT projects, we will be able to provide more granular detail on our available capacity with interactive methods through which customers can obtain network loading information. The aim is to move towards real-time updates of these capacity levels. These projects are likely to start showing significant outputs of data which our customers can use by 2025.

We believe that the provision of the data which may be achieved through these activities is over and above the baseline expectation in this area. We have discussed the level of data our stakeholders have access to across DNO areas and they believe providing this would meet their expectations and would be well received.

Our Connections+ project (36/SSEPD/IT/CONNECTIONS+) will provide better detail for smaller organisations and will deliver:

- Self-serve platforms that show EV uptake, existing public charging infrastructure and forward network growth.

- Likewise, the external facing platforms will show Heat Pumps and other low carbon heating technology uptake, and forward network growth.
- Maps that show the network available capacity/demand levels, and what scope there may be for new flexibility, including Solar, Wind and Battery storage.
- Where the network is constrained, and any plans we have to support additional flexibility
- This would include potential ranges for any curtailment required in these areas.
- The maps will also show key network features, such as Grid or Bulk Supply Points and Primary Substations.
- All map nodes will have data associated with them, such as capacity, load, type, etc., and other key features, subject to data Triage constraints (e.g. security, privacy, commercial).



We will also utilise the data provided through our Open Door project (34/SSEPD/IT/CONNS-OPEN_DOOR). Allowing all of our employees and Stakeholders to access up to date information about our network via a simple to use graphical interface, with maps at its heart. This facility will not only be made available to our employees, but much of it to our Stakeholders, such as Connections Customers, Flexibility market participants, Third Parties and Regulators. Users will not only be able to see current network information, but interact with that information, ‘drilling down’ to details they need to understand the network.

For our Stakeholders this would include the ability to source raw and unstructured data that they have asked for through our engagement allowing them to carry out their own network studies if they have the ability to do so and self-design more accurately where applicable.

It also allows surfacing of other pertinent information such as forecasting data that will come from our pipeline of current projects and external sources like DFES data.

We will also improve our website functionality and content to guide our customers to the correct information more easily. These improvements will be in place for the beginning of RIIO-ED2 and have been extensively requested by stakeholders. They include:

- A new website with improved functionality and user interfaces.
- Videos, flow-charts, and FAQ documents that clearly set out the customer journey for each type of connection. They will detail the expectation of the customer, DNO and any third parties. And include all the information that a customer requires to submit their application.
- Estimated timelines of projects and the major milestones throughout the process.
- Providing clear and upfront information to customers explaining what products and services we currently offer, the estimated timelines for each of these services and what information would be required from the customer at the application stage.
- Through this information and guidance customers will be able to understand their position on the connections journey and be able to make an informed decision.
- Our website will have clearly signposted information for guides and FAQs to apply and proceed with any unmetered connection works.
- Provide clear and simple guidance on our website and on request of customers to allow DG connections to progress in compliance with G98/99 applications.

Feedback was received throughout our engagement processes that covered our customer service, communication, and engagement throughout the full connection journey. Examples include:

“A more professional supply of information to major connection customers is needed. e.g., provide better project programmes” – Housing Development Customer

“Start giving online wayleave/consent process timetables and updates” – Distributed Generation Customer

“Be more proactive in organising progress meetings, especially on bigger jobs.” – Commercial & Industrial Customer

We have listened to this, and we will continue to build on the improvements we have made during RIIO-ED1 on our customer service, communication, and stakeholder engagement by:

Customer Service and Communication

- Implementing real-time progress update functionality to our web portals allowing customers to quickly see the status, GSOP date and associated contact details of the person who is currently handling the application or project delivery work.
- Providing account management for repeat customers.
- Consolidate our help and FAQ documents within our new website so that customers are able to find the right information at the right time about how to access support.
- Have chatbot functionality available that will generate automated help such as contacts, links to information etc whilst continuing to offer other methods of contact and support through phone, email, and live chat options.
- We will be flexible in ensuring that the right number of skilled resources are available dependent on the needs of the customer to ensure effective ongoing dialogue.
- Developing self-serve functionality will allow customers greater flexibility on how they engage with us during the delivery phase of projects.
- We will ensure that our complaints process is clear so that customers requiring further dialogue on issues have a simple and effective way of raising these for resolution.
- We will have options available to our customers to book short sessions with our system planning teams to discuss large projects ahead of any applications being submitted.
- We will develop and implement a “Virtual Assistant” on our website to allow customers to find information and help more easily. This system is likely to include chatbots, natural language processing, security verification, machine learning and voice assistance.

Stakeholder Engagement

- In 2020-21 our Connections team demonstrated their dynamic approach to engagement by introducing a new engagement model which was co-created with stakeholders receiving 100% endorsement. We will look to continue to deliver this engagement model throughout RIIO-ED2, whilst ensuring we remain flexible in our approach following continual stakeholder feedback. The model as seen in Figure 14 enables the Connections team to engage via strategic, organisational, and operational tiers.

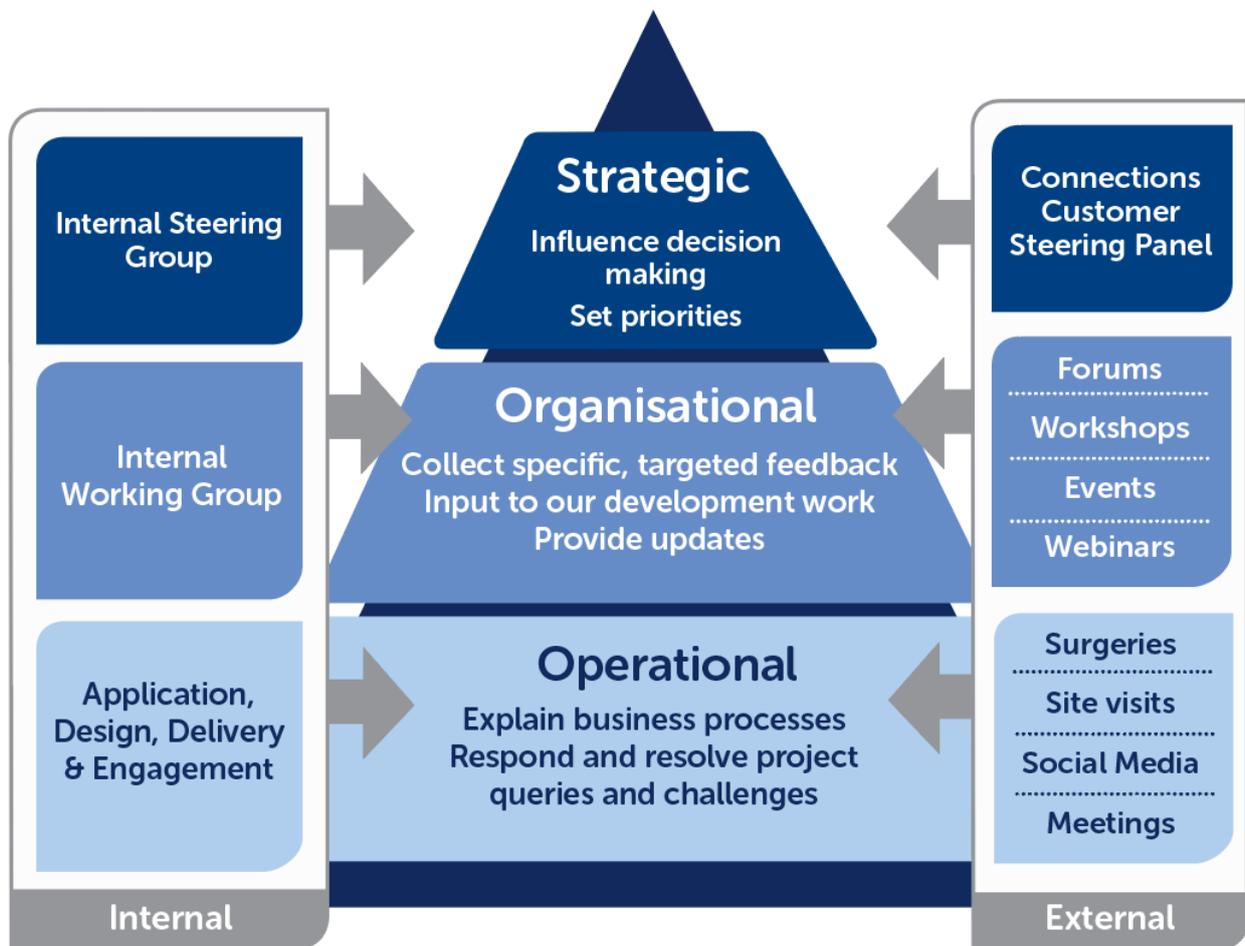


Figure 14

- We will continue to engage externally with our five stakeholder groups as shown in Figure 15, and internally; including all customer-facing teams and senior managers who regularly meet as part of our internal working groups.



Figure 15

- Through our various means of engagement, we seek our stakeholders' views on our connections process. Ideas are gathered and passed through a feedback loop, as shown in Figure 16 below. This forms the basis of our workplan and business as usual improvements each year. Feedback is gathered from all three tiers and is communicated to the connections business at operational, organisational and strategic tiers This ensures that all connections teams are informed of feedback and involved with decision making at all tiers.

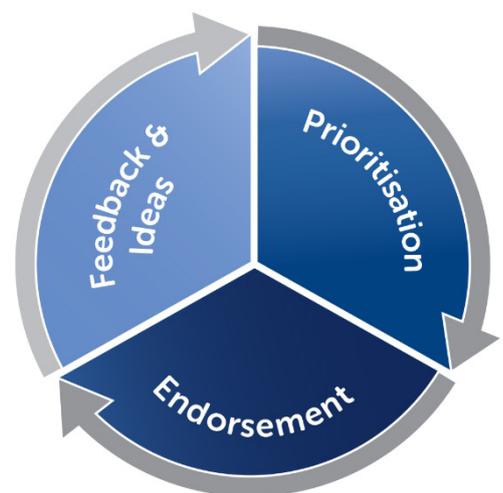


Figure 16

- Our RIIO-ED2 stakeholder engagement strategy will evolve and will include increased targeted engagement of our LCT customers and stakeholders. We believe that they will have the greatest impact on our Networks in the coming years and will be vital to shaping our processes and behaviours alongside our other customers.
- We will facilitate a comprehensive process for engaging with our customers through Connections Surgeries

Customer satisfaction scores will continue to be gathered on how well we are engaging with our stakeholders, and we will set ourselves a target score of 9.0 or above by the end of the RIIO-ED2 price control.

PROVISION OF TAILORED AND BESPOKE PRODUCTS AND SERVICES

As well as the support and guidance detailed in the above sections, we will ensure that information is clear and readily available to our stakeholders to detail all the products and services we can provide them. This will include the full range of services and provide options from domestic customers looking to connect a new EV charger to large generation customers looking for flexible services.

Throughout RIIO-ED1, we and other DNOs have been successful in changing the way we can connect generation to our network in constrained areas by the implementation of Flexible Connections. We currently provide the ability for generation only customers to connect flexibly at higher voltage levels. Throughout RIIO-ED2 we will also provide the option for Flexible Connections to our demand customers and develop an offering on LV flexibility. Flexibility for large demand and generation customers will be in place in the first year of RIIO-ED2.

There will be an increased opportunity for our connecting customers to be involved in providing flexibility services. We have engaged with our supply chain and customers to develop this thinking further in our ***DSO Strategy (Annex 11.1)***.

These offerings will be available alongside our more traditional formal quotation, budget, and feasibility options, which customers can use to gain knowledge and understanding of their connection requirements.

For our Unmetered Connections customers, we will continue to provide bespoke services and guidance that clearly explains the criteria that allows them to apply for Unmetered connections, how they ensure compliance with the Unmetered Supply Regulations and how they can apply for our 'fast-track' unmetered reconnections process for those occasions where critical infrastructure is damaged. We will continue to offer our Unmetered customers, the option to have pre-application connections meetings to discuss their requirements.

7.2.2 DELIVER VALUE FOR CUSTOMERS BY ENSURING SIMPLICITY AND TRANSPARENCY THROUGH THE APPLICATIONS PROCESS

Once a customer has decided on the type and size of connections, they require they will submit an application to us to be processed. Our strategy around digital enhancements, improved customer service and increased optionality will facilitate a simple and transparent process that will suit the needs of all customers. We will ensure this by having the following in place:

- Clear and simple application processes with enhanced communication and support
- Quotation and Design information
- Delivery of timely connection offers

CLEAR AND SIMPLE APPLICATIONS PROCESSES WITH ENHANCED COMMUNICATION AND SUPPORT

After the completion of our new website and implementation of our improved CRM system in RIIO-ED1 we will integrate these systems to allow for improved functionality at the application stage of our process. This will allow all customers to apply digitally but we will also continue to support those customers who wish to apply through different routes.

During the application and design we will, as stated above allow customers to track real-time progress of their application to see the status, expected timescales and associated contact details of the person who is currently handling the application or project delivery work. Where further clarity is required our design teams will communicate with customers to provide the required information.

Our methods and processes of making applications will be aligned to different customers' needs and engagement with our customers will ensure that we continue to shape our processes mindful that their needs will change with time.

This will be codified through clear and simple processes which are supported by detailed guidance for each type of connection. This information will be made readily available on our website and further support in the completion of these applications will be available through the channels detailed in the section above.

Customers will be provided with guidance on how they can tailor their application to ensure they receive an offer that allows them to connect as efficiently and cost effectively as possible. This guidance will include information on wayleaves requirements and potential associated delays; calculators that they can use to estimate budget costs; and detailed information of other options which are available:

- Tipping Point – The Tipping Point is the capacity that could be provided for the connection without triggering significant reinforcement works. To identify the Tipping Point, our Design and Planning teams analyse the network to identify the point at which reinforcement would occur. Tipping point information will be provided for a connection which requires reinforcement on our distribution network at 33kV or above.

Should this be the case, we will contact the customer during the assessment and design phase of the Connection Offer preparation to inform them of the Tipping Point and guide them through any options which may include the reduction in demand or generation export for their connection or by offering Flexible Connections as below.

- Flexible Connections – Where there is a need to upgrade the existing network, we are committed to finding and developing flexible solutions for our customers to allow them to connect at an earlier stage. In these cases, customers would typically be required to wait for the required reinforcement works to be completed before being able to connect to the network. However, there are a number of alternative options available to customers who are willing to consider a more flexible connection offering, which, depending on the circumstance, may allow connection ahead of the required reinforcement works. Within RIIO-ED2 we will be offering this solution to both generation and demand customers connected at HV, EHV and 132kV. This may be through either a timed connection or a more advanced ANM scheme with automated curtailment depending on the load and generation levels present on the network. Customers can request flexible connections directly at the application stage, but we will continue to offer this option to all customers where reinforcement costs are estimated to be greater than £50k.

“Flexibility is everything going forward – the more innovative, commercial solutions we have, the better, especially in terms of freeing up capacity”. – Commercial & industrial Customer

- We will also consider and develop flexibility at LV in RIIO-ED2 to increase the availability of choice to our customers regardless of the size of their connection.

QUOTATION AND DESIGN INFORMATION

We will continue to offer our customers various options on how they receive their connection offers. These methods will include web portal delivery, email and post.

Our quotation offers will continue to be simple and clear and include all the pertinent information that our customers need to allow them to accept. Costs will be broken down to task level and any relevant details of assumptions or reinforcement requirements will be explained clearly so the customer understands the extent of any works and the reasons for this.

Quotation packs will also include additional site information requirements including the need to provide regular work progress updates in line with agreed milestones and any civil works needed that the customer has decided to provide by themselves or a 3rd party.

If the customer has requested to proceed with a flexible connection offer, they will be provided with estimated ranges of current and future curtailment associated with the offer.

And as detailed above in Tipping Point, in cases with reinforcement at 33kV and above, we will inform the customer during the design stage of changes they can make to their application to reduce the timescales and costs associated with each offer. Where there is additional reinforcement required at lower voltages (LV & HV) we will issue guidance with our quotations that will also inform them of how to reduce timescales and costs if they wish to proceed.

DELIVERY OF TIMELY CONNECTIONS OFFERS

Throughout RIIO-ED2 we are likely to see an unprecedented increase in workload in Connections. This coupled with the added complexity of ensuring that the offer is the most cost effective for not just our connecting customer but the entirety of our DUoS paying customers (due to flexible connections, flexibility services and strategic investment) means that it is difficult to set targets at this moment.

In draft we submitted targets of 10% improvement on GSOP timescales, but we think that further discussions during the design of the incentive and metric framework is the most suitable stage at which to set our targets. However, our ambition remains to continue to improve on our average time to design and quote customer applications for our Major Connections customers throughout RIIO-ED2 and will target zero GSOP failures on quotations.

7.2.3 FACILITATE THE DELIVERY OF TIMELY AND ECONOMICAL CONNECTIONS THAT MEET CUSTOMERS' NEEDS.

After a customer has received and accepted their connections quotation this will pass to our project delivery teams for installation and energisation. Our proposals cover our commitments to deliver:

- Enhanced Communication and Support
- Variation Management and Cost Reconciliation
- Improved Queue Management
- Competition in Connections
- Delivery of Timely Connections Projects

We will measure our success in this area through reporting against the delivery of the proposals in this section and through customer satisfaction of the service provided. The customer satisfaction element of this work is still to be decided through discussions with Ofgem and DNOs but other relevant measures of success in these proposals is documented in appendix A.

ENHANCED COMMUNICATION AND SUPPORT

During the delivery of new connections, we aim to deliver in the most economic and timely manner, with a focus on excellent customer service. In RIIO-ED2 we will.

- Continue to communicate in a way that suits our customer's needs. That may be through account management for regular repeat customers, specified delivery contacts for individuals' projects or through live project progress updates online or via email and telephone notifications.

- Make available general help options for customers who, at their current point in the journey, do not require specific input from our team.

We will continue to offer support to our Unmetered customers in the form of services that will allow them to hire our jointers to complete works associated with their connections. Although this service was used historically, this has declined through the expansion of Competition in Connections and most ICPs use their own resources. We will, however, continue to offer this service where it is requested.

VARIATION MANAGEMENT AND COST RECONCILIATION

Our customers understand that sometimes our quoted solution may need to change due to site layout, environmental considerations, design development or wayleaves issues.

Where we need to change our original proposal, we will ensure that the customer is aware and accepts the impact of these changes before proceeding. This will allow both the customer and ourselves to proactively manage a successful outcome to the connection fully aware of any cost variations on project.

Stakeholders told us that they would like all projects to be closed as soon as possible so we will endeavour to complete all cost reconciliations including refunds due to customers within 60 calendar days of all works being completed and operational closure of the project.

IMPROVED QUEUE MANAGEMENT

With the increasing levels of demand and generation on our networks it is imperative that we improve our management of interactivity of applications. In some situations, projects that are not progressing in line with their contractual milestones can impact the progress of other customers. Our stakeholders raised this as a concern during our engagement, suggesting that large capacities were being secured but not utilised.

“Interactivity is a problem for us at the moment” – Distributed Generation Customer

Through the ENA’s Open Networks Project, DNOs were consulted on Connections Queue Management. The final version of this process document summarises:

“Queue management is the process by which network companies manage contracted connections against limited capacity and the policy enables network companies to:

- a) Take action on contracted projects if they are not progressing against agreed milestones.
- b) Enable projects to progress more quickly where capacity is made available; and
- c) Utilise flexible resources in connection queues to better utilise the available capacity.

Queue management is used to remove a project from a connection queue where the project is delayed compared to its contracted position and deemed to be outside the agreed tolerance period. Where this occurs, network companies would take steps to terminate the agreement.

Through the use of clear milestones and predefined acceptable tolerances, network companies can apply queue management in a clear and consistent way to remove delayed projects from connection queues and so ensure that network capacity is available for other customer projects that are ready to progress.”

We have now implemented this process to ensure that customers have a fair and equal opportunity to a connection that suits their needs and timelines as much as possible. We will continue to review feedback post implementation and work with both customers and the ENA to improve and adapt the new process throughout the remainder of RIIO-ED1 and RIIO-ED2.

COMPETITION IN CONNECTIONS

We are committed to providing our customers increased level of choice in who they appoint to carry out their connections work. Since the submission of the 2013 Competition Notice we have taken further actions to improve our performance in this area. These new improvements, opportunities, and initiatives together with evidence of stakeholder support for them have been detailed in our ICE publications from 2014-2021.

On 30 March 2018 we commenced a trial to allow Alternative Providers to deliver part funded reinforcement. The trial runs for three years and applies to LV and HV large demand projects only. While it does not currently apply to EHV/HV Generation, if the trial proves to be successful, we will consider extending this to other Market Segments.

Before the beginning of RIIO-ED2 we will be taking part in an updated Competition Notice which will show that in segments where we did not pass the competition test in 2013, there has been an increase in competitive activity in both of our licence areas.

Whatever the outcome of proposed competition test, we are committed to continuing to engage with our ICP and IDNO stakeholders to review, develop and open opportunities of greater competition. We will also continue to have ICP and IDNO members on our Connections Expert Panel to help guide us.

DELIVERY OF TIMELY CONNECTIONS PROJECTS

On the acceptance of a quotation the project will be passed to our delivery teams to liaise with our customers and discuss their preferred timeline for the connection. We will endeavour to ensure our works are carried out in a timely and efficient manner to suit our customer's needs, raising issues quickly in order to mitigate impact and agree a way forward.

We will measure our success in this area through our customer satisfaction surveys. We believe that suitable questions during customer surveys are more appropriate than measurement of the time to complete the works. This is due to the wide range of connection scope and customer preference within these market segments. We will monitor satisfaction closely and develop improvements which align and support our customer expectations.

7.3 MAJOR CONNECTIONS STRATEGY INCENTIVE DESIGN PROPOSALS

Part of the work carried out between our draft and final submissions was to explore in more detail, the potential design of an incentive framework for Major Connection.

Within our Strategy Delivery Incentive Proposal document (**SDI Proposals (Anex S 4)**) we have provided in more detail our suggested metrics, assessment criteria and over scoring approach for consideration by Ofgem in the development of this incentive.

We have designed our SDI proposals to reflect the complex nature of incentivising delivery of broad strategies: relatively low volumes of customers / network users, diversity of what these customers want from distribution network operators (DNOs) and developing objective measures of performance.

7.4 OUTPUTS AND DELIVERABLES

Outputs Summary: Detailed below are outputs relating to Major Connections				
Output	Output type	RIIO-ED2 target	Cost in baseline plan	Consumer benefits
Improving our connections process	SSE Goal	Improve the end-to-end process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic LCT and minor connections customers by 2025	£10.8m	Our Open Door and Connections+ IT projects will provide more granular detail on our available capacity and real-time updates on network load. <ul style="list-style-type: none"> £4.6m cost efficiency benefits delivered over RIIO-ED2 £3.8m additional societal benefits delivered to connections customers through saved time and increased satisfaction. These benefits are attributable to the last 2 years of RIIO-ED2 once the improved process is in place. We expect these benefits to be ongoing beyond RIIO-ED2
Improving Service Standards for Major Connection Customers	LO, ODI-F	Deliver high quality services to our major connections customers achieving a customer satisfaction of 9/10 or above by the end of ED2		Major connection customers provided with tailored services thanks to more flexible connection options and enhanced communication throughout the connections process.
Guaranteed Standards of Performance (GSOPs)	LO	Meet our obligations under GSOPs for connections on an ongoing basis and aim to reduce the number of failures over the period	N/A	Customers receive guaranteed levels of performance for connections services.

Table 11 Outputs

7.5 INNOVATION

Innovation will play a big part of how we deliver connections solutions through RIIO-ED2. We will continue to develop our flexible connections and constraint managed zones (CMZ).

As stated previously, the delivery of net zero will be central to our innovation activities in RIIO-ED2. Our existing portfolio includes projects which will develop some of the new capabilities we will need going forward, including Whole System, local resilience and local energy systems.

In RIIO-ED2, we will work with stakeholders to co create projects that allow us to further develop knowledge across all aspects of the energy system transition, including heat and transport as well as extending the range of flexibility services that we currently utilise. More details can be found within our ***DSO strategy (Annex 11.1)***.

After the implementation of our automated quote process for domestic EV and HP customers we will explore the opportunity to develop this system as appropriate to encapsulate the high number of small domestic PV and Battery Storage customers that are forecast through DFES data. This development will be dependent on local load data availability and on the completion of our connectivity model work. Forecast data from DFES CT scenario suggests that automating this process could reduce the time to process up to 6500 quotes per year with a potential saving in resource of up to £500k annually. We also understand that these customers are traditionally seeking small alterations to their current service and that a reduction in time to quote in this space could considerably benefit them.

8. DELIVERABILITY

We expect to see significant increases in the number of connections coming forward as more and more customers seek to connect their LCTs. Our IT and digital investments will be instrumental in digitalising the connections journey. They will allow us to share data to enable self-serve; digitalise the process to improve speed; and manage higher work volumes whilst continuing to deliver excellent levels of service that meet customer expectations. We are also increasing the use of flexible connections a part of our DSO strategy and therefore mitigating the level of required network reinforcement.

We are transforming our commercial and supply chain strategy to meet the step-change in performance required to deliver RIIO-ED2, accommodating forecast connections volumes in our work bank programmes so that contractors will have the flexibility to efficiently support connections delivery. Collectively these investments and strategic changes will allow us to deliver ongoing stretch efficiencies throughout RIIO-ED2 (of 0.7% per annum, as set out in ***Cost and Efficiency (Chapter 15)***). Our ***Ensuring Deliverability and a Resilient Workforce (Chapter 16)*** chapter describes our approach to evidencing the deliverability of our overall plan both as a package and its individual components, to ensure that we can demonstrate a credible plan to move from our RIIO-ED1 performance to our target RIIO-ED2 scale of delivery and efficiency.

Our delivery approach will capitalise on synergies between often reactive new connections work and strategically planned Load and Non-Load work, whereby the associated downstream work from a Substation will maximise outage utilisation, enabling the programme to touch the network in a controlled manner with the objective of touching the network efficiently.

We utilise our system planning function to influence the planning and phasing of work within a given programme to understand where work can be completed in parallel and which substations are mutually exclusive without putting the network and customers at unnecessary risk, ensuring alternative feeding capacity is available which in turn minimises disruption to our customers. This will enable us to create a forward-looking deconflicted plan that can be continually refined but importantly allows us to provide visibility to our customers of planned work or disruptions.

We are working with our supply chain to test and refine our ongoing contracting strategy to deliver RIIO-ED2 most efficiently and to ensure both our internal and contractor workforce have the skills and scale to deliver our plan (as detailed further in our supply chain and workforce strategies). Through our supply chain engagement, we are exploring how existing market actors and potential new partnerships could be used to address peaks in work volumes.

All our supporting Engineering Justification Papers have explicitly considered deliverability in their assessment of the options and preferred solutions to specific elements of our final investment plan. Through our commercial strategy we have also identified opportunities to optimise and streamline our delivery approach across different investment drivers and the requirements of our workforce and supply chain, as well as reducing disruption for consumers.

We will further refine our delivery approach in the light of more comprehensive, planned, market testing however we have full confidence that we are able to deliver this plan within the delivery of the overall Business Plan.

9. DECARBONISATION

Our proposals in the minor connections element of this business plan proposes to accelerate the connections associated with the decarbonisation of heat and transport. Our targets around TTC and Customer Service will ensure that we are seen as an enabler and not a barrier to decarbonisation.

Our proposals in the major connections element of this business plan will provide an improved service to the major connections customers who will support UK targets of decarbonisation. Within these market segments we will facilitate the connections of Distributed Generation, batteries, domestic and non-domestic EV chargers and HPs.

10. WHOLE SYSTEMS

10.1 OVERVIEW OF WHOLE SYSTEM WORKING

As the UK transitions to net zero, boundaries are being blurred and interdependencies created between different sectors such as electricity, gas, heat, and transport. This transition is necessitating a coordinated, or “Whole System” approach to manage the energy system effectively at an efficient cost for consumers.

Working in a Whole System way requires local communities and authorities to collaborate with organisations in the energy, transport, telecoms, water, and other sectors. For example, the decarbonisation of heat, with a range of alternative solutions (hydrogen, electric heat pumps and district heating) requires cross sector collaboration and Whole System thinking to optimise costs and investment while meeting environmental commitments. Similarly, the uptake of EVs requires DNOs to collaborate with local authorities, original equipment manufacturers (OEMs) and transportation agencies (including Highways England and Transport Scotland) to ensure sufficient charging infrastructure is available across the country.

Whole System thinking requires a collaborative culture and way of working to be embedded right across our industry which embraces opportunities to work collaboratively with others. The ultimate aim of embedding a Whole System approach into our business is to enhance consumer benefits and societal outcomes such as:

- increased efficiency in delivery of our services (leading to savings for customers).
- enabling effective and efficient roll-out of low carbon technologies (meeting expectations and avoiding unnecessary customer and societal costs).
- gaining a better understanding of what our customers and stakeholders need from us as part of the wider system (i.e., breaking down silos).
- improving wider societal outcomes through improved support for our customers beyond net zero (e.g., Priority Service Register data sharing with water companies).

A Whole System approach is critical to enabling our customers and stakeholders to realise their net zero ambitions so we will go beyond minimum regulatory requirements for coordination or cooperation between energy sectors and other vectors, with the aim of an overall enhancement in quantifiable consumer benefits and/or societal outcome.

We have a strong track record of working in this way across a number of discrete initiatives in RIIO-ED1. We have developed a strategy for RIIO-ED2 that will embed the new ways of working across SSEN which are set out in the **Whole Systems (Chapter 12)** and **Whole Systems (Annex 12.1)**. The types of Whole System initiatives we will undertake in ED2 include:

- Delivering projects jointly with one or more third parties. For example, our work with SSEN Transmission and Shetland renewable power generators to develop a Shetland shared transmission/distribution connection.
- Sharing SSEN data to help other parties to deliver projects and meet their objectives in line with our Digital Strategy. For example, working with water companies to share information on Priority Services Register (PSR) customers to enable more effective targeting of support across sectors.
- Coordinating projects with third parties to provide benefits (or minimise negative impacts) to customers. For example, co-ordinated asset management programmes with water companies for underground assets.

10.2 ADOPTING WHOLE SYSTEM WORKING IN OUR CONNECTIONS STRATEGY

For our Connections Strategy, Whole System working presents significant opportunities in RIIO-ED2 to deliver our plan and support the transition to net zero. Our Connections strategy is enabled through Whole System working such as:

- Continuing to work with the GBSO, NGET and SSEN Transmission to pursue development of more aligned planning processes to enable smooth implementation of transmission and distribution connections. Developing these relationships to improve planning for new connections will deliver benefits to customers by reducing the likelihood that either the distribution or transmission systems are ready before the other.
- Engaging with property developers and other utilities (e.g., water companies) on new developments to enable efficient installation of new utilities. Co-ordination of utility roll out has a number of benefits including:
 - Efficiencies and savings to developers as a streamlined approach to utility roll out reduces the need for multiple excavations of the same site.
 - Reducing the number of excavations minimises disruption to customers.
- Early sight of EV enquiries and orders to pre-empt connections required. Our innovation team is engaging with EV OEMs and retailers to understand opportunities for data sharing around enquiries and purchases of EVs. The aspiration is to have a system in place that allows EV car show rooms and retailers to notify us when people are purchasing or enquiring about EVs that will enable us to have a strategic forward view of the connections that will be required to meet this demand.
- We also plan to continue working with local authorities to support the delivery of their Local Area Energy Plans and Local Heat and Energy Efficiency Strategies. (See CVP Embedded Whole Systems Support Services for Local Authorities)

There are significant opportunities for us to develop further Whole System approaches to connections over ED2, particularly as SSEN's Whole System approach is embedded across the business. In many cases these opportunities will be aligned with other ED2 strategies and workstreams including EVs, DSO, load, and flexibility.

11. GUARANTEED STANDARDS OF PERFORMANCE TARGET

In the RIIO-ED1 performance section we have shown that our performance in this area, although above 99% pass rate most years, has not been as good as we had hoped. But through the proposals detailed within this strategy paper and increased focus on customer service we believe that we can provide the expected level of service.

The implementation of our new CRM system will enable a more efficient processing of all applications and will provide clearer requirements from a delivery stage on meeting GSOP expectations.

Throughout RIIO-ED2 we will target a minimum pass rate of 99.5% on our Connections GSOP but will continue to strive to achieve zero failures for our customers.

APPENDICES AND SUPPORTING DOCUMENTS:

List of appendices and supporting documents outlining supporting information

Appendix A – Ofgem’s Minimum Requirements

Appendix B – Major Connections Customer Strategy

Appendix C – Possible High Value Investment Cases

Appendix D – Enhanced Engagement

Appendix E – Access and Forward-looking Charges Significant Code Review

Appendix A OFGEM'S MINIMUM REQUIREMENTS

Detailed below is a cross-reference of where in the Annex we discuss each of Ofgem's minimum requirements for our Major Connections Strategy.

	Ofgem minimum requirement	Where and how this is addressed in narrative
3.11	Submitting a Major Connections Strategy is a minimum requirement under Stage 1 of the BPI. A Major Connections Strategy in the Business Plan must set out the company's proposed approach to meeting the needs of major connections customers in RIIO-ED2.	Our major connections strategy is detailed in Section 7 and Appendix B .
3.12	As a minimum requirement under Stage 1 of the BPI, DNOs' strategies must:	
(a)	Include an assessment of the connection issues prevalent in the company's region and evidence of how this informs its proposed approach.	Section 7.1 provides an assessment of current connections issues in our regions. Figure 12 provides details of some of the issues raised by stakeholders.
(b)	Set out a clearly articulated vision for addressing connections issues identified, identifying links between the proposed deliverables and the outcomes and the benefits these will deliver.	Our strategy to address these issues is covered at Section 7.2 .
(c)	demonstrate how the company will deliver the standard of service outlined in the principles and baseline expectations in Appendix 2.	These are covered in full in Appendix B .
(d)	Include deliverables which are specific, time bound and relevant. A company must indicate if in their view a deliverable exceeds the baseline expectations and whether it will require additional funding. Whether the DNO is funded for a deliverable will be relevant for the ex post assessment under the ODI.	Sections 7.4 outlines our outputs and deliverables for major connections and these are covered in further detail in Appendix B .
(e)	propose relevant performance measures proposals which will enable stakeholders and Ofgem to evaluate the DNO's progress in delivering its Major Connections Strategy and associated outcomes. A performance measure could be attributed to a specific baseline expectation or more broadly to a principle or area of a DNO's strategy. Performance measures could be quantifiable metrics, including those which may be common to all DNOs, or other performance measures such as qualitative assessment, or a combination of performance measures. We would expect the DNO to make it clear how the measure is relevant to the baseline expectation(s), how the performance measure is calculated and why it is the appropriate measure of success.	We propose customer satisfaction scores as performance measures across the following: <ul style="list-style-type: none"> • Stakeholder engagement • Application process • Delivery process Details are provided in Appendix B.

(f)	where a DNO indicates the relevant performance measure is a quantifiable metric, it must include a baseline performance benchmark with justification to support this. This performance benchmark may be a single value or a range.	The target level for all performance measures is 9/10.
(g)	be developed with stakeholder and CEG input and developed in line with the company's wider business planning processes and decisions.	Evidence that our strategy has been developed with stakeholder and CEG input can be found at Section 1 and throughout the Annex. Development in line with wider business planning process and decisions around innovation, DSO strategy, whole system approach and decarbonisation are also evidenced in the Annex.
3.13	For the purpose of incentive arrangements in RIIO-ED2, major connection customers are connection customers in relevant market segments (RMS) where there is an absence of effective competition. We are currently undertaking a review of competition in the connections market. This competition review is still ongoing and will likely be completed after final plans have been published. Therefore, DNOs must include all RMS that did not pass the DPCR5 Competition Test in their Major Connections Strategies. If, after receipt of Business Plans, there are changes to which RMS there is an absence of effective competition, then we will take this into account in our assessment of each DNO's Major Connections Strategy and in the design of connections-related incentives on performance.	Section 7 includes all RMS that passed and did not pass the DPCR5 Competition Test.
3.14	In market segments where there is effective competition, DNOs are still responsible for completing non-contestable connection activities. To ensure that DNOs deliver best practice in the provision of non-contestable activities, DNOs should also capture these activities in their strategies.	Section 7 covers both contestable and non-contestable services in all RMS where applicable.

In December 2020 Ofgem issued its Sector Specific Methodology Decision for RIIO-ED2. The decision document includes:

- Changes to the penalty and rewards mechanism for Broad Measure Customer Satisfaction (BMCS) and Time to Connect (TTC) incentives for Minor Connections customers
- The introduction of an incentive framework for Improving Services for Major Connections Customers
- Continuation of the Connections Guaranteed Standards of Performance

Within the document the summarised expectation of DNOs is as follows:

“Provide a quality service for consumers seeking a connection

1.26 For smaller connections work, DNOs will need to turn around quotes and complete projects in a timely fashion. DNOs will be exposed to penalties if standards start to decline. Larger connections customers have more complex requirements, and DNOs will need to have in place and then deliver a strategy aligned to our baseline expectations.”

These expectations are further expanded with chapter 5 of the document “RIIO-ED2 Methodology Decision: Annex 1 - Delivering value for money services for consumers”. This chapter sets out the decisions for RIIO-ED2 to ensure DNOs provide a quality service for consumers seeking a connection. The decisions cover the areas shown in Figure 17 below, followed by a short summary of the purpose and decisions in the tables following.



Figure 17 Decisions on connections output and incentive arrangements for RIIO-ED2

Table 12

Connections element of the Customer Satisfaction Survey (minor connection customers)	
Purpose	The connections element of the customer satisfaction survey helps to drive improvements in the quality-of-service DNOs provide to customers seeking a small, or minor, connection.
Decision	Retain the connections survey as part of the Customer Satisfaction Survey for RIIO-ED2, including the scope applied in RIIO-ED1.

Table 13

Time to connect (TTC) incentive	
Purpose	To incentivise DNOs to reduce connection times for customers seeking a small, or minor, connection to the distribution network.
Decision	<ul style="list-style-type: none"> • Retain the TTC incentive as a financial ODI in RIIO-ED2, including the scope applied in RIIO-ED1. • Introduce penalties and set symmetrical financial exposure of +/-0.4% base revenue. • Set RIIO-ED2 targets, and minimum and maximum reward and penalty scores, that reflect RIIO-ED1 performance improvements: <ul style="list-style-type: none"> ○ Apply common static targets using industry average performance data from the most recent four years of RIIO-ED1. ○ Apply an upside and downside dead-band around a new target score.

Table 14

Improving Services for Major Connections Customers	
Purpose	To ensure DNOs deliver quality services to customers seeking major connections in RIIO-ED2.
Decision	<p>Adopt a Major Connections incentive framework for RIIO-ED2, which includes:</p> <ul style="list-style-type: none"> • Requiring DNOs to submit major connections strategies that will be subject to the BPI. DNOs’ strategies that do not meet our baseline expectations could be penalised under the BPI while strategies that exceed baseline expectations could receive a reward through the Consumer Value Proposition (CVP). • Introducing an ODI-F in the form of an ex-post assessment to assess companies’ delivery of their strategies.

Table 15

Connections Guaranteed Standards of Performance

Purpose	The Connections GSOPs help protect customers against unacceptable levels of connections service.
Decision	<ul style="list-style-type: none">• We will retain the existing Connections GSOPs for all connections customers in RIIO-ED2• We will adjust the payment amounts to account for inflation to the start of RIIO-ED2, and we will then index payments to inflation against a baseline level of January 2023.• Once the index has moved sufficiently, the payment amounts will be rounded (up or down) to the next multiple of £5, and the associated payment caps will be adjusted at a commensurate rate.

Appendix B

MAJOR CONNECTIONS CUSTOMERS STRATEGY

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation <small>As per Appendix 2 in Ofgem's Business Plan Guidance</small>	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
Support connection stakeholders prior to application by providing accurate, comprehensive and user-friendly information	Customer Satisfaction of Stakeholder Engagement Score of 9/10	1. Provide access to up to date and relevant information to enable a connection stakeholder to decide whether, and where, to connect to the distribution network. This should include, but not be limited to, graphical network records that show the location, size and type of assets.	Applies to all RMS	Access to our GIS system with real-time network information.	Yes	From 2023
				Long Term Development Statement updated every 6 months	Yes	From 2023
				Embedded capacity register updated monthly	Yes	From 2023
				High Level Heat Maps updated monthly	Yes	From 2023
				HV Schematics updated monthly	Yes	From 2023
				ECCR Register updated daily	Yes	From 2023
	Pre-Application Information and Surgeries	2. Communicate a clear connections process for all customers. This should include providing clarity of DNO, customer and third-party responsibilities. This should also include providing clarity on how issues that arise can be raised and resolved.	Applies to all RMS	Flowcharts for each connection type	Yes	From 2023
				Videos showing customers an interactive connections journey	Yes	From 2023
				Simply documented responsibilities throughout a connection project	Yes	From 2023
				Contacts in the business for help and support	Yes	From 2023
				Clear complaints processes	Yes	From 2023
	3. Provide clear explanations of the types of connection products available, the associated costs of each and the	Applies to all RMS, except Unmetered	Clearly documented products and services	Yes	From 2023	
Clear costs associated with these services			Yes	From 2023		

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation As per Appendix 2 in Ofgem's Business Plan Guidance	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
		information that would need to be provided by the customer to make an application. Where appropriate, this should also include the provision of general information on the potential implications for a customer's connection offer if they change their own requirements, if other customers are seeking to connect in the same area or if they do not accept an offer within its validity period.		Simple information on the implication of changing requirements throughout the project	Yes	From 2023
				Interactivity and Queue Management guidance	Yes	From 2023
		4. Provide support and help to customers through appropriate channels which should include, but not be limited to, connections surgeries.	Applies to all RMS, except Unmetered	Help and support through our help channels i.e. email, telephone, live chat	Yes	From 2023
				Virtual Assistant	No	2024/25
				FAQ sections on our website	Yes	From 2023
				Account Management available for Major Customers	Yes	From 2023
		5. Have robust processes in place to proactively engage with stakeholders. This should include how the DNO plans to both identify and address connections issues.	Applies to all RMS	Connections meetings and surgeries	Yes	From 2023
				Connections Expert Panel	Yes	From 2023
				Continued 'commitments' agreed with our stakeholders	Yes	From 2023
				Increased levels of virtual events	No	From 2023

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation As per Appendix 2 in Ofgem's Business Plan Guidance	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
		6. Provide clearly signposted information on capacity available to enable points of connection to be identified.	Applies to Metered demand HV, EHV and 132kV; Metered DGHV	Transformer loading data	Yes	From 2023
				High Level Heat Maps updated monthly	Yes	From 2023
				Live Interactive Demand and Generation Capacity Maps	No	2024/25
				Live detailed Network Monitoring data	No	2024/25
		7. Provide guidance that explains to customers the criteria to allow an unmetered connection to be made, ensuring compliance with the Unmetered Supply Regulations.	Applies to Unmetered LA, PFI and Other	Unmetered Guide and Unmetered FAQ available on website	Yes	From 2023
8. Provide support in the form of tailored pre-application communication to suit different stakeholder needs.	Applies to Unmetered LA, PFI and Other	Unmetered Connections Meetings and Account Management	Yes	From 2023		
Deliver value for customers by ensuring simplicity and transparency through the applications process	Customer Satisfaction of our application process - score of 9/10 Communication and quotation & design quality	9. Have clear and simple customer application process, which accounts for the particular needs of different groups of customers and which can be shaped by the parties involved. This should include, but not be limited to, providing options for how customers can apply for new connections and	Applies to all RMS	Clear and simple application forms. Which can all be completed entirely online via web portal.	Yes	2023/24
				Continued ability to submit applications via email, telephone and post	Yes	From 2023
				Engagement on our applications processes with stakeholders	Yes	From 2023

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation <small>As per Appendix 2 in Ofgem's Business Plan Guidance</small>	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
		ensure these are clearly communicated.				
		10. Provide tailored communication plans to suit different customer needs, including the provision of specified points of contact during the application process. This should include the provision of various channels through which customers can access support or help.	Applies to all RMS, except Unmetered	Single points of contact at the application stage	Yes	From 2023
				Single points of contact throughout the design stage	Yes	From 2023
				Further help and support through live chat, email, and telephone channels	Yes	From 2023
		11. Provide customers with clear connection quotation cost breakdowns, listing out the cost components and any assumptions used in the formulation of a connections offer.	Applies to all RMS, except Unmetered	Costs broken down to task level	Yes	From 2023
				Consistent and clear electronic design drawings	Yes	From 2023
				Clear assumptions and explanations of why reinforcement or network configuration is required	Yes	From 2023
		12. Have processes in place to help customers identify how they could make changes to their connection requirements, that would meet their needs and allow them to get	Applies to all RMS, except Unmetered	Pre-application information to inform customers of how they can reduce costs and time to connect	Yes	From 2023
				Tipping Point to discuss large reinforcements required and how customers can amend their applications	Yes	From 2023

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation <small>As per Appendix 2 in Ofgem's Business Plan Guidance</small>	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
		connected more quickly or cheaply.		Flexible Connection services for both large demand and generation	Yes	From 2023
				Developing Flexible Connection Services for smaller demand and generation	No	By 2028
		13. Specifically, in relation to flexible connection customers, provide clarity around conditions and circumstances of current and future curtailment associated with a connections offer.	Applies to Metered demand EHV and 132kV; Metered DGHV and EHV	Curtailment assessments provided with their offer	Yes	From 2023
		14. Provide guidance that explains to customers the criteria to allow an DG connection to be made to ensure compliance with relevant Engineering Recommendations (G98/G99).	Applies to metered DGLV, HV and EHV	Documented guidance and clarity on the criteria of connecting	Yes	From 2023
				Worked examples of how to apply	Yes	From 2023
		15. Have in place options for 'fast track' reconnections of critical infrastructure such as internet cabinets that have been damaged in road traffic accidents or similar.	Applies to Unmetered Other	Continue to provide this service to our UM customers	Yes	From 2023

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation <small>As per Appendix 2 in Ofgem's Business Plan Guidance</small>	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
Facilitate the delivery of timely and economical connections that meet customers' needs.	Customer Satisfaction of our delivery process - score of 9/10 Communication and timeliness of connections	16. Provide tailored communication plans to suit different customer needs, including the provision of specified points of contact during the delivery process. Ensure various channels are available for customers to access support or help.	Applies to all RMS, except Unmetered LA, PFI and Other	Single points of contact throughout the delivery stage	Yes	From 2023
				Further help and support through live chat, email and telephone channels	Yes	From 2023
		17. Complete any cost reconciliation in a timely manner.	Applies to all RMS	Complete any refunds to our customers within 60 working days operational closure	Yes	From 2023
		18. Where there are slow moving projects and where these may impact on other customers, have processes in place for releasing capacity that is not being used.	Applied to Metered demand HV, EHV and 132kV; Metered DG HV and EHV	Queue management and Interactivity processes	Yes	From 2023
		19. Have processes in place for the promotion of certain types of customers (such as storage) in connection queue in circumstances where they will help others connect more quickly/cheaply.	Applies to Metered DG HV and EHV	Queue management and Interactivity processes	No	From 2023

Ofgem's Principle	Measurement Point	Ofgem's Baseline Expectation <small>As per Appendix 2 in Ofgem's Business Plan Guidance</small>	Relevant Market Segments (RMS)	Deliverable	BAU by end of ED1	Delivery Year
		20. Provide access to services that facilitate the delivery of timely and economical connections such as 'rent a jointer' services.	Applies to Unmetered LA, PFI and Other	Continue to provide this service to our UM customers	Yes	From 2023

Appendix C

POSSIBLE HIGH VALUE INVESTMENT CASES

The table below shows a high-level overview of our large investment cases for Reinforcement work associated with Connections Projects in RIIO-ED2. Each of these investment cases has a detailed EJP and costs shown are direct costs only.

EJP Number	Project/Scheme Name	Licence Area	Customer Funded Cost (£m)	DNO Funded Cost (£m)	Total Reinforcement Cost (£m)
350	Brimble Hill	SEPD	■	■	■
367	Digiplex	SEPD	■	■	■
369	Knightsbridge Farm	SEPD	■	■	■
370	Middleton	SEPD	■	■	■
371	Monkley Lane	SEPD	■	■	■
372	Banbury Avenue	SEPD	■	■	■
374	Leigh Delamere	SEPD	■	■	■
376	Windwhistle	SEPD	■	■	■
428	Prince Philip Barracks	SEPD	■	■	■
429	Network Rail	SEPD	■	■	■
432	AH Spring Park	SEPD	■	■	■
434	Welborne Village	SEPD	■	■	■
436	Westland Farm	SEPD	■	■	■
438	Horton Heath	SEPD	■	■	■
439	Cavalry Barracks	SEPD	■	■	■
440	Andover Commercial Park	SEPD	■	■	■
446	Barthers Farm	SEPD	■	■	■
449	Faraday Road	SEPD	■	■	■

Table 16

ENHANCED ENGAGEMENT

- Overview: Digital transformation of our connections process to deliver simpler, self-serve and faster services with access to data for customers
- Total cost: **£10.8m**
- Contribution to annual customer bills: **£0.25 (South), £0.39 (North)**
- Value to customers: **£4.6m cost efficiency benefits delivered by the improved process, £3.8m additional societal benefits delivered through saved time and increased satisfaction. These benefits are attributable to the last 2 years of ED2 once the improved process is in place. We expect these benefits to be ongoing beyond ED2.**

RIIO-1 context

Since the start of ED1 we have seen an 8% improvement in our Customer Satisfaction Survey score for connections, a 13% reduction in Time to Quote and a 32% reduction in Time to Connect.

We have introduced initiatives to improve communication with customers throughout the connections process, helping to improve coordination of works and the number of connections completed on time.

ENGAGEMENT SYNTHESIS

Stakeholder engagement

Engagement details	Insights derived
<p>Non-consumer stakeholders</p> <p>We engaged a broad range of non-consumer stakeholders to understand their views on the customer service elements of our Draft Business Plan via an online consultation event and surveys</p>	<ul style="list-style-type: none"> • One storage and renewables stakeholder found it was encouraging to see service and engagement at the heart of the business and accelerating progress towards net zero. They are looking forward to seeing how this will be implemented and any changes referencing applications for connections are processed one week before the deadline; in a net zero world we should be aiming for a same day connection. [E151] • Stakeholders felt self-serve and automation was good but that there is still a balance to be achieved with planners. [E171] • Some stakeholders gave positive feedback on the self-service part of the connections process. [E171] • One local authority stakeholder said a big constraint to developing renewables, storage and flexibility is the cost of firm connections and thus specific support in this area would be very useful. [E175] • One academic felt the cost of getting assets connected to the grid is big and time-consuming is a big barrier citing their own experiences in Orkney. [E152]

- On the Connections process and costs, a storage and renewables representative said in order to process and connect this anticipated volume requires clarity; "Current levels of constraint must be addressed, and key to that as developers is to have visibility of constraint factors not just at distribution level, but also at transmission level". [E167]
- An academic stated that a significant barrier is understanding how the cost of connection is built under various circumstances as well as the assessment of options and asked if were possible to create a model to understand the scale of potential costs under DSO. [E151]
- A storage and renewables representative felt there are many straightforward solar connections that do not require an in-depth analysis by a design engineer and asked that we review the current classifications to remove projects under <200kW from major connections. [E170]
- For some stakeholders, more ambition needed to be shown in terms of the huge potential for wind generation in Scotland, and on speeding up the time of connections for renewable generation projects. [E151]
- A storage and renewables stakeholder felt the plan seems at odds with the way things are working now financially. "Building renewables projects without a guaranteed return is a difficult circle to square; it's cheaper to connect to National Grid in the north than it is to you." [E151]
- A storage and renewables representative felt that the "automated quotation services for domestic LCT and minor connections customers by 2025" shouldn't rely on domestic customers themselves applying for connections as this may be perceived as a barrier and disincentive for investment. [E155]
- One storage and renewables stakeholder felt we needed better connection processes, especially for delivery in the north. [E155]
- One storage and renewables stakeholder stated, "Too many developers are complaining of poor service, expensive costs, inconsistencies in process and decision making and slow service. Becoming harder to deal with and expensive over the last 6 months to a year". [E155]
- One storage and renewables stakeholder felt we should have better generator heat maps, citing that other DNOs have colour-coded circuits showing availability. They also called for a standard heat map across all the DNOs. [E155]
- One storage and renewables stakeholder felt that we should pay more for centralised ANM systems rather than the generators paying. They added the Access SCR may also require more funding for a proactive reinforcement strategy for DG connections rather than being reactive. [E155]

Next generation bill payers, fuel-poor customers, customers in vulnerable situations and medium business customers

We conducted audience research via focus groups and 1-1 phone interviews on the acceptability and affordability of our Draft Business Plan

- Most **future customer** participants across regions were happy with costs relating to net zero, especially the cost of enabling the connection of low carbon technologies as this will help encourage people to adopt low carbon technology and have a big impact. [E156]
- A few **future customers** in England felt that the output enabling the connection of low carbon technologies needed to outline more clearly what we are providing or doing. It was described as misleading. [E156]
- Some **fuel poor** participants had mixed views on the cost of enabling the connection of low carbon technologies. A few felt it was worth it given the net zero contribution, while others across both regions felt that with the high cost, something needs to be done to ensure it would have the desired outcome. [E156]
- Some **fuel poor** participants were concerned about the feasibility and practicality of enabling the connection of low carbon technologies. For one participant in England, this related to the scale of vehicle electrification in particular. [E156]
- **Customers in vulnerable situations** generally supported the energy efficiency output but would like more information and clarity on what it would entail. Some asked for information on what has been done toward this output so far, feeling that evidence of effort made would support the acceptability of bill impacts. [E156]
- Some **customers in vulnerable situations** queried if this output was realistic and wondered if perhaps more detail or actions was sitting under it. [E156]
- Among **business customers**, there was some support for proactively working with partners on energy efficient. Some felt this was a big statement but that it is really important because collaboration was seen to be very effective. [E156]

Domestic customers

We engaged consumers about the environment and innovation via a Citizens Jury and on our Draft Business Plan via an online survey

- When asked to prioritise the output: *We will improve the end-to-end Connections Process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic low carbon technology (LCT) and minor connections customers by 2025*, 50% of customers in the south and 45% in the north felt this was a medium priority, and a further 33% in the south and 31% in the north felt it was a high priority. [E170]
- Domestic customers felt connections were quite expensive and should be delivered without customers having to pay for it. [E170]
- When asked to prioritise the output: *We will deliver high quality services to our major connections customers*, 53% of customers in the south and 45% in the North felt this was medium priority, , and a further 28% in the south and 20% in the north felt it was a high priority. [E170]

- When asked to prioritise the output: *We will get an average customer satisfaction score for connections of at least 9.2*, 50% of customers in the south and 51% in the north felt this was medium priority, and a further 31% in the south and 24% in the north felt it was a high priority. [E170]
- When asked to prioritise the output: *We will meet our targets and further reduce average Time to Connect by 1 day compared to 2019/20*, 56% of customers in the south and 49% in the north felt this was medium priority. [E170]
- A storage and renewables representative advocated for increased permitted development limits for rooftop schemes, currently set at 50KW in Scotland and 1MW in England and felt this change would “undoubtedly accelerate solar development across the country”. [E170]
- A storage and renewables representative mentioned the current witness testing requirements are a major barrier to solar and storage deployment. They commented that whilst SPEN were able to confirm that the witness testing requirement will be limited to 3 per company, to date we have still not been able to confirm this in writing and neither DNO has been able to confirm in writing whether an installer will receive a rebate for the multiple accumulated quotes which included witness testing they received during lockdown. [E170]

Distributed generation customers, ICPs, supply chain, EV chargepoint installers

We engaged connections customers about Ofgem’s July-August 2021 Access Significant Code Review via a survey

- Demand customers prioritised the most important factors in the order: 1) Customer Demand, 2) Other Connections Charges, 3) Reinforcement Charges. [E163]
- Generation customers prioritised the most important factors in the order: 1) Reinforcement Charges, 2) DUoS Charges, 3) Other Connections Charges. [E163]
- About half the Demand customers and all Generation had reduced their capacity requirements to fit the available capacity and avoid reinforcement costs. [E163]
- Both generation and demand customers in the South noted that this was likely to change and be less likely to happen given the code review. [E163]
- Demand customers estimated that connections would likely increase by between 25-50% due to the changes. [E163]
- Generation customers noted that an increase in the size of Microgen is more likely given the changes. There was a mix of responses on the expected increased connections ranging from an increase of 10% up to 100%. [E163]
- Demand generation customers did not expect to delay making a connection application until after these changes come into force in April 2023. This was also the case for generation customers in Scotland, but generation customers in the South would delay applications. [E163]

- Generation customers noted that a reduction in High-Cost Cap (HCC) exposure would mean that more projects are likely to proceed. [E163]
- If the reduction in reinforcement charges to customers allow DNOs to be more strategic in their network investment plans, demand customers hoped this would lead to more cooperation with us pre-development as well as cheaper and quicker connections. [E163]
- If the reduction in reinforcement charges to customers allow DNOs to be more strategic in their network investment plans, generation customers also expected connections to be cheaper and quicker, but also that a more holistic approach would use short term flex options, more proactive largescale investment, and reinforcement ahead of need and better coordination with local energy providers. [E163]
- Generation customers expected they would take a connection with a defined level of firmness but that strict curtailment levels would need to be agreed upfront with penalties. [E163]
- Demand customers stated it was unlikely that they would take a connection with time-profiled access rights. [E163]
- Generation customers had a mixed response regarding taking time profiled connections, depending a lot on the generation type and location. [E163]
- Both generation and demand customers were tentative to consider short term flexible access rights until such a time as reinforcement works to support their connection would be complete, noting it would have to be on a case-by-case basis. [E163]
- Generation customers would look to increase firmness and reduce curtailment when making a connection application to change their existing flexible connections under the new arrangements. [E163]
- Both generation and demand customers were willing to flex their connection requirements as a paid-for service for network balancing. [E163]
- Generation customers didn't want to see any changes to the DUoS charging for customers rules from Ofgem. [E163]
- Demand customers had a mix of responses on the changes to DUoS charging for customers rules, with some wanting either change so that everyone pays or a daily rate to better reflect usage. [E163]
- Generation customers noted that the potential change to apply TNUoS charges to SDG <100MW could make them pass D and only seek T connections. Others mentioned it may prevent investment in re-powering and if no grandfather rights, then likely see closure of several windfarms in the coming years. [E163]
- Generation customers also noted that applying TNUoS charges to SDG <100MW would decrease investment and have a negative impact on net zero targets, meant that many new or proposed

projects would be unable to progress, with the threat of current projects potentially becoming uneconomic. [E163]

- Generation customers also noted that by paying for TNUoS we'd like to see more integration with the Transmission Operators (TOs) and the same cost principles applied to TO reinforcement. [E163]

Consultants, Local Authorities, Community Energy Schemes, domestic customers and other segments

These stakeholders were engaged by Regen through a survey and depth interviews to understand the issues and challenges that the electricity system faces -both in the transition to DSO and in enabling rapid decarbonisation to achieve net zero

- The availability of accurate information on the capacity and availability of flexible connections was ranked as the key barrier to network connections. Sole use asset connection charges were identified as a more important barrier than the cost of contribution to network reinforcement. The speed of getting a connection was ranked as the least significant barrier to network connections. [E180]
- “Enabling renewable and low carbon technologies to connect to the network” was ranked the overall most important area of focus for DNO/DSOs in the transition to net zero. [E180]
- Connecting customers want much better access to data to enable them to make investment decisions. They also want greater transparency in processes and decisions made by the DNO/DSO. [E180]
- The connections process is seen as complex, slow and inconsistent which creates risks to the business model of low carbon investments. Stakeholders consider there is an element of luck in getting a planner who is willing/able to optimise the connection upfront. Also, the interface between the DNOs and TOs is still seen as a major blocker. [E180]
- DNO/DSO investment in network capacity was rated the most important challenge for domestic customers, with approx.85% of respondents rating it as important/most important. [E180]

Current and future employees

We engaged with colleagues on our Draft Business Plan via a survey

- Employees felt that the package of outputs and proposals for load and connections was good, with one employee adding that we need to ensure we can deliver them. [E153]

Housing associations, local authorities, community energy groups, distributed generation customers, consultants, ICPs and IDNOs

We engaged these stakeholders via our

- Many stakeholders emphasised the value of considering the UK as a whole, and that standardisation and working together with/across all DNOs IDNOs and ICP was key. [E171]

<p>Connections Customer Steering panel to understand their views on our Draft Business Plan</p>	
<p>Domestic customers (recent and prospective EV ChargePoint/LCT connection customers)</p> <p>We co-created a new LCT connections process by collaborating in online focus groups to understand what ‘good’ looks like</p>	<ul style="list-style-type: none"> • Customers are looking for an independent, trustworthy source of approved equipment and installers [E099]. • Customers want a simplified journey on our website, signposted according to their needs (e.g. EV ChargePoint) not the technical solution [E099]. • Customer service could be improved by a final contact to confirm completion and to check this has been done to the customer’s satisfaction [E099]. • Customers would like a self-serve portal for uploading photos, where their chosen installer could then complete the application. [E099].
<p>Domestic customers (recent and prospective connection customers for new supply or supply alteration)</p> <p>We co-created a new connections process by collaborating in online focus groups to understand what ‘good’ looks like</p>	<ul style="list-style-type: none"> • Customers would like a clearer website process without unexplained jargon and with more information (e.g. load calculator, signposting for their situation) [E099]. • Customers would like a portal [E099]. • Customers would like the process to be faster [E099].
<p>Microgeneration customers</p> <p>We co-created a new microgen connections process by collaborating in online focus groups to understand what ‘good’ looks like</p>	<ul style="list-style-type: none"> • Our engineers were praised; the challenge is with the application process [E099]. • Customers are looking for a simplified, streamlined service with some kind of ‘feasibility study’ to check loads before application is put in [E099]. • Customers would value a portal where they can track the progress of all their applications [E099].
<p>Major connections customers</p> <p>We collaborated with major connections customers via an expert panel and a survey to co-create the service they want</p>	<ul style="list-style-type: none"> • Customers wanted data to be available at the pre-application stage to help them design solutions around network constraints [E022]. • The ability to self-serve throughout the process would be welcomed [E022]. • Additional, skilled workforce is necessary [E022][E020]. • LAs and community schemes should not receive preferential treatment for connections [E022].

- Out of the further proposals we put forward to stakeholders, the most popular were 'full review of current info and guidance published on website', 'expand and improve current processes on offerings of flexible services at both demand and generation' and 'improve communication and processes to inform customers how they can amend connections requests to connect quicker and cheaper' [E022].

DG customers

We engaged with key customers via steering panels and focus groups to understand their priorities for ED2

- Resourcing needs to be increased in this area as communication with project managers is a blocker due to the large number of projects [E020][E021].
- Repeat offers being required due to changes (e.g. need for flexible connection, add-cap etc) should be faster [E021].
- Changing to a shallow connection boundary would have a negative impact on generation in the north of Scotland [E021].
- 67% of customers were not sure they would hold off on submitting applications until SCR implementation to avoid upfront reinforcement costs [E021].
- One customer thought that some offers are not straightforward and that access to system planners would allow stakeholders to word the application for a connection appropriately as part of the offer [E021].
- Another suggested that we should provide network record data prior to submission of a formal application [E025].
- Only 17% of DG customers, said there would be more acceptance of quotations if upfront reinforcement costs (on 132/33kv works) were replaced by higher locational use of the system changes. The majority expected no change or did not know how it would impact the acceptance rates [E021].
- A customer recommended a review into whether grid milestones should be strictly adhered to with a number of months leeway ie before acceptance [E021].
- 67% of distributed generation stakeholders expressed that they think we should extend or increase the number of options of flexible connections available [E021][E023][E025].
- 50% distributed generation customers felt confident in participating in the flexibility market [E021].
- A DG customer felt we needed to move beyond AMN and smart management of the network as part of their major connections strategy and said there must be a plan for large scale investment in network which needs to facilitate equitable vehicle charging [E021].
- A DG customer felt it was great we had plans for the future and ICE but we need to focus on the core level service delivery [E022].

	<ul style="list-style-type: none"> • One distributed generation customer thought that there needs to be more engagement throughout the entire connections process [E021]. • Other DG representatives felt that we should urgently focus on all stages of the Connections Journey [E031]. • A distributed generation customer suggested working and involving the innovation team and communicating early, which has brought benefits in the past [E021] • Distributed generation customer were keen to see us improve our relationship with National Grid and Transmission in order to improve communication and timescales. However, although they acknowledged the difficulty in engaging with National Grid, they felt that DNOs could go could further in helping customers to feel greater confidence in project progress [E031]. • We should ensure that Appendix G on the website is up to date [E031]. • Improving access to system planners and producing ANM curtailment reports quicker (but not a video) were by far the most important pre-application actions. [E031] • DG thought we do not have a clear customer journey or timelines available [E021]. • Improved access to system planners would speed up the preapplication process and wanted [E031]. • Customers wanted to see improvements in more frequent application meetings and surgeries. The key suggestions were moving away from a surgery-heavy approach and ensuring that all key information is contained in budgets [E031]. • A third of distributed generation customers voted for us to extend heat map capabilities (CMZs, align with SWRR, group substations together, postcode search, combine with demand heat map) [E031]. • A distributed generation customer thought everything should be wrapped up in terms of financial closure, within 3 months of energisation, advising they sometimes have to chase to get projects properly financially closed [E022].
<p>LAs/Community Energy Groups</p> <p>We engaged with key customers via steering panels and focus groups to understand their priorities for ED2</p>	<ul style="list-style-type: none"> • Local authority and community energy groups said that we should provide access to system planners at pre-application stage [E023]. • Stakeholders thought that we should make estimated curtailment assessment or ranges for constrained parts of our network available, with one DNO pointing out that we are the only DNO which doesn't produce curtailment reports [E023]. • Our Unmetered webpage should cover electric vehicle charging from unmetered supplies, and explanation of 'unmetered' [E027]. • More updates on processes, locations of EV chargers, Active Network Management videos and EV capacity maps also proved

	<p>popular with local authorities and community energy groups, a single point of contact for discussing and advising on the options available received the most upvotes [E032].</p> <ul style="list-style-type: none"> • The idea of creating a technical policy on battery storage was the most supported with local authority and community energy groups [E032].
<p>ICPs/IDNOs</p> <p>We engaged with key wider industry stakeholders via steering panels and focus groups to understand their priorities for ED2</p>	<ul style="list-style-type: none"> • All ICPs/IDNOs agreed it would be very beneficial to them to be able to have online self-service connections capabilities which provide instant quotes [E024]. • Updates on ICP SAPs in order to isolate existing SSEN RMUs was a popular idea. While stakeholders generally understood our predicament, they stated that the current process was frustrating and inefficient. However, it was stressed that this issue could be resolved through greater collaboration with IDNOs [E033]. • Customer Service resourcing needs to be increased in this area as communication with project managers is a blocker due to the large number of projects [E038]. • All ICPs/IDNOs said they would like to be able to see network monitoring data as well as capacity heat maps available on our website [E024]. • A stakeholder felt there was a lack of experienced system planners and designers, and that perhaps there was an opportunity to help develop the industry in terms of training development [E022].
<p>Housing Developers</p> <p>We engaged with key customers via steering panels and focus groups to understand their priorities for ED2</p>	<ul style="list-style-type: none"> • A stakeholder felt financial closure within one month or 28 business days is reasonable [E022]. • Stakeholder wanted to see a clear breakdown of Connection Costs (Contestable and Non-Contestable) for new developments application from us, which would help to understand what the costs are and any additional costs not included that the developer will have to pay [E039]. • Developers commented some iDNOS have Developer Technical and/or Ground-worker Guides which include diagrams, step by step guides of mains and service connections processes, lead times, excavation sizing (i.e. Breach Joints), riser cupboard dimensions (ensure all electric meters and electrical equipment appropriately sized) etc, which allows developers to understand and make better decisions based on our capabilities and requirements [E039]. • Housing developers felt there was too much variance between DNOs on connections and that local authority planning depts and DNOs need to discuss more to improve clarification on diversity from IDNOs and DNOs [E039]. • Housing developers keenly wanted us to provide a how-to guide for flexible connections for housing developments and ensure

	<p>that these guides are kept up to date and made readily available [E035].</p> <ul style="list-style-type: none"> • There was a feeling general among the housing developers that having one consistent designer for large projects needing multiple quotes should be an important area of focus and recommended simplifying project naming systems in order to make the design process less complicated [E035]. • Most of the discussion with housing developers revolved around the idea of providing a better understanding around the diversity factors we use – greater knowledge would enable developers to understand how and where networks would be evolving as LCT is rolled out [E035]. • Housing developers felt that a self-service portal will be good for formal quotations but thought having a web portal for budget would be a waste of time [E039].
<p>Supply chain</p> <p>We engaged with stakeholders via steering panels and focus groups to understand their priorities and co-create solutions</p>	<ul style="list-style-type: none"> • Stakeholders said we need to make the connection process easier for the general public or it will get the blame for not being able to support low carbon activity [E025]. • One stakeholder felt we have 4 or 5 silos when it comes to delivering connections and they don't all work together to serve the customer – pointed to WPD for good practice due to a regional set up model and work collectively [E025]. • To better support the connections process, stakeholders asked for more flexible process, access to key information, ability to speak to technical staff, flexible connections that will permit early power availability, more community focus to assist local area plans [E025]. • One stakeholder felt that our internal processes are inflexible, and process driven and there is a need to change that mindset [E025]. • 75% of stakeholders agreed they would not expect themselves or their customers to hold off on submitting applications until SCR implementation to avoid upfront reinforcement costs under existing charging regime [E025]. • One supply chain representative pointed out that NPg offer customers different payment options [E025]. • Another recommended that we provide bespoke connection offers to include optioneering, curtailment and feasibility assessments to reduce engineers' energy and resource being wasted as it's far better to put the effort in to reliable, accurate quotes [E025]. • We could better support connections customers by considering a metric to evaluate what asset capacity should be put back in at an exchange, instead of just LFL [E025]. • Supply chain stakeholder groups asked for better account management and customer service [E025].

Consultants

We engaged with stakeholders via an expert panel, a workshop and a focus group to understand their priorities and co-create solutions

- The consultant stakeholder group felt that there is an issue is the ratio between grid apps and accepted offers, which results waste of engineering time/resource. It was felt that 95-99% of the connection community don't make good use of engineers time so we need to charge for it [E025].
- A consultant called for us to increase the ratio of applications to accepted offers in order to facilitate more connections and accelerate path to net zero – advised that UKPN acceptance rate is around 11% [E036].
- One stakeholder said if feels as if we are working towards the 65-day deadline for connections offers where work sits at the bottom of the pile until then – stakeholder wanted to see us providing updates during this time and said better communication is required all round [E025].
- One stakeholder felt that our online portal needs to [E020]:
 - allow uploading of all documents and plans required as part of the application process (currently it does not support large uploads)
 - incorporate some sort of mapping system/heat maps, so can mark-up electronically site boundary
 - state duration of formal quotation request (PDF application and notes/guides should also do this).

Consumers

We tested domestic and non-domestic customers' priorities for 15 initiatives separately for the North and South License Areas via a robust Willingness to Pay study

- Willingness to pay for a self-service connections portal to be created was a medium priority, relative to other initiatives, for all customers except non-household customers in the South, who consider this a high priority [E126].
- Reducing average connection times for small/minor connections from 28 days to 27 days is a low priority relative to other initiatives amongst all customer segments apart from non-domestic customers in the South, for whom this is a medium priority; it is noted that respondents, particularly domestic customers, almost certainly lacked personal experience of connections, and so would be unlikely to understand the frustration that longer connection times causes connections customers [E126].

ENGAGEMENT STATISTICS



ED2 ENGAGEMENT EVENTS

43



INSIGHTS

510



STAKEHOLDERS ENGAGED

3,406

STAKEHOLDER SEGMENTS ENGAGED

CONSUMERS	Domestic customers	Customers in vulnerable situations	Transient customers	Next generation bill payers	SMEs	Major energy users		
CUSTOMERS	Distributed generation customers	Builders and developers	Community energy schemes	Landowners/ farmers				
POLICY MAKERS AND INFLUENCERS	Government	Research bodies, policy forums and think tanks	Media	Consumer groups	Regulators			
COMMUNITIES AND LOCAL DECISION MAKERS	Local authorities	Charities	Academic institutions	Housing associations				
	Vulnerable customer representatives	LEPs	Emergency response	Healthcare	Community interest bodies			
WIDER INDUSTRY AND VALUE CHAIN	DNOs	Transmission	GDNs	Water	Telecoms	IDNOs		
	ICPs	Consultants	Energy suppliers	EV charging	Other supply chain	Storage and renewable providers/ installers	Transport and highways agencies	
PARTNERS AND ENABLERS	Current and future employees	Contractors	Service partners	Shareholders	Investors	Business advisers	Trade unions	

EVIDENCE ASSESSMENT

ENGAGEMENT SCORE KEY

The engagement score assigns a weight to each source accounting for the robustness of the engagement event and the relevance of the feedback to the topic.

Score	Description
1-1.66	Limited evidence of good event planning, methodology or data collection. Feedback provided is high level with tangential relevance to the topic.
1.67-2.33	Good evidence of engagement planning and discussion of data collection methods, but limited depth of feedback and range of opinions. Feedback not necessarily fully aligned to the topic and only provides a limited insight and thus moderately useful.
2.34-3	Well conducted, trustworthy event with highly relevant feedback. Specific, clear and relevant information with clear link to the topic discussed and high value added.

Phase	Date	Event ID	Event name	Key stakeholder groups	Number of stakeholders engaged	Engagement score
Phase 4: Testing and Acceptance	Oct-21	E180	Regen study: <i>Enabling DSO Through Net Zero</i>	Consultants, Contractors, Domestic customers, Local authorities, Storage and renewables providers/installers, Major Energy Users, Community energy schemes, Community interest groups, Vulnerable customer representatives, EV Charging Installers and manufacturers and Trade Unions	203	3.0
	Oct-21	E153	Employee Consultation Document Engagement on Draft Plan	Current and future employees	3	2.3
	Oct-21	E155	Stakeholder Consultation Document Engagement on Draft Plan	Community interest groups, storage and renewables suppliers, emergency response, healthcare and highways agencies	19	2.8
	Sep-21	E156	Draft Plan Qualitative Acceptability Testing Event	Domestic Customers	46	3.0

Phase	Date	Event ID	Event name	Key stakeholder groups	Number of stakeholders engaged	Engagement score
Phase 4: Testing and Acceptance	Oct-21	E171	Engagement on Draft Connections Outputs	Housing associations, local authorities, community energy groups, distributed generation customers, consultants, ICPs and IDNOs	67	2.5
	Sep-21	E151	Consolidated Outputs and Costings Event	Contractors, Consultants, Local Authorities, National Government, Storage and Renewables suppliers, Supply Chain	106	3.0
	Sep-21	E152	Academic Panel	Academic Institutions	7	2.5
	Sep-21	E170	Microsite survey on Costed outputs	Domestic Customers, Vulnerable Customers and Future Customers	1298	2.7
	Sep-21	E175	Flexibility CVP Expert Event	Community Energy Schemes, Charities, Local Authorities,	31	2.0
	Aug-21	E163	Significant Code Review Survey	Distributed generation customers, ICPs, supply chain and EV ChargePoint's	13	2.7
	Aug-21	E166	Corporate Affairs General Bilateral	Government, Storage and renewables providers	25	1.5
	Aug-21	E174	Consumer and Vulnerability Employee Engagement	Current and future employees	17	1.5
	Jul-21	E167	Sustainability Strategy consultation	Vulnerable customer representative, A storage and renewables representative and Community Interest Group	4	2.0
Phase 3: Business Plan Refinement	Mar-21	E125	Willingness to Pay Qualitative testing	Domestic customers, customers in vulnerable situations, next generation bill payers, SMEs	54	2.5
	May-21	E126	Willingness to Pay Quantitative report	Domestic customers, customers in vulnerable situations, next generation bill payers, SMEs	1,161	2.5

Phase 2: Co-creation	Mar-21	E099	Co-creating an improved connections process	Domestic customers, SMEs	52	3.0
	Jan-21	E020	Connections ICE Engagement - BAU and ED2 Survey	Distributed generation customers, builders and developers, local authorities, ICPs and IDNOs	16	2.3
	Feb-21	E022	Major Connections Customer Expert Panel	Distributed generation customers, builders and developers, local authorities, ICPs and IDNOs	9	2.5
	Dec-20	E021	Connections engagement - ED2 focus groups - Distributed Generation	Distributed generation customers	6	2.3
	Dec-20	E023	Connections engagement - ED2 focus groups - Local Authorities and Community Energy Groups	Local authorities, community energy schemes	4	2.3
	Dec-20	E024	Connections engagement - ED2 focus groups - ICPs/IDNOs	ICPs, IDNOs	6	2.3
	Dec-20	E025	Connections engagement - ED2 focus groups - Commercial/Industrial/Consultants	Consultants	4	2.3
	Nov-20	E036	Connections ICE Engagement – ED2 Expert Panel - Commercial, Industrial and Consultants / Distributed Generators	Consultants	4	2.5
	Nov-20	E037	Connections ICE Engagement – ED2 Expert Panel - Local Authorities and Community Energy Schemes	Research bodies, policy forums and think tanks, service partners	2	2.5
	Nov-20	E038	Connections ICE Engagement – ED2 Expert Panel - ICPs/IDNOs	ICPs, IDNOs	2	2.5
	Nov-20	E039	Connections ICE Engagement – ED2 Expert Panel - Housing Developers	Builders and developers	2	2.5
	Nov-20	E040	Connections ICE Engagement - ED2 bi-lateral Unmetered	Telecoms	1	2.5
	Nov-20	E055	Flexible connections webinar	Distributed generation customers, current and future employees, other supply chain, healthcare	37	2.0
	Oct-20	E031	Connections ICE Engagement - BAU and ED2 Connections Customer Steering Panel (CCSP) - Distributed Generation	Distributed generation customers	21	2.5
	Oct-20	E032	Connections ICE Engagement - BAU and ED2 Connections Customer Steering Panel (CCSP) - Local Authorities and Community Energy Schemes	Local authorities, community energy schemes	14	2.5
Oct-20	E033	Connections ICE Engagement - BAU and ED2 Connections Customer Steering Panel (CCSP) - ICPs/IDNOs	ICPs, IDNOs	12	2.5	

	Oct-20	E034	Connections ICE Engagement - BAU and ED2 Connections Customer Steering Panel (CCSP) - Commercial, Industrial and Consultants	Consultants, contractors, other supply chain	10	2.5
	Oct-20	E035	Connections ICE Engagement - BAU and ED2 Connections Customer Steering Panel (CCSP) - Housing Developers	Builders and developers	8	2.5
	Jul-20	E027	Connections ICE Engagement - BAU Stakeholder Forums - Local Authorities and Community Energy Schemes	Local authorities, community energy schemes	9	2.5
	Jul-20	E028	Connections ICE Engagement - BAU Stakeholder Forums - ICPs/IDNOs	ICPs, IDNOs	15	2.0
	Jul-20	E029	Connections ICE Engagement - BAU Stakeholder Forums - Commercial, Industrial and Consultants	Consultants	5	2.0
	Jul-20	E030	Connections ICE Engagement - BAU Stakeholder Forums -Housing Developers	Builders and developers	10	2.0
Phase 1: Open Discovery	Feb-20	E014	Energy Expert Roundtable	Local government, Vulnerable customer representatives, Emergency response	6	1.8
BAU Insights	Sep-19	E008	SSEN Distribution Stakeholders Workshops - Bournemouth	Local government	17	2.0
	Sep-19	E010	SSEN Distribution Stakeholders Workshops - Forres	Consumer groups	24	2.0
	Sep-19	E011	SSEN Distribution Stakeholders Workshops - Oxford	Wider industry & value chain, Consultants, ICPs	24	2.0
	Sep-19	E013	SSEN Distribution Stakeholders Workshops - Reading	Local government	27	2.0
	Dec-18	E018	DSO Consultation - Supporting a smarter electricity system	Charities, Local government	5	1.8

MEASUREMENT OF SUCCESS

The table below sets out the benefits that the innovation strategy and output will deliver to customers.

Output	Northern Target	Southern Target	Comparison to RIIO-1	Cost in baseline plan	Consumer benefit
Improve the end-to-end process (application, design, quote and connection) for all our connections and introduce automated quotation services for domestic LCT and minor connections customers by 2025	Self-serve portal and automated quotation by 2025	Self-serve portal and automated quotation by 2025	New for ED2	£10.8m	Our Open Door and Connections+ IT projects will provide more granular detail on our available capacity and real-time updates on network load. <ul style="list-style-type: none"> £4.6m cost efficiency benefits delivered over RIIO-ED2 £3.8m additional societal benefits delivered to connections customers through saved time and increased satisfaction. These benefits are attributable to the last 2 years of RIIO-ED2 once the improved process is in place. We expect these benefits to be ongoing beyond RIIO-ED2.
Deliver high quality services to our major connections customer achieving a customer satisfaction of 9/10 or above by the end of ED2	9/10	9/10	New for ED2		Major connection customers provided with tailored services thanks to more flexible connection options and enhanced communication throughout the connections process.
Achieve an average customer satisfaction score for connections of at least 9.2	9.2	9.2	<u>2019/20</u> North: 9.16 South: 8.64		Improved customer service and satisfaction.

Output	Northern Target	Southern Target	Comparison to RIIO-1	Cost in baseline plan	Consumer benefit
By 2028 meet our targets and further reduce average Time to Connect by 1 day in SHEPD and 2 days in SEPD compared to 2019/20	1 day faster than 2019/20 timescales	2 days faster than 2019/20 timescales	<u>2019/20</u> North: 17 working days South: 29 working days	Incremental	Faster access to LCT
Meet our obligations under GSOPs for connections on an ongoing basis and aim to reduce the number of failures over the period	At least 99.5% every year	At least 99.5% every year	<u>ED1 average up to and including 2020/21</u> North: 99.90% South: 99.32%	N/A	Customers receive guaranteed levels of performance for connections services.

Appendix E

ACCESS AND FORWARD-LOOKING CHARGES SIGNIFICANT CODE REVIEW

In June of 2021 Ofgem issued their minded to position on three key areas of their Access and Forward-looking Charges Significant Code Review (SCR).

- i) Distribution connection charging,
- ii) Definition and choice of access rights
- iii) Transmission charges for small, distributed generators (1MW-100MW)

After analysing the outputs from our internal working groups and stakeholder engagement events we presented a proposal to the CEG that we would not make significant changes to our baseline C2 or CV1-CV4 costs and volumes due to the uncertainty of behavioural changes.

Our CEG agreed with that approach, and we believe that an appropriately designed Strategic Investment **Uncertainty Mechanism (Annex 17.1)** will be reactive and flexible enough to cover the potential increase or decreases in Capital funding required by DNO's.

We have therefore made several assumptions for our best, low, and high impact views in the M30 a & b tables in the BPDT's.

- **Best view** assumes no behavioural changes (based on clear uncertainty of scale of changes) and considers only the boundary changes where customer funded contributions would move to DNO funded. This impact amounts to an increase in DNO funding of **£32.5m**.
- **High impact view** assumes that these changes play a major role in getting us to net zero targets and is a core regulatory decision that sees our Consumer Transformation scenario come to fruition. This impact amounts to an increase in DNO funding of **£272.8m**.
- And finally, our **low impact view** considers the cost movement from connections boundary changes, no demand behavioural changes, but a significant decrease of DG connecting in our SHEPD licence area due to increased charges faced through TNUoS for small DG (<50%). This impact amounts to an increase in DNO funding of **£13.5m**.

OVERVIEW OF THE MINDED TO DECISIONS

As a very high-level overview, Ofgem is minded to:

- By 1 April 2023, **introduce a shallower connection boundary for generators** (so that generators contribute less than they do at present to reinforcement within their upfront connection charge) **and a shallow connection boundary for demand** (whereby demand would not pay for any reinforcement in their upfront connection charge).
- By 1 April 2023, **introduce low regret access rights choices** that (i) more clearly define the level of firmness (and the level of constraint at which compensation might be due) and (ii) time-profiled access, which recognises the value to the network of users electing for peak or off-peak access relative to continuous, all year-round access rights.
- **Introduce a change so that SDG faces wider TNUoS generator charges.** Currently these customers do not face these charges, but rather incur a zero charge or credits through the Embedded Export Tariff.

Ofgem continues to work through feedback from its minded-to decision alongside additional input from the ENA implementation working groups. This is likely to result in the need for additional consultation as refined detail and new thinking develops ahead of an anticipated decision in Spring 2022. Any decision will be followed by detailed work to establish the necessary changes in Codes, engineering documentation and commercial agreements ahead of an April 2023 implementation.

Alongside this, Ofgem is currently consulting on the next steps for DUoS reform (i.e., removal of DUoS modification from the current SCR and the creation of a new SCR) which is unlikely to result in changes until 2025 at the earliest. And similarly, Ofgem's programmes on Full Chain Flexibility and TNUoS reform continue to change and modify the overall framework; as will wider code reform coordinated by BEIS and Ofgem, which may result in changes in 2024 or 2026.

All the consultations and reviews only add to the uncertainty of our customers and the impact these decisions might have on their behaviours.

OFGEM'S PROPOSALS FOR DISTRIBUTION NETWORK CONNECTION CHARGES

Ofgem launched the Access SCR in December 2018 as they believe that the current access arrangements would not adequately achieve the potential savings of a more dynamic and flexible system.

Customers connecting to Distribution networks currently face an upfront charge made up of the cost of new assets needed to connect to the existing network (so-called 'sole use' or 'extension' assets), and a contribution towards the reinforcement of existing shared network assets (so-called 'shared reinforcement' or 'cost apportionment'). This approach was originally intended to provide a signal to customers to avoid constrained parts of the network where expensive reinforcement is required.

However, Ofgem is concerned that this only gives signals to those who require a supply capacity over and above the spare capacity available on the network. It is also concerned that under the current

arrangements, generators are unwilling to pay towards reinforcement, opting for a reduced capacity or non-firm connection until others react first to trigger the reinforcement.

Given the increase in investment needed to support the electrification of heat and transport, Ofgem is now minded to reduce the contribution to reinforcement within the upfront connection charge for generation and remove it completely for demand.

For demand customers, this means that customers would no longer contribute towards the reinforcement of any assets after the implementation of any rule changes.

For generation customers, this means amending the voltage rule so that connection customers contribute to reinforcement only at the same voltage as the point of connection (POC). Ofgem does not propose to remove the High Cost Cap for DG and suggests it could be applied without being narrowed by the voltage level changes, so DG would still fund reinforcement above £200 / kW.

For both demand and generation, there would be no change to how connection charges apply for extension (or sole use) assets. For storage, which have both demand and generation characteristics, Ofgem expects the import and export components to be treated separately for the purposes of the connection charge as is the case at present, i.e., its charge will depend on what the driver for the storage asset is.

Despite adopting this shallower position, Ofgem is minded to continue to charge Transmission Attributable work (e.g. upgrading a Grid Supply Point) that has been triggered by a distribution connection to the individual connection customer as part of the DNO's connection charge.

Whilst part of earlier proposals, Ofgem is not minded to introduce the option for users to defer payment of connection charges until after the connection is made, or introduce new liability or security obligations on any users.

OFGEM'S PROPOSALS FOR IMPROVED DEFINITION AND CHOICE OF ACCESS RIGHTS

Network access rights define the nature of users' access to the network and the capacity they can use – how much they can import or export, when and for how long, and whether their access is to be interrupted and what happens if it is. Ofgem thinks that users should receive value when they choose an access right that avoids additional network costs.

To date, users have generally had limited choice of access rights. Ofgem is minded to introduce the following low regret access rights choices for new users wanting to connect, and existing users wanting to amend their access rights over time.

- **Levels of firmness at Distribution:** This would provide choices about the extent to which a user's access to the network can be restricted and their eligibility for compensation if it is restricted. Ofgem is proposing that this would be defined in relation to the % of time that users are willing to be curtailed.

- Time-profiled access at Distribution: This would provide choices other than continuous, year-round access rights (e.g., 'peak' or 'off-peak' access). Users would be able to identify the % of their total access rights that are time profiled, choosing whether to have no access or non-firm access during peak periods.

In combination with a shallow or shallower connection boundary, the incentives for accepting reduced Access Rights are limited to faster connections only (i.e., there is no financial advantage to be had if the customer is not paying for it through its connection charge) and certainty of network access – beyond which DNOs would be required to enter into flexibility service agreements.

Ofgem expects the penalties and measures put in place by DNOs to monitor and enforce access rights to be significantly increased, which will necessitate accurate records to underpin any enforcement action.

Ofgem is minded not to proceed with shared access at this time, which would allow users across multiple sites, in the same broad area, to obtain access to the whole network, up to a jointly agreed level, on practical grounds. The ENA's Open Networks is taking this forward alongside work on trading access.

OFGEM'S PROPOSALS FOR ONGOING TRANSMISSION NETWORK CHARGES/TNUoS CHARGING FOR SDG

Ofgem considers that the current charging arrangements for generators under 100 MW are no longer fit for purpose. In short, this stems from generators currently facing different charges depending on their size and where they connect to the network. Most notably, large generators face TNUoS generator charges, while small, distributed generation (SDG) faces the Embedded Export Tariff (EET) which means they incur zero charge or only receive a credit.

Ofgem does not think the impact export has on the T networks differs between the size of the generator or whether they are connected at T or D and, therefore, the differences in the charging arrangements between large generation and SDG creates a distortion that can lead to inefficient network usage. To address this, Ofgem is minded to - where practical - charge all users over 1 MW TNUoS generation charges. For SDG with an export capacity below 1 MW, Ofgem is proposing that these generators should not face TNUoS generation charges. Generation under 1 MW will continue to face the inverse of demand charges under the EET, but with the removal of the current cap.

In terms of the impact of the application of wider TNUoS charges to SDG, Ofgem's analysis - based on connected generators - indicates that there is 5.6 GW of renewables and 0.9 GW of storage that will see TNUoS costs increase under its reforms. The impact is expected to be greatest in Scotland because SDG currently have their charges capped at zero.

Ofgem recognises that while the above removes the different treatment of small and large generation with regards to Wider TNUoS, it does not address the difference in treatment between Transmission-connected generation (TG) and all DG, as only TG faces Local charges. This is recognised - particularly in the context of island links, where reference is made to the new HVDC link to Shetland - however, Ofgem is

not taking this forward through this SCR. Instead, it recognises this as an area for 'further analysis and evidence-gathering' before reaching any policy position.

OUR APPROACH TO ASSESSING THE IMPACTS

On the issuing of the minded to proposals in June, we developed an approach to assess the potential impacts of these changes to our business and to our RIIO-ED2 plans. The business plan guidance states that DNO's should consider the impacts of the minded to decisions within their final business plans due for submission in December 2021. Impacts should be included if we have credible evidence from our customers on what they will do differently because of Access SCR. Otherwise we risk exposing consumers to unnecessary expenditure which is not supported by need cases certainty.

ENGAGING STAKEHOLDERS

In August we issued a survey to our full database of connections stakeholders and customers to gather their thoughts on the Access SCR minded to proposals but also their expected impacts on their customer groups.

Further bilateral calls were held with some distributed generation consultants and industrial/data centre customers to explore the impacts and confirm the findings from the survey in further detail.

We have provided a summary of our responses in Table 17 and a summary of impacts in Figure 18 below:

Key Outputs from Engagement	Demand Customers Potential Impact and Expectations	Generation Customers Potential Impact and Expectations
Connection charging boundary	<ul style="list-style-type: none"> • Most important factor for projects is customer demand • Less likely to reduce capacities going forward • Mixture of responses on increased job numbers but not likely to defer projects until April 23 • Expectation that we will work together at pre-development for any strategic investment • No real impact on large data centre customers 	<ul style="list-style-type: none"> • Reinforcement and DUoS most important factors • Less likely to reduce capacity in South but not helping North so no change • Microgen applications may increase in size • Mixture of responses on job numbers impact but only South likely to defer projects until April 23 • Better coordination with local energy providers, LA's etc to be able to pre-emptively start reinforcement • Do larger reinforcement than contracted levels where there is clear sight of future need

<p>Definition and choice of access rights</p>	<ul style="list-style-type: none"> • Some willing to consider connections with certain levels of curtailment but not for domestic and not keen on time profiled • Depending on situation would discuss taking short term flex connection while any long-term reinforcement being completed 	<ul style="list-style-type: none"> • Would like stricter levels of curtailment to be agreed upfront with penalties • Time profiled depending on project and most likely to consider short term flex while any long-term reinforcement being completed • Some would look to increase firmness of existing connections if reduced reinforcement cost
<p>Transmission charges for SDG (small distributed generators)</p>	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Most support the case for TNUoS reform but feel it appropriate to pause applying TNUoS to SDG while such reform is considered. • Could make customers avoid distribution and North connections completely and if no grandfather rights will prevent re-powering and close some sites • For pure solar generation in South it will have a negative impact but not as great an impact as reduction of wind/hydro in North

Table 17 Engagement Findings

SSEN IMPACTS

More reinforcement costs collected through DUoS

STRATEGIC REINFORCEMENT

- DNOs more responsible for the timing and nature of efficient reinforcement
- Introduces investment drivers to manage curtailment and increase capacity
- Requires development of investment planning approach (i.e. use scenarios and optioneering in decision making)

FLEXIBILITY SERVICES

- May replace/supersede flexible connections
- Greater role for flexibility services
- Need to anticipate and commit to levels of curtailment
- Need mechanisms to efficiently dispatch flex services

UNCERTAIN CUSTOMER RESPONSE

- May increase count and scale of generation
- May lead to increased (or lower) levels of utilisation

ECCR REGULATIONS NEED TO BE REVISED

New records, systems and data exchange to be established.

CUSTOMER IMPACTS

INVESTMENT INFLUENCES

- Demand connections not influenced by reinforcement
- Generation connection still influenced by reinforcement, extension costs and High Cost Cap
- All connections influenced by time to connect
- EHV DUoS remains hyper locational, HV and LV remain averaged
- Revenue uncertainty due to ambiguous TNUoS for SDG (charges in North Scotland/credits in South England)

FLEXIBILITY

- Reduced incentive to take flexible connections
- Could choose to connect faster
- Increased prospect for ONO & ESQ [paid for] services Connection requests
- May defer connections activity till 2023
- Reduces benefit of hoarding/carpet bagging capacity

Figure 18 Impacts

CONSIDERATIONS FOR OUR RIIO-ED2 BUSINESS PLAN

Table 18 shows the key impacts and areas of potential change due to the Access SCR proposals. A further summary is attached in Appendix A.

Potential impact		Description
Changes in the amount of funding required	Connection boundary	Any change to the depth of connection charges would alter the costs to be recovered through the price control. A more shallow connection might also help to create opportunities to consider alternatives to traditional reinforcement and might also impact user behaviour (e.g. the number of new connections) and the amount of investment required in new network capacity.
	New costs	Some options could mean DNOs incur new costs (e.g. new network monitoring or billing systems) . Should we decide the benefits outweigh the costs, there would need to be a mechanism under ED2 for the DNOs to receive funding.
	Network capacity requirements	Options for reform could impact users' behaviour . May encourage more new connections and therefore increase the flexibility choices available to DNOs resulting in less load related reinforcement spend. However, equally, by encouraging more new connections and removing/ diluting the connection price signal, potential to increase network constraints/ requirements resulting in more load related spend
Changes to level of risk	Output and incentive risk	Reforms could lead to risks of DNOs being unable to deliver target output levels . For example, increased volumes of connections could impact DNO connection performance (e.g. time to connect or guaranteed standards) or network utilisation levels (e.g. IIs). Higher risk of customer cancellation with no security/liability decisions. This could in some cases lead to stranded assets and low utilisation

Table 18 Key Impacts on ED2 Plan

SUMMARY AND OUR PROPOSAL FOR FINAL SUBMISSION

Uncertainty was a key theme running throughout all the responses and discussions we carried out to analyse the impacts of the Access SCR minded to proposals. Below is a short summary of our assessment across the 3 areas followed by our final business plan submission proposal and M30a/b impacts.

SUMMARY OF DECISIONS

CONNECTION CHARGING BOUNDARY

Demand customers, generation customers, external stakeholders, other DNOs and TO's were uncertain of the true impact of the Access SCR at this point, mainly due to the lack of detail provided by Ofgem on parts of the reforms and due to the clarity of impacts of other reforms. Almost all our customer groups (SHEPD DG customers perhaps the exception) felt that the reduction in the charging boundary would reduce a barrier to our networks that they regularly face.

However, we found that demand customers who were offering a traditional product, like houses, commercial units, or data centres, didn't believe that this would see a significant increase in number of projects or size of projects. These types of projects are driven by a demand from customers, not necessarily the cost per se.

It is likely that we will see an increase in applications to provide connections for Low Carbon Technology customers, i.e., commercial EV charge point installations, increased DG (perhaps only in SEPD), but by how much, we remain uncertain.

DEFINITION AND CHOICE OF ACCESS RIGHTS

In regards flexible connections elements of the plan, access right changes will likely reduce the uptake of enduring flexible connections but increase the number of temporary flexible connections while customers wait for reinforcement to complete.

It will also likely increase the number of Flexibility services SSEN needs as interim solutions while reinforcements are undertaken/completed. ANM implementation in general should remain in-line with current expectations as the technical capabilities of these systems will support both flex connections and flexibility services alike.

The application of curtailment payments (i.e., where we guarantee a flexibly connected generator % of capacity but do not meet this = a compensation payment) is also likely to encourage connectee's to consider flexible connections in ED2 regardless of the Access SCR outputs. This is likely to also be a compromise for the legacy systems that may consider a change from existing flexible connections to more firm connections.

TRANSMISSION CHARGES FOR SDG (SMALL DISTRIBUTED GENERATORS)

Our engagement on Access SCR with our Generation customers has produced two very differing opinions on the impact of the proposed charging change for SDG customers.

In our SEPD licence the charges are unlikely to have significant impacts on the volume of generation connecting to the distribution network.

In our SHEPD licence however, this could have a noticeable impact on future and existing generation. Our customers and stakeholders believe that this will reduce the amount of generation connecting in the North, reduce the number of sites that are 're-powered' and could also lead to the closure of sites without the introduction of grandfather's rights for existing providers.

FINAL PLAN PROPOSAL

After analysing the outputs from our internal working groups and stakeholder engagement events we presented a proposal to the CEG that we would not make significant changes to our baseline C2 or CV1-CV4 costs and volumes due to the uncertainty of behavioural changes. Our CEG agreed with that approach and believe that an appropriately designed Strategic Investment **Uncertainty Mechanism (Annex 17.1)** will be reactive and flexible enough to cover the potential increase or decreases in Capital funding required by DNO's.

All views below have been based on our existing analysis and customer engagement but will require further analysis ahead of determinations and will be developed in tandem with Ofgem's working group and other DNOs.

BEST VIEW

Because of the above we have not included any behavioural changes in our **Best View** and have only made changes where we deem them to be clear i.e., charging boundary changes resulting in increased DUoS funding on baseline connections forecasts.

This change equates to approximately **£20.2m in SEPD** and **£12.3m in SHEPD**. In the calculations we have assumed that the large known schemes included in the BPDT will proceed and are subject to existing charging methodologies. We have also made assumptions on the movement of DG apportionments and have used historic projects to forecast the split of reinforcement that will be at the same voltage level as the Point of Connection and also to forecast customer contributions in respect of High-Cost Cap.

For example, 95% of customer apportionment at DG 132kV in SEPD moves from customer to DNO funded as most of the schemes triggering these reinforcements are 33kV connected schemes.

Table 19 below summarises the changes which we have included in the M30a & M30b memo tables for our Best Impact View.

£m	SSEN	SHEPD	SEPD
C2	32.5	12.3	20.2

Table 19 Best View Impact Increases

HIGH IMPACT

In discussion with our CEG and REGEN we have also considered that the changes proposed in the Access SCR is potentially one of the major changes required, politically or regulatory, to hit net zero targets. Because of this we have considered the upper range of our Consumer Transformation scenario as our **High Impact**. We have split this out across CV1-CV4 tables and taking this view could ultimately see an increase of **£202.3m in SEPD** and **£70.5m in SHEPD**. This considers that the existing boundary changes are still present (circa £32.5m as per Best View) and that all reinforcements are carried out strategically and at no cost to our customers thus CV1-CV4 increases as stated. Table 20 below summarises the changes which we have included in the M30a & M30b memo tables for our High Impact View.

£m	SSEN	SHEPD	SEPD
C2	32.5	12.3	20.2
CV1	168.5	33.6	134.9
CV2	21.1	6.9	14.2
CV3	31.7	0.1	31.6
CV4	19.0	17.6	1.4
TOTAL	272.8	70.5	202.3

Table 20 High Impact View Increases

LOW IMPACT

Our **Low Impact** View considers the scenario which has the least financial impact on our plans i.e., lowest increase. For this scenario we have continued to include the change from customer funded to DUoS funded. However, we have also included a potential reduction in DG in SHEPD due to the application of TNUoS charges for small DG. This change, although it may have little impact, could also see a significant impact. This view shows a possible reduction in our Totex if other behavioural changes did not come to fruition.

We have modelled a decrease in DG across the SHEPD region of 50%. This assumption has been made on the consensus that the negative impact of TNUoS charges for SDG will outweigh any positive impact of charging boundary changes in this area.

Table 21 below summarises the changes which we have included in the M30a & M30b memo tables for our High Impact View.

£m	SSEN	SHEPD	SEPD
C2	16.4	-3.8	20.2
CV1	-2.8	-2.8	0.0
CV2	0.0	0.0	0.0
CV3	-0.1	-0.1	0.0
CV4	0.0	0.0	0.0
TOTAL	13.5	-6.7	20.2

Table 21 Low Impact View