

Major Connections Annual Report 2023/24

Foreword



Paul Glendinning,
Director of Energy
Systems

Connecting customers to our network is a key enabler of decarbonisation for our region – powering the electrification of transport and heating through the connection of Electric Vehicle (EV) chargers and heat pumps, and supplying our region through renewable, distributed generation.

We are committed to providing access to our network in the fastest and most efficient way possible, and delivering 10/10 customer service through our whole process, from first contact through to an energised connection. We are delivering our clear strategy to achieve these objectives.

The past 12 months has seen a significant change in processes for the largest connections to our network, supported by unprecedented collaboration across the industry. The pace of change has been faster in the past year than ever before, leading to really significant benefits to customers.

Our Major Connections team, that looks after our largest connections, operates in our Energy Systems directorate alongside our Distribution System Operation functions of System Forecasting and System Flexibility so that it is able to benefit from the substantial synergies between them and from the growing link between connections and flexibility.

We have also made significant improvements to the processes that serve the smaller connections and have set projects in motion that will deliver great benefits.

I am really excited by the challenges that the whole industry is currently facing to decarbonise and the clear momentum that has been built to address them. This report provides you with some key information and updates on what we are delivering to get you connected and enable net zero.

Paul Glendinning
DIRECTOR OF ENERGY SYSTEMS



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Introduction

What we do

We are the company responsible for the electricity distribution network that powers everyday life for 8 million customers across 3.9 million homes and businesses in the North East, Yorkshire and northern Lincolnshire. These regions are served by our two licensees - Northern Powergrid (Northeast) plc and Northern Powergrid (Yorkshire) plc. Much of the content of this report applies equally to each licensee but, where relevant, we have provided information about each licensee that clearly distinguishes between them.

Our electricity network spans around 25,000 square kilometres and consists of 96,000 kilometres of overhead power lines and underground cables, and more than 63,000 substations. Northern Powergrid proudly serves 36 local authorities (plus associated combined authorities and local enterprise partnerships) and sits geographically adjacent to three other Distribution Network Operators (DNOs): Scottish Power Energy Networks to the north, Electricity North West to the west and National Grid Electricity Distribution to the south.

We are responsible for connecting people to the electricity network in our region and, if our customers' power supply is ever interrupted, we will be there to fix it. We strive to deliver a cost-effective, efficient and personalised service for all our connections customers, with smarter, more flexible solutions being made available that enable the connection of low carbon technologies to our network and support the transition to net zero.



8m
people served



2,600
people in our workforce



3.9m
homes and businesses



25,000
km² of network



63,000
substations



96,000
km of overhead lines and underground cables

Our Major Connections Strategy

Providing major connections in a changing energy landscape

Net zero targets are driving significant increases in new connections for Low Carbon Technologies (LCTs), renewable generation and energy storage. Enabling all of these technologies to connect to our distribution network in the most efficient and economical way is a priority for us, and as such we are constantly evolving our services to be more effective for our customers.

This report shares the progress we have made over the past year and how customers have benefitted. We set out our performance in 2023/24 against the milestones and objectives in our Major Connections Strategy, as well as providing transparency over important performance metrics.

Our strategy

Our strategy for major connections is centred around delivering an efficient and cost-effective connections service, whilst increasingly utilising smarter, more flexible solutions that support our region's net zero ambitions.

Our Major Connections Strategy covers the market segments defined in figure 1. We will give our customers more choice and deliver a range of additional services and benefits, while aiming to maintain downward pressure on connections prices.

We are acutely aware that the connections decisions we make today will affect our region's ability to reach net zero and we intend to be an enabler of this transition by making it as easy and cost-effective as possible for our customers to connect LCTs and generation to our

network. New connections are critical to achieving our collective decarbonisation goals and to enabling a whole system approach.

Our strategy is based on specific performance measures, milestones and targets that enable stakeholders to assess our performance against the principles and baseline expectations set out in Ofgem's Major Connections Governance Document. Figure 2 displays key actions embedded into our strategy that will lead to the desired customer-focused outcomes defined by the three principles of the Major Connections Incentive (MCI).

We have shaped our strategy around the priorities of stakeholders by undertaking a broad and inclusive programme of engagement, which highlighted the challenges and pressures faced by our connection customers. Our strategy includes plans to address all of our stakeholders' priorities, which vary depending on stakeholder type, but also leaves scope and flexibility to adapt our actions over the coming years as our customers' needs evolve.

Customer satisfaction is a key focus in our Major Connections Strategy. Improving the customer journey, so we can offer high quality connection services, plays a significant part in our plans. During the RIIO-ED2 period from 2023 to 2028, our customers can expect to benefit from a range of additional services, including tailored pre-application support, more network data availability and rapid self-serve options to accelerate the connections process, all while aiming to maintain downward pressure on connections prices.

We have set quantitative targets to measure the increase in satisfaction we hope our actions will deliver - we publish our performance against these targets annually.

Figure 1 - Summary of the Relevant Market Segments (RMS) of the Local Connections Market

Metered Demand Connections (M) 	Low voltage (LV) work: LV connection activities involving only LV work, other than in respect of an Excluded Market Segment.
	High voltage (HV) work: LV or HV connection activities involving HV work (including where that work is required in respect of connection activities within an Excluded Market Segment).
	HV and extra high voltage (EHV) work: LV or HV connection activities involving EHV work.
	EHV work and above: extra high voltage and 132kV connection activities.
Unmetered Connections (UM) 	Local Authority (LA) work: new connection activities in respect of Local Authority premises.
	Private Finance Initiative (PFI) work: new connection activities under PFIs.
	Other work: all other non-LA and non-PFI unmetered connections work.
Distributed Generation Connections (DG) 	LV work: low voltage connection activities involving only low voltage work.
	HV and EHV work: any connection activities involving work at HV or above.

Figure 2 - Key actions in our plan aligned to the three MCI principles

MCI principles	Key actions in our plan aligned to MCI principles
Principle 1: Support connections stakeholders prior to application by providing accurate, comprehensive and user-friendly information.	<ul style="list-style-type: none"> Utilising AutoDesign technology to develop a low voltage (LV) heat map that utilises monitoring and smart meter data to enable real-time system planning and investment by us and our customers; Developing AutoDesign's functionality to enable customers to self-serve and produce quotations for connections; Creating an open data platform so that customers can access more comprehensive network planning and capacity data in an open and accessible format; Enhancing our extra high voltage (EHV) and high voltage (HV) network availability heatmaps to make them more dynamic and user-friendly, including an integrated Long Term Development Statement (LTDS); and Providing enhanced, pre-application support and advice.
Principle 2: Deliver value for customers by ensuring simplicity and transparency through the application process.	<ul style="list-style-type: none"> Complementing our digital offerings with enhanced upfront advice and support and an 'ask the expert' technical advice service; Facilitating better, more frequent discussions for customers seeking flexible connections at all voltage levels; Communicating clearly to customers about the cost of connection and how the cost has been calculated; Providing customers with guidance through the connections process to ensure that all criteria are met; and Continuing to review and enhance our approach to the reconnection of supplies when the network is damaged.
Principle 3: Facilitate the delivery of timely and economical connections that meet customers' needs.	<ul style="list-style-type: none"> Automating systems to streamline the notification and application process for LCTs; Deploying Active Network Management (ANM) schemes that will enable customers to be connected quicker and without the need for significant reinforcement; Completing any cost reconciliation in a timely manner; Providing access to services that will help deliver timely and economical connections; and Continuing to promote fair and open competition so that our customers have a choice in who delivers their connections.



Trends in Major Connections

As the region acts to reach its net zero targets, as expected, connections to our network for new loads and new renewable generation are in high demand. We have seen volumes of connection applications and acceptances grow significantly over previous years.

Over the last year in particular, the capacity of those connections accepted are much larger - currently the market is seeking large capacity generation connections to our network.

In 2023/24, customers accepted offers for almost double the capacity as they did last year with the vast majority of that capacity being for storage or hybrid energy storage facilities.

This appetite for large generation connections is leading to significant consequential issues by creating constraints on the transmission network - solving this problem has been much of our focus over the past 12 months.

Low carbon technology adoption in our region

As our region seeks to decarbonise, adopting low carbon technologies for transport and heating, and moving away from fossil fuel based solutions, will be one of the main enablers. These changes require new or modified connections to our network - public EV charging infrastructure and new housing developments with connections with enough capacity to accommodate both EV chargers and heat pumps for heating are driving new work in Major Connections (individual domestic heat pump and EV charge points are small scale changes and are not part of the scope of major connections).

Over the past year the number of new electric vehicles on the roads in our region has increased by nearly 50,000. This is at the lower end of our forecast range, however still represents a huge change in the way that we are using electricity for transport. With this growing number of vehicles we are seeing large numbers of applications for public charge points and are working closely with charge point operators to make connecting to our network as efficient as possible.

The number of heat pumps on our network is also rising, again at the lower end of our forecast range, but still representing clear change. 4,500 new heat pumps were installed in our region over the last year - we are enabling this change by readying our LV network to accommodate them - upgrading services by delooping and upgrading fuses.

Transmission system access

Capacity constraints on the transmission system are affecting a growing number of connection customers, causing long lead times for large connection and storage projects to be connected to our network. From June 2023 to March 2024, the proportion of acceptances dependent on transmission network reinforcement against the total connection acceptances rose by 9% - this is impacting a growing number of our customers and is a priority for us to address. We are addressing this through close collaborative efforts alongside National Grid Electricity System Operator (NGESO) and National Grid Electricity Transmission (NGET) to implement changes to the queue management process and revise how connections can be offered at the transmission/distribution boundary in order to free up capacity and accelerate projects. Many of the key updates in this report relate to our progress in this area.

Access Significant Code Review

Ofgem conducted a significant code review around network access arrangements with the objective of making connecting to distribution networks faster, more efficient and more flexible. Their changes came into effect on 1st April 2023 and had two main impacts:

1. They changed the way that cost of network upgrades associated with connections are shared between the customer and the network; and
2. They set out policy for a new type of connections – curtailable connections, that allow a customer to connect flexibly ahead of network upgrades taking place.

The impact of these changes was expected to increase customer appetite for distribution network connections, as they made connection costs lower overall and provided options to get connected quicker. Access SCR is an underlying driver of the uptick in connections applications and acceptance volumes we have seen over the past year.

Engaging with our stakeholders

We work hard to understand the needs of our connections stakeholders and customers and to continually improve the service we provide. During 2023/24, we carried out engagement across the breadth of customers in order to ensure our plans and delivery remain in line with customer needs.

Over the past year we have continued to deliver a wide range of engagement opportunities including customer forums, surgeries and workshops, which provided platforms to encourage discussion on ways we can improve our services and enable regional decarbonisation plans. Our engagement has been shaped to provide opportunities across our service offerings and across customer expertise level - allowing the same platform for the ideas of those customers who may have little existing knowledge of our connections processes, alongside those that have a deep knowledge of connections and the wider industry. We identified the activities and initiatives we could scale up from previous years and encouraged our stakeholders to tell us what others do well and from which we could learn.

Our strategy is always evolving in response to our stakeholders' priorities and what they are telling us about the ways they want to engage and interact with us. We are confident that all our Major Connections plans have been informed and endorsed by our stakeholders and that their insights shaped the actions and outcomes we delivered.

Quarterly Customer Connections webinar – Transmission system access

We held quarterly customer webinars alongside NGET and NGESO to present what we are doing to connect customers in the face of congestion on the transmission system. The webinars offered an opportunity to provide transparency over the changes that we are making to the connections process at a national and regional level, such as freeing up capacity from the queue for projects ready to proceed and using delegated technical limits and local queue management to promote projects in the pipeline that are able to make use of flexible access.

These webinars have played a critical role in ensuring we are hearing what our customers need from the industry reform that is being undertaken, and hold us to account on our part of those changes.

500 Over 500 attendees across 4 webinars in the last year dedicated to transmission congestion

Transmission system access

We heard:
Customers want greater transparency as to where their project is in the pipeline.

We delivered:
Our transmission interface website and major projects Look-Up tool has delivered greater transparency to customers.



Our strategy is always evolving in response to our stakeholders' priorities and what they are telling us about the ways they want to engage and interact with us.

Competition in Connections Seminars

We recognise the importance of a competitive market for connections in our region and the benefits it brings our customers. As such we work closely with the Independent Connection Providers (ICPs) and Independent Distribution Network Operators (IDNOs) in our region and have a dedicated Connections Input Services team who engage directly with these stakeholders.

We hosted two Competition in Connections seminars during the year which allowed us to provide updates and offer stakeholders the opportunity to share feedback and insights – all those who participated were satisfied with their experience.

We have also held meetings with new ICPs in our region to discuss the scope of their works, our processes and where to access information, such as our dedicated webpage and OneLogin.

58 58 attendees at our Competition in Connections seminars as well as 52 independent sessions to offer more focused, expert advice



Competition in Connections

We heard:
ICPs/IDNOs wanted more opportunities for senior level interaction.

We delivered:
52 bilateral sessions with ICPs/IDNOs to provide in-depth support and advice.

The ICPs and IDNOs in our region are always looking for ways to make the working relationship with us more straightforward, and increase the scope of work that they are able to undertake - increasing competition. We have listened and taken action on this, undertaking pilots to explore allowing ICPs to self complete low voltage connection agreements.

We are committed to openness and transparency with this stakeholder group and are held to account on our actions via a quarterly actions register that is circulated for comment and feedback.



Net Zero for the North Conferences

During 2023/24, we engaged with over 300 stakeholders through our flagship Net Zero for the North conferences. These events are the corner stone of our engagement as a whole business, recognising the central role that we have as an enabler for net zero - we bring together key stakeholders from across our region to collaboratively address the challenge of delivering decarbonisation. Connections is a central part of this conversation and has driven a significant proportion of the conversation at these events.

Regional Decarbonisation events

During 2023/24, we held six events in cities across our regional operating zones to encourage stakeholders to share their views on how we can improve our services to better support regional decarbonisation plans. The feedback received from these workshops allowed us to see if our forward plan for DSO and major connections services addressed stakeholder priorities and then apply a regional lens to identify key differentiations in each location. In terms of our approach to major connections, stakeholders voiced their approval of our early engagement, pre-application meetings, workshops and surgeries.

Regular Connections Customer Surgeries

We hold monthly Connections Customer Surgeries to provide our customers with pre-application support, enabling them to explore

options and make more informed choices about how and where to connect. These surgeries aim to engage with a broad and inclusive range of applicants in advance of them spending lots of time assessing an application which may not be feasible, and also provide a chance for them to ask our experts any questions they may have regarding our connections application process. We hosted a breadth of customers at our surgeries and received really positive feedback regarding our support for individual customer requests.

We also hold monthly connections surgeries for ICPs and IDNOs to support them with any planned connections, provide pre-application advice, and offer a chance to ask questions of members of our team who have local knowledge of the network. Topics discussed varied from general queries on whether a whole project is viable, to questions with finer details relating to schemes already in progress. During these events we set up drop-in sessions so that ICPs and IDNOs were able to access our colleagues and ask specific questions across a range of functions that may not have featured on the main agenda. All stakeholders provided positive feedback on this experience, having been able to receive answers that helped advance their application or connections process.

Open Data

Expanding our range of network information and improving accessibility to and transparency of our network data plays a major role in our Major Connections Strategy to empower our customers to make more informed decisions about how and where to connect.

6

Events

273

Attendees

159

Organisations

We have led numerous open data events to update our stakeholders on improvements to our Open Data Portal, sharing what data is available for now, and developments planned for the long term. We have incorporated demonstrations of our Open Data Portal at our DSO and connections events to encourage stakeholders to self-serve and be proactive in the assessment of connections opportunities by using easy access datasets and digital tools.

Open Data

We heard:

The network development plan dataset was difficult to navigate.

We delivered:

A new feature page on our open data portal to guide users through the NDP.

In the last year, we have published our Network Development Plan (NDP) to provide transparency over expected developments and planned network interventions over the next ten years. We conducted a webinar to present the NDP to our stakeholders and invited feedback to shape the NDP to include information that was deemed most valuable.

We also produced our inaugural Distribution Network Options Assessment (DNOA) report which informs our stakeholders of the investment decisions we plan to make following analysis of the NDP. We conducted a webinar, Transparency in Network Planning, to obtain feedback to help inform network development decisions and ensure that we execute plans that meet the needs of all stakeholders in our region.



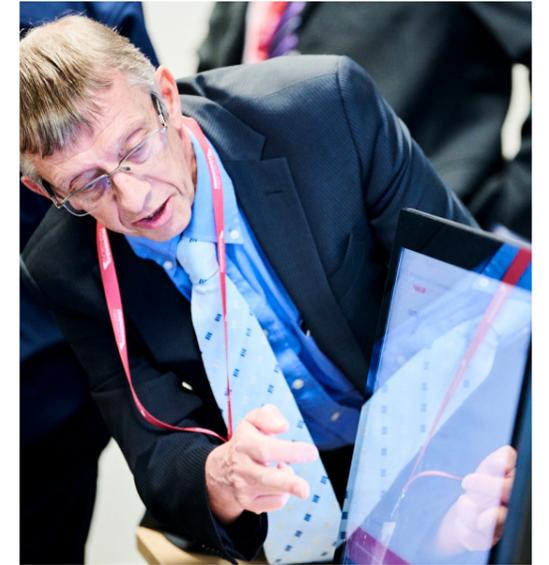
218

92 attendees at our NDP webinar and 126 attendees at our Transparency in Network Planning webinar



1500

Open Data Showcase in September 2023 had over 50 attendees plus a dedicated webpage with over 1,500 views



Regional Insights engagement

Our Regional Insights team has been proactively engaging with a wide array of different stakeholders, including local authorities, housing associations and EV charge point operators to support their strategic objectives and help define regional decarbonisation plans. The team offers stakeholders expert knowledge of our network and access to data to support the creation of deliverable plans, which include mass applications for the connection of LCTs.

The Regional Insights team sits on and convenes a wide range of regional boards and groups, providing our input and perspectives into key regional projects and initiatives. One example is our support of the Quarterly Social Housing Roundtable sessions where we provide support, advice and tools to help social housing providers decarbonise swiftly, including assistance on LCT installation, navigation of digital tools and how to identify connections opportunities on our network. From the December 2023 session, we received an average 8/10 satisfaction score, with 100% agreeing or strongly agreeing to the question 'attending was of value' and attendees reported a drastic increase in knowledge levels on looped services, service upgrades and costs and timescales associated with preparing a home's electrical supply for LCTs.



100%

of people who attended our Dec 2023 Quarterly Social Housing Roundtable answered agree/strongly agree to the question 'attending was of value'

Our progress in the year

Our major connections strategy sets out priorities for the five year period of RIIO-ED2 - 2023-2028. The past year was the first of those five years and we have already made significant progress in all areas.

The following section sets out the progress we have made in delivering against the three principles of Major Connections; customer support pre-application, simple and transparent application process, and timely and economical delivery. Although we set deliverables for the ED2 period, we did so acknowledging the flexibility that we must give ourselves to deliver against customers changing needs. The customer outcomes that we committed to are a constant, and we can map all of our progress back to principles and customer outcomes.

Major Connections principles

- Principle 1:** Support connections stakeholders prior to 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.



Principle 1

Supporting connections stakeholders prior to application by providing accurate, comprehensive and user-friendly information

Open Data

What have we done?

We recognise that improving how we share data with stakeholders will play a critical role in delivering timely and cost-effective connections by providing more self-serve options and transparency of network information.

We have made our Open Data Portal publicly available on our website, which offers customers and stakeholders easy access to data and information about our distribution network. The Open Data Portal contains over 50 datasets, structured according to four themes: Connecting Demand, Connecting Generation, Net Zero Future, and Network.

The portal has a range of user-friendly, analytical tools which allow customers to generate customised maps providing visibility of capacity for generation and demand in specific locations, and access information to support investment decision-making.

Example: Network Availability Heatmaps

Network Availability Heatmaps indicate where network capacity exists for customers to connect new large-scale generation and demand without requiring significant network reinforcement.

We have migrated our Network Availability Heatmaps onto our Open Data Portal, which provides a more interactive and user-friendly platform for stakeholder use. Having them on our Open Data Portal also allows for easier modifications where needed. For example, we added a transmission constraint layer to address stakeholders' requests for more information on upstream constraints.

We have also visualised our Network Headroom Reports on our Open Data Portal, as part of our NDP, to give a heat map of forecasted generation and demand headroom at our EHV substations out to the year 2050.

Stakeholders now have a much more user-friendly tool to map and visualise available capacity on our network now, and in the future - helping make more informed decisions on where to apply to connect.

Example: Appendix G information

This data provides stakeholders with visibility of our contracted position with the Transmission Operator (TO) for relevant embedded generation connected and committed to connect to our network. The data includes MW connected and 'to be' connected capacity and the latest connection dates based upon current reinforcement

works required at each grid supply point (GSP).

Sharing this data is helping our customers navigate the transmission interface challenges that are impacting the whole grid. Visibility of the status at each grid supply point allows customers to make a much more informed assessment of where they choose to apply to connect.

Aside from these two examples we have continually added to and improved our data and information offering throughout the year. This includes developing a secondary network utilisation heatmap and associated dataset, national embedded capacity register showing a combined view of all distribution network connected assets across the UK and operational data showing time series data for our primary substations and grid supply points.

All of these additions to our open data portal help customers to form a clearer view of our network, and understand how we may be able to enable connections.



Pre-Application

Application

Delivery

Regional Insights team

What have we done?

Our Regional Insights team was established to engage with key regional drivers of decarbonisation such as Local Authorities, Housing Associations and EV charge point operators. They support stakeholders through the whole journey of net zero planning, going from long-term planning, through to implementation - helping identify appropriate sites for connections and supporting these large customers through the application process.

Through this engagement with mass installers of LCTs we have been made aware of changes to our processes required to ensure that we deliver timely network investment alongside the customers' installation programme. We have triggered reviews and internal changes to ensure this happens.

Example: EV Charge Point Programme

Durham County Council has been engaging with the Regional Insights team for assistance with its EV charge point programme. The Council's plans require a three-phase connection at each location but there are costs issues in cases where the nearest three-phase network is some distance away from where the EV charge point is required.

Alongside our System Forecasting team, we were able to create a new data field in the Substation Utilisation dataset on the Open Data Portal indicating whether the closest substation has three-phase supply. This allows the Council to do some simple pre-checks and identify the most cost efficient options upfront before making an application.

This dataset will be useful to many other stakeholders, particularly those requiring new connections in very rural areas, to enable them to self-serve and undertake quick assessments in the pre-application phase of the connections process.



Our Regional Insights team was established to engage with key regional drivers of decarbonisation such as Local Authorities, Housing Associations and EV charge point operators.

'Accept on existing' - behind the meter connections

What have we done?

Accept on existing connections, whereby we are able to accept a connection request without making any changes to our network, make up approximately half of all connection requests. These are generally where new generation is being connected at an existing demand connection site, with all of the electricity being utilised on site 'behind the meter' and a zero export is agreed.

We are actively promoting this approach with our customers in order to get their generation projects connected to our network quickly. In addition, we do not charge for offering this type of connection.

Principle 2

Deliver value for customers by ensuring simplicity and transparency through the application process

Improve Transmission-Distribution coordination

What have we done?

Large generation projects seeking to connect to our distribution network have been receiving connection offers with lead times of over 10 years, due to works required on the transmission network. This issue at the transmission-distribution interface has been a national priority for the past 18 months. We have been expanding our Energy Systems Policy and Major Connections teams to tackle this area effectively. We have introduced new roles dedicated to collaborating with NGET, NGENSO and the wider industry to improve customer service and develop cohesive strategies to reduce lead times for connections. New roles have also been added to provide increased management of project progression in the connections pipeline and oversee reform to the queue management process. We recognise the importance of developing a collaborative, streamlined approach at the transmission-distribution interface in order to deliver an efficient connections service.

We have been collaborating closely with NGENSO, NGET, other DNOs and policy makers (Ofgem and the Department for Energy Security and Net Zero) to find solutions to the transmission congestion issues, such that it has been a top priority over the last year.

Our team has delivered unprecedented change to the processes and policies that surround these large connections to free up capacity in the pipeline and find solutions to connect projects ahead of required transmission network works.

Delegated Technical Limits

The Delegated Technical Limits scheme has allowed us, as a DNO, to carry out local queue management and promote projects in the pipeline that are ready to connect. The application of a Delegated Technical Limit to a GSP enables us to manage connections that are otherwise dependent on the completion of transmission works by keeping power flows over the transmission-distribution boundary within the Technical Limit assigned



by NGENSO. Over the last year we have been actively engaging with customers to offer and agree accelerated connection dates, on a non-firm basis.

In 2023/24 we issued 33 technical limits offers, on average accelerating projects by 6.5 years.

Queue Management

We have implemented revised processes to manage our connections pipeline more closely; enforcing contractual milestones and engaging with customers more closely throughout project development stages. This has allowed us to remove over 200MW of projects from the queue - freeing up this capacity to allow other projects to progress.

Major Connections Project Pipeline Look-Up Tool

In early 2024 we launched our [Major Projects Pipeline Look-Up](#) webpage, which provides information on capacity headroom at GSPs with transmission constraints and, also, visibility of individual customer projects within the pipeline. This information may be useful for decision support when assessing a number of schemes within a portfolio.

 **6.5 years**

Average acceleration of projects through technical limits process

Improving our online services

Over the last year we have made significant changes to our online services in order to make the connections application process more simple and transparent.

What have we done?

Benefits to customers

Get Connected webpage

Our Get Connected webpage is the service used by connections customers in their application for a new connection or a change to an existing connection. User experience design changes were applied to the website.

These changes simplified the user journey and navigation through our website.

Our improvements focused on user experience to support accessibility, clarity of information, and ease of use, to achieve whatever users set out to do, whether that be finding out about a specific service, applying for a new connection, establishing an initial cost for a service, or understanding the application process that they would follow.

Online Application Process

We have made improvements to our digital Connections Application form based on direct feedback received from customers who had previously requested a connection.

1. Rationalised and clarified the pre-application information so that customers know what information they will need before starting the form.
2. Modernised and simplified the stages of the form that need to be completed.
3. Improved navigation within the stages of the form to enable a customer to move around easily e.g. if they wish to change information added at an earlier stage.
4. Introduced 'Save for Later' functionality that enables a customer to leave the application form and return to it within a 90-day window.

We have received very positive feedback from customers based on their initial experience of the improvements made to the application form.

Connections Portal

We have started to action plans for a connections portal.

This will be a Hub for customers to keep track of all of their open enquiries and accepted schemes and help them understand the process we go through to get to a fully energised site. It will provide key dates of when we intend to reach certain milestones, help the customer track their own milestones, notify them when we expect these to be in place, and also keep track of any related Transmission applications.

Enabling high volume LCT roll-outs

Mass low carbon technology application tool

We have initiated a project to deliver a customer self-serve solution that will enable a single application for multiple LCTs at multiple locations. The tool will allow stakeholders to identify connection requirements, assess network suitability and identify network interventions, costs associated and timelines for installation. The self-serve tool will be simple and fast for all stakeholders to use and will allow easy optioneering leading onto choice of preferred option to take through to instant application.

This project is integrated with delivering our LV forecasting tools in order to leverage the applications data directly into our forecasting processes and drive efficiencies. We are actively cultivating partnerships between DNOs (NGED and SSEN) to deliver a solution that offers a consistent user experience across a wide geographic area and maximising the cost efficiency of developing this tool - keeping costs low for customers.

Connect Direct

We have implemented the Energy Networks Association (ENA) developed online platform, Connect Direct, which allows a faster, more accurate process for assessing residential LCT applications. The platform has reduced application time with an almost instant approval system and auto-assesses applications based on our predefined configurations. To date, we have received 329 applications via the Connect Direct platform.

Connect Direct delivers a streamlined and standardised approach for installers to assess and notify residential LCT notifications.

Supporting competition in the connections market

What have we done?

We have continued to support the IDNOs and ICPs operating in our region, actively responding to opportunities raised by them, seeking to modify processes and policies in order to maximise fair competition.

IDNO self-serve connection agreements

Our Connections Input Services team have started a trial with an IDNO for the self-fill of LV Bilateral Connection Agreements to further minimise input services. Once the trial is complete we aim to roll this out to other IDNOs.

Principle 3

Facilitate the delivery of timely and economical connections that meet customers' needs

Increasing delivery capacity

What have we done?

We have taken steps to increase our capacity to deliver major connections in a number of ways. Our Major Projects team has expanded by 10% in the last 12 months and we have also trained additional employees to be able to participate in the delivery of major connections. We have been tendering professional services contracts to increase engineering capacity and have worked with our key contracting partners to give them the confidence and the certainty to recruit and train resource to give us additional capacity to deliver.

As we forecast an increase to delivery requirements, following the current peak in applications we are serving, we are ensuring that we have the capacity to deliver customer projects in the timescales that they expect.

Maintaining high standards in delivery

What have we done?

The Major Connections Customer Satisfaction Survey has allowed us to embed continuous feedback within our delivery of major connections. We have revised processes to escalate poor delivery feedback to managers, identify resolutions and embed lessons learned. We are continually looking to improve our administrative processes via our connections system.

We have started to undertake regional briefs (both in person and virtual) to all Regional Delivery Engineers that are responsible for the delivery of major connections schemes. We are taking actions to improve our systems and processes for Delivery Engineers based on their feedback to make their jobs easier and more efficient, allowing them to deliver a 10/10 service for our customers.



Flexible connections are an important option for our largest connections customers. These balance a cost-effective and faster avenue to connection with the risk of some curtailment.

Flexible connections

What have we done?

Flexible connections are now an important option for our largest connections customers. These balance a cost-effective and faster route to connection with the risk of some curtailment. Many of the accepted schemes in the pipeline to connect to our network are on the basis of a flexible connection that manages a distribution network constraint, however this year we have made great strides forward in utilising flexible connection approaches to address lead times associated with transmission system constraints.

Working closely with industry stakeholders through the Strategic Connections Group at the ENA we have developed solutions that unlocked faster connections via non-firm arrangements. The delegated technical limits mentioned in principle 2 require a technical solution to operate in practice. We have developed a roadmap of solutions that will allow these connections to operate flexibly, providing ESO visibility and control over them.



Enterprise Active Network Management (EANM)

What have we done?

We utilise ANM to manage flexible connections in constrained areas of our network. We are currently operating four ANM zones, where the connection of Distributed Energy Resources (DER) is causing network constraints either on our network or on the transmission system.

Comprising 12 connections with 450MW of generation between them, these ANM zones operate as control systems, monitoring the network in real-time for potential capacity breaches. If a set limit is reached, real-time dispatch instructions are sent out to DERs instructing them to reduce their output and, if a DER fails to reduce its output within the timeframe set, the ANM is able to physically disconnect it from the network.

This allows us to make the most of the existing network capacity safely and reliably, whilst allowing maximum distributed generation to connect. We are working to deliver an enterprise ANM capability. This will provide us with a centralised system with the capability to manage multiple, interactive constraint zones across our whole license area. An enterprise ANM provides us with the capacity to create as many monitoring zones (known as ANM schemes) as we deem are necessary in order to safely manage power flow limits across the whole of our network, meaning delivery of ANM schemes and customer projects are faster and more cost efficient. We are presently in the process of tendering for an enterprise ANM system.

Progress against our strategy

Connections Outcome	Deliverable	Progress Summary	Measure	2023/24 performance			
				ED2 Target	NPgN	NPgY	Combined
CN2 Facilitate the mass uptake of LCTs, flexible connections and network flexibility to support the drive to net zero	CN2.1) Develop AutoDesign functionality to enable customers to self-serve and generate quotations for LV demand connections, load increases for existing LV connections and budget estimates for new LV generation connections. Go-live planned for 2025/26.	On Track — We have initiated a project to deliver a customer self-serve solution that will enable applications for multiple connection points on our LV network. This project is integrated with delivering our LV forecasting tools in order to leverage the applications data directly into our forecasting processes and drive efficiencies.	Major Connections Satisfaction (overall)	86.0%	79.1%	79.2%	79.2%
	CN2.2) Utilise AutoDesign technology to develop an LV network availability heat map that utilises LV monitoring and smart meter data to enable real-time system planning. Go-live planned for 2024-25.	On Track — We have initiated a project which is optimising the integration of smart metering and modelled LV demands which is improving our datasets which inform network interventions.	Major Connections Satisfaction – pre-application	90.0%	76.5%	75.4%	75.8%
	CN2.3) Introduce new automated systems to streamline the notification/application process for LCTs and facilitate mass uptake. Go-live planned for 2023/24.	Complete (with more to follow) — We have implemented the joint ENA solution of ConnectDirect to automate LCT installation notifications.	Major Connections Satisfaction - quotations	90.0%	78.7%	79.8%	79.4%
	CN2.4) Provide service upgrades that enable net zero ready homes	On Track — We have carried out nearly 16,000 service upgrades in our region (7,692 Yorkshire, 8,149 Northeast), including de-looping over 4,700 properties and over 3,700 fuse upgrades. — Our Regional Insights team are actively working with Local Authorities and Housing Associations to identify priority areas to target this work.	Major Connections Satisfaction - delivery	90.0%	82.0%	74.0%	77.6%
CN3 Empower our customers to make more informed decisions about how and where to connect by expanding the scope of network information	CN3.1) Make improvements to our HV and EHV network capacity heatmaps to include the provision of integrated LTDS and information that can forecast changes in capacity availability.	Complete (with more to follow) — We have migrated our Network Availability Heatmaps onto our Open Data Portal. — We have added transmission interface data to our heatmaps, allowing customers visibility of possible constraints beyond our network. — We have improved our mapping shapefiles to more closely reflect the area served by substations so stakeholders can get a clearer idea of where different parts of our network are supplied from.	HV and EHV heat map upgrades	HV and EHV heat map upgrades completed in 2023/24 with more to come.			
CN4 Continue to facilitate fair and open competition so that our customers have a choice in who delivers their connection	CN4.1) Work with ICPs and IDNOs to further minimise input services and extend the scope of contestable works.	On Track — We have started a trial with an IDNO for the self-fill of LV Bilateral Connection Agreements to further minimise input services.	Introduction of customer satisfaction survey for IDNO and ICP customers	IDNO and ICP satisfaction survey not implemented in 2023/24 - re-forecast to 2024/25			
	CN4.2) Publish guide prices and monthly performance metrics as well as providing clear cost breakdowns in connections quotations.	On Track — We continue to facilitate fair and open competition so that our customers have a choice in who delivers their connection by publishing guide prices and monthly performance metrics, as well as providing clear cost breakdowns in connections quotations.					
	CN4.3) Develop a bespoke AutoDesign platform for ICPs and IDNOs with non-contestable costs. Go-live planned for 2024/25.	In review — We are currently reviewing whether there is necessary demand from ICPs and IDNOs to justify providing this bespoke platform.					
CN5 Deliver an efficient connections service for all our customers, providing more technical advice to customers on smarter and more flexible solutions	CN5.1) Provide an enhanced 'ask the expert' technical advice service. Go-live planned for 2023/24.	Partially complete (re-forecast to 2024/25) — Our Regional Insights team has been established and are providing a vital front door to our business. They support key regional decarbonisation organisation such as EV charge point operators and housing associations through our connections processes. This provides the blue-print for a wider service for all customers.	Major Connections guaranteed standards % compliance	99.9%	98.5%	98.1%	98.3%
	CN5.2) Up-skill our LV/HV design engineers to facilitate better and more frequent discussions with customers on flexible connections at EHV, HV and LV.	On Track — We have delivered a suite of new processes to deliver Access SCR compliant connections, including curtailable connections offer. All of our design engineers have been trained to have discussions on curtailable connection options.	% of major connections appointments met	99.7%	96.7%	97.8%	97.4%
	CN5.3) For EHV connections, where a flexible solution could avoid the need for additional network reinforcement, we will have a detailed discussion with the customer and provide them with the information they need to make an informed choice on the options available.	On Track — Our EHV connections team offer bespoke one to one Connection Surgeries on request to stakeholders requiring an EHV Connection with the information they need to make an informed choice regarding connection capacities and optimal locations.					

Note: Customer outcome CN1 is related to small works customers and thus is not included in this report.

Our performance in 2023/24

MCCSS Results

The Major Connections Customer Satisfaction Survey (MCCSS) indicates the quality of our service to major connections customers. This is evaluated by scored questions from 1 – 10 (1 = very dissatisfied; 10 = very satisfied) which measure stakeholder satisfaction in relation to the quotation process and full delivery of the connection. For 2023/24, our overall MCCSS scores exceeded the regulatory target for both licensees.

Relevant market segments where the licensee has not demonstrated evidence of effective competition and financial incentive applies.

Northern Powergrid (Northeast) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
MCCSS Regulatory Target		7.41/10				
Overall MCCSS score subject to financial penalty		7.86				
Metered Demand Connections	Low Voltage	8.61				
	HV and Extra High Voltage	10.00				
	EHV work and above	-				
Metered Distributed Generation	LV work	6.31				
Unmetered Connections	Local Authority	-				
	Private finance initiatives	-				
	Other work	7.80				

Northern Powergrid (Yorkshire) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
MCCSS Regulatory Target		7.41/10				
Overall MCCSS score subject to financial penalty		7.85				
Metered Demand Connections	Low Voltage	7.75				
	HV and Extra High Voltage	9.00				
	EHV work and above	-				
Metered Distributed Generation	LV work	7.50				
Unmetered Connections	Local Authority	10.00				
	Private finance initiatives	-				
	Other work	8.21				

Relevant market segments where the licensee has demonstrated evidence of effective competition and no financial incentive applies.

Northern Powergrid (Northeast) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
MCCSS Target		7.41/10				
Overall MCCSS score subject to reputational assessment		8.43				
Metered Demand Connections	High Voltage	8.46				
Metered Distributed Generation	HV and EHV	8.00				

Northern Powergrid (Yorkshire) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
MCCSS Target		7.41/10				
Overall MCCSS score subject to reputational assessment		8.61				
Metered Demand Connections	High Voltage	8.53				
Metered Distributed Generation	HV and EHV	9.00				



MCTTQ Results

The Major Connections Time to Quote (MCTTQ) figures show the average time, measured in working days, from when we receive a complete application to issuing a quotation.

Northern Powergrid (Northeast) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
Metered Demand Connections	Low Voltage	23.7				
	High Voltage	31.0				
	HV and Extra High Voltage	56.5				
	EHV work and above	-				
Metered Distributed Generation	LV work	35.2				
	HV and EHV work	64.9				
Unmetered Connections	Local Authority	3.4				
	Private finance initiatives	-				
	Other work	7.1				

Northern Powergrid (Yorkshire) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
Metered Demand Connections	Low Voltage	22.4				
	High Voltage	29.2				
	HV and Extra High Voltage	68.3				
	EHV work and above	-				
Metered Distributed Generation	LV work	42.3				
	HV and EHV work	69.0				
Unmetered Connections	Local Authority	7.8				
	Private finance initiatives	-				
	Other work	9.7				

MCTTC Results

The Major Connections Time to Connect (MCTTC) figures show the average time, measured in working days, from when the customer accepts the quotation to the connection being completed.

Northern Powergrid (Northeast) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
Metered Demand Connections	Low Voltage	166.9				
	High Voltage	261.7				
	HV and Extra High Voltage	-				
	EHV work and above	-				
Metered Distributed Generation	LV work	117.1				
	HV and EHV work	308.8				
Unmetered Connections	Local Authority	72.5				
	Private finance initiatives	-				
	Other work	73.0				

Northern Powergrid (Yorkshire) Plc		2023/24	2024/25	2025/26	2026/27	2027/28
Metered Demand Connections	Low Voltage	132.9				
	High Voltage	216.6				
	HV and Extra High Voltage	-				
	EHV work and above	-				
Metered Distributed Generation	LV work	75.4				
	HV and EHV work	311.8				
Unmetered Connections	Local Authority	52.2				
	Private finance initiatives	-				
	Other work	50.3				

Continuing to move forward together

Delivering timely and cost-effective connections with smarter, more flexible solutions is central to our major connections strategy to drive forward decarbonisation LCT uptake. We have taken large strides over the last year to improve our connections service across the pre-application, application and delivery stages, and continue to implement new strategies and improve current processes to address the various challenges we are facing to meet regional net zero ambitions.

Ensuring our services achieve excellent customer and stakeholder satisfaction is at the heart of operations at Northern Powergrid. We recognise that achieving the aims of our Major Connections Strategy are significant undertakings that can only be achieved through continued collaboration with our customers and stakeholders. We encourage you to continue to seek opportunities to engage with us and to share your experiences. Your feedback drives change in our business, informs our plans and priorities, and improves the service we can offer you.

The following table will help you access the right people and information for your specific requirements:

<p>If you are looking to make a new connection to our network there are a number of options to learn more. There is a wealth of information on our get connected website including contact details for our Connection Engineering teams.</p>	<p>northernpowergrid.com/get-connected</p> <p>northernpowergrid.com/contact-our-connections-engineers</p> <p>getconnected@northernpowergrid.com</p> <p>Connection Enquiries - 0800 011 3433 (8am-8pm Mon-Fri, 9am-5pm Sat)</p>
<p>You can book onto one of our connections surgeries to discuss your requirements and see what options you have.</p>	<p>northernpowergrid.com/customer-events-and-surgeries</p>
<p>We have a dedicated team assisting with transmission network access. If you would like more visibility of where a specific project is in the queue and information about headroom at GSPs, you can visit our Major Projects Pipeline Look-Up webpage.</p>	<p>dsotransmissioninterface@northernpowergrid.com</p> <p>Major Projects Pipeline Look-Up webpage</p> <p>https://gsppipeline.northernpowergrid.com</p>
<p>If you are an ICP or IDNO, or are a customer looking to understand your options for connections delivery you can speak to our Competition in Connections team.</p>	<p>cinc.connections@northernpowergrid.com</p>
<p>The Open Data Portal provides access to a wide range of asset, network and planning data.</p>	<p>northernpowergrid.opendatasoft.com</p>
<p>The open data team are always keen to hear from our stakeholders with requests for new data or suggestions – get in touch via email or via ‘contact us’ page with the Open Data Portal.</p>	<p>opendata@northernpowergrid.com</p>
<p>The Regional Insights team has been established specifically to support stakeholders with regional net zero planning – whether you work for a local authority, Housing Association, or major energy user we’ll be happy to speak with you.</p>	<p>northernpowergrid.com/local-area-energy-systems</p> <p>laep@northernpowergrid.com</p>
<p>If you would just like to learn more and help shape our service to you, we run a continual engagement programme of events. Find out more on our ‘engage’ website, or get in touch with our stakeholder relations team.</p>	<p>engage.northernpowergrid.com</p> <p>stakeholder.relations@northernpowergrid.com</p>

getconnected@northernpowergrid.com

www.northernpowergrid.com