



NETWORKS

INVESTMENT PLAN APPROACH FOR PRICE REVIEW 6

STAKEHOLDER CONSULTATION

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1

Executive Summary



1. Executive Summary

ESB Networks is inviting stakeholders to engage with us in relation to our Investment Plan for the electricity network for the period 2026 – 2030.

For almost 100 years, ESB Networks has developed, operated and maintained the electricity network to meet the needs of homes, farms and businesses across Ireland, and support ongoing social and economic development.

We invest in the electricity network on behalf of all electricity customers. This investment is approved and overseen by the Commission for Regulation of Utilities (CRU) in 5-year periods through the Price Review process. These reviews determine the revenue that ESB Networks can recover from customers and outline our responsibilities as Distribution System Operator (DSO), Distribution Asset Owner (DAO), and Transmission Asset Owner (TAO).

We are currently drafting our Business Plan for PR6 for submission to the CRU later this year. This will be a critical period of investment in the electricity network and is vital to achieving national outcomes relating to housing, climate change, economic development and population growth.

The CRU has issued its [Price Review 6 Strategy Paper](#) setting out the objectives and principles that will guide its regulatory framework for ESB Networks for the period 2026 – 2030. Separately, we are inviting stakeholders to input directly to ESB Networks to help shape and support the development of this plan.



1.1 Approach to Developing Our Business Plan

We are committed to developing and delivering a plan for PR6, in collaboration with our customers and stakeholders, to support the transformational change needed to bring about a more secure, affordable and sustainable energy future for individuals and communities across Ireland.

Our plan for PR6 will be shaped by the following considerations:

- **CRU Strategy Document:**

Our plans will address the PR6 outcomes and objectives set out in the CRU Strategy Paper for PR6 published in April 2024.

- **National and EU Policy Objectives:**

ESB Networks has a central role to play in supporting and enabling the delivery of national policy objectives including economic growth, foreign direct investment, Project Ireland 2040, Housing for All and the Climate Action Plan.

- **Climate Action:**

Since 2020, the EU and Ireland have ramped up climate policy efforts. Ireland now has a legally binding target to reach net zero by 2050. In our Networks for Net Zero strategy, ESB Networks has committed to delivering a net zero ready distribution network by 2040 to support this.

- **Strategic Environment:**

Since the start of the last price review period, our operating environment has changed dramatically, with enduring impacts arising from Russia's invasion of Ukraine, Covid, population growth and climate change.

- **PR5 Developments:**

Significant investment and innovation during PR5 has laid the foundations for the future development of the network, particularly in areas such as smart meters, flexibility, digital and data and advanced asset management.

- **Affordability:**

A significant ramp up in investment in the network is required under PR6 which will impact directly on customer bills.

- **Customers and stakeholder input:**

We have a comprehensive engagement process in place to gain insights into the views of our customers and stakeholders. The publication of this consultation document is part of that process.

1.2 Proposed Investment Focus

We have outlined some key areas of investment and anticipated outcomes below and are seeking your feedback. A number of questions have been included throughout this consultation and a consolidated list is provided in Section 10. We welcome responses to these questions, and other comments you wish to make which do not readily fit within the framework of questions we have proposed.

During PR6 we will focus on achieving the PR6 Outcomes outlined by the CRU. We anticipate that this will involve investment in the following areas:

- **Secure and Resilient Networks and Supplies.**

In the transition to a low-carbon future, ESB Networks needs to make significant investments to build network capacity to connect renewable generation and accommodate significant increases in demand associated with population growth, new housing developments and the electrification of heat, transport and industry. As dependence on electricity increases, we also need to ensure that the network is reliable, and resilient to the impacts of climate change and disruptive events such as cyber threats. We will also need to invest in the replacement of aged and obsolete equipment. This outcome must be met while ensuring the safety of customers, employees, our contracting partners and the general public.

- **Decarbonised Electricity.**

This investment will be directed towards the connection of renewable generation and ensuring that the network can accommodate significant demand growth from across all sectors arising from the electrification of heat, transport, and industry. This involves enhancing the network to accommodate high levels of renewable electricity, deploying advanced digital technologies, and implementing smart and flexible network solutions to optimise the management of these new energy resources.

- **Empowered Customers.**

Customers value a reliable and resilient supply of electricity - this is our core purpose and we are proud to provide this essential service to over 2.5 million electricity customers in the Republic of Ireland. This investment seeks to empower customers by delivering services that are personalised and convenient, and supporting them to adopt new low carbon technologies that are healthier, more efficient and ultimately more affordable. We will put in place solutions to make it easy for customers and communities to participate in markets for flexibility and make active choices in their use of energy. In addition, ESB Networks will put in place supports for customers, ensuring that vulnerable customers are able to participate fully in the energy transition.

1.3 Meeting the PR6 Objectives and Other Considerations

ESB Networks is committed to meeting the PR6 Objectives outlined by the CRU for all network companies in its Strategy Paper for PR6. In our plan for PR6, we will outline our approach to meeting these objectives and address a number of additional considerations as follows:

- **Delivering infrastructure at pace**
- **Ramping up resources to deliver a step change in capital investment**
- **Enhancing system efficiency**
- **Ensuring compliance with security of supply standards**
- **Driving smarter, flexible, more digitally enabled networks**
- **Placing customers at the heart of business planning and decision making**
- **Embedding sustainability into everything that we do**
- **Balancing affordability for customers with the step change in investment required to deliver the PR6 Objectives**
- **Generating public support for the development of network infrastructure**

1.4 Customer Benefits

In developing our plans for PR6, we propose to demonstrate a broad range of customer benefits arising from our planned investment in the electricity network and related systems. These include connecting homes and businesses to cater for population growth and a strong economy while maintaining the safety of the public, staff and those who work on our network.

We will continue to connect renewable electricity at scale to support reductions in carbon emissions and we will further enable the electrification of Transport and Heat.

We will enhance Customer Engagement through investment in Digital Tools and we will work hard to empower our customers as prosumers who actively participate and benefit in the energy transition.

We will continue to facilitate Microgeneration and Small Scale Generation.

We are committed to high levels of environmental and sustainability performance.

We will utilise the growing availability of data and digitalisation to enhance transparency and openness to allow us provide high quality information to our stakeholders.

We will enhance the reliability of electricity supply and invest in system flexibility to allow us better harness renewable resources and deliver onshore transmission system investment to support offshore wind energy.

2

Introduction



2. Introduction

ESB Networks is inviting stakeholders to engage with us in relation to our Investment Plan and investment priorities for the electricity network for the period 2026 – 2030.

ESB Networks invests in the electricity network on behalf of all electricity customers. This investment is approved and overseen by the Commission for Regulation of Utilities (CRU) in 5-year periods through the Price Review process. These reviews determine the revenue that ESB Networks can recover from customers and outline our responsibilities as Distribution System Operator (DSO), Distribution Asset Owner (DAO), and Transmission Asset Owner (TAO).

We are currently drafting our Business Plan for submission to the CRU for the period 2026 – 2030 (PR6). This will be a critical period of investment in the electricity network which is required to bring about a more secure, affordable and sustainable energy future for individuals and communities.



3

Stakeholder Engagement



3. Stakeholder Engagement

3.1 Networks for Net Zero Strategy

In January 2023, we launched our Networks for Net Zero Strategy which outlines ESB Networks' role in facilitating the implementation of the Irish government's Climate Action Plan, with a view to achieving Ireland's Net Zero target by 2050. The strategy aims to develop a flexible and intelligent digital electricity network that will serve as the foundation for a clean electric future in Ireland by 2040. Our strategy is structured around three key strategic objectives - Decarbonised Electricity, Resilient Infrastructure and Empowered Customers. The full strategy document is available [here](#).

3.2 Stakeholder Landscape and Engagement

We recognise that the investment we make in the electricity network will have a significant impact on our customers' day-to-day lives and success will not be achieved without ongoing active customer and stakeholder participation, engagement, and support.

Given ESB Networks' central role in the electricity industry connecting over 2.5 million homes, farms, communities, and businesses across the country, we have a very broad range of stakeholders. They are the individuals, communities or organisations that affect, or could be affected by our activities, products or services and associated performance.

Since the launch of our strategy, we have continued to engage with our customers and stakeholders to help inform our plans and deliver activities aimed at ensuring that the network is prepared to meet the changing needs of our customers, mitigate against the risk of climate change and achieve our vision for a clean electric future.

- Stakeholders and customers continue to inform the strategy and direction for the delivery of the [National Network, Local Connections Programme](#). This ongoing collaboration is supporting the rollout of new products and services across the areas of security of supply products, flexibility propositions and pilots.
- The [Electricity Distribution Network Capacity Pathways Report](#) sets out our analysis of the future distribution system capacity requirements and proposed pathways to deliver this by 2040. We are inviting stakeholders to engage with us, to share ideas, challenge us, and work with us to refine and improve these pathways so that we can plan the way forward together.
- In support of the Irish Government's Climate Action Plan, we have developed our [Innovation Strategy](#) and portfolio of innovation projects to support our three strategic objectives – Resilient Infrastructure, Decarbonised Electricity and Empowered Customers. Our annual innovation consultation is an important opportunity for us to ask our stakeholders for their views on our innovation activities and areas of focus.

- Strong collaboration and ongoing partnership with EirGrid is detailed in our joint publication [DSO/TSO Multi-Year Plan 2024 – 2028](#) which was published in September 2023. This plan is based on the CRU approved pillars of reducing dispatch down, securing the future power system, facilitating new technology and whole of system solutions.

This document – Stakeholder Consultation on our Investment Approach to PR6 – builds on our Networks for Net Zero Strategy and our subsequent [Stakeholder Engagement Strategy and Plan 2024](#) and programme of engagement. The insights we have gained through this process into the evolving priorities of our customers and stakeholders is reflected in our Investment Plan Approach for PR6.

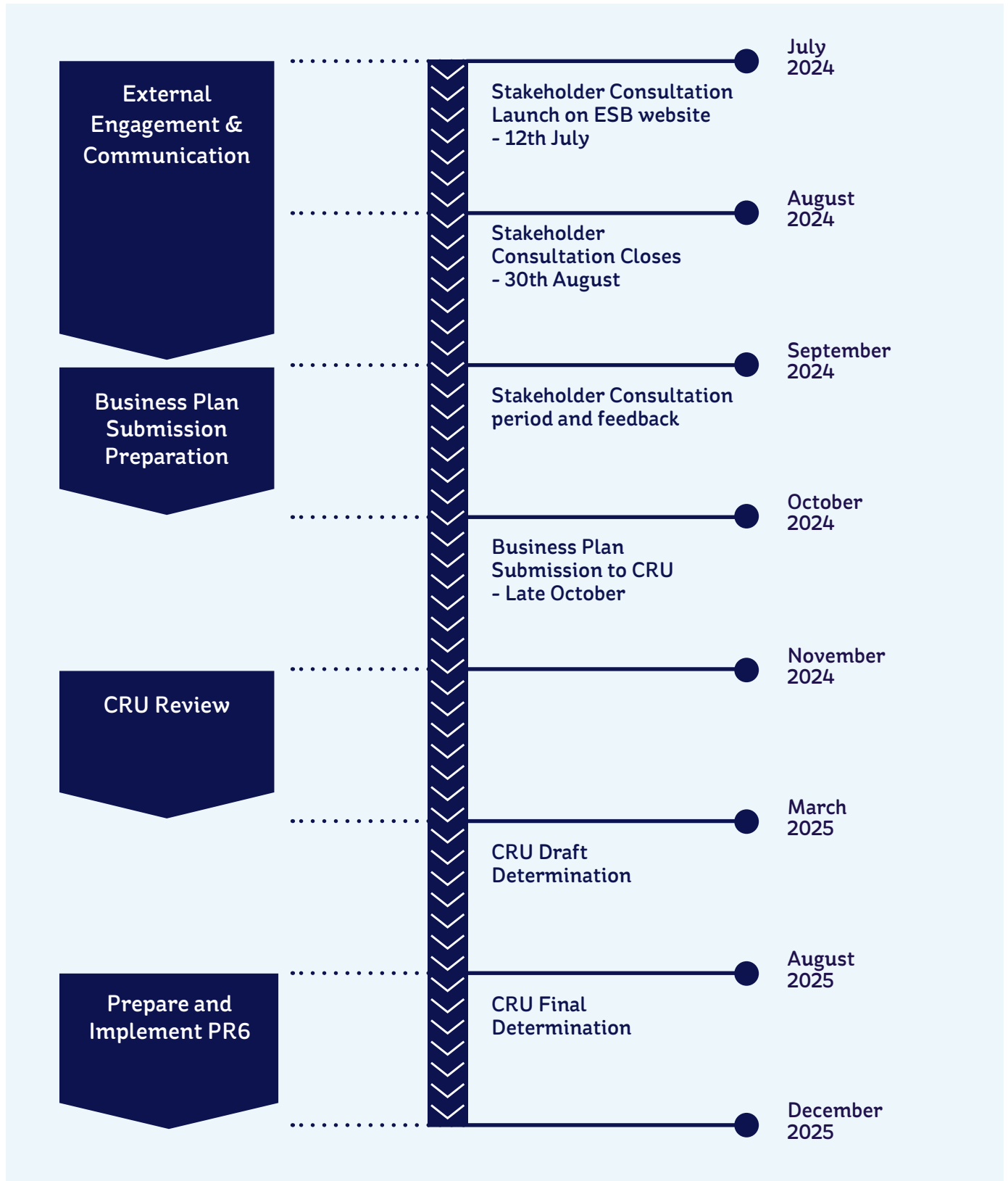
In addition to this, we have developed a structured process for engaging with stakeholders and customers in relation to our PR6 plans. This includes focus groups with representative samples of customers and the general public, quantitative and qualitative research surveys, in depth stakeholder research interviews conducted independently by a third party research agency, bilateral meetings, webinars and the publication of our PR6 Stakeholder Consultation.

We are committed to listening to and addressing stakeholder feedback in the lead up to the submission of our final PR6 Business Plan and beyond. This consultation represents the next step in our engagement programme and is your opportunity to share your views and contribute to shaping our future plan.

3.3 How to Respond

- In preparing our plan for PR6, we are seeking your feedback on what you would like delivered and how we will deliver on our strategic objectives and our vision for 2030.
- The purpose of publishing a consultation in advance of submitting our Business Plan to the CRU is to ensure that the views of stakeholders are considered in the development of our plan. We do not intend to respond separately to comments received at this stage but will consider the feedback we receive in developing our final Business Plan.
- We have included questions throughout this consultation, and a consolidated list is provided in Section 10. We welcome responses to these questions, or any general comments.
- Responses should be submitted by email to PR6Engagement@esb.ie

PR6 Project Timeline



4

Strategic Environment and Outlook



4. Strategic Environment and Outlook

4.1 Strategic Environment

Since the last price review determination (PR5) in 2019, numerous external factors have impacted on the energy landscape. Unprecedented population growth, advances in technology, changing customer expectations and increasing concern about energy security and climate change have driven new policies and practices that underscore the need for a robust, sustainable customer centric energy system.

Between 2016 and 2022, the country's population grew by 8% reaching more than five million people for the first time. Continued growth is expected to bring this to over six million by 2050. The Government's Project Ireland 2040 plan and the National Planning and Development Framework set out the framework for investment to support this expansion, focusing on the creation of new jobs, housing, public transport, regional connectivity and environment sustainability. In this context, the Government's Housing for All Programme is targeting 33,000 home completions per year. ESB Networks will also need to be ready to respond should this target be revised over the coming period..

New policies have been developed in response to ongoing concerns about climate change and energy security. These include the EU's Fit for 55 package, REPowerEU and Alternative Fuels Infrastructure Regulation as well as the Irish Government's National Energy Security Framework, CAP21, CAP23 and CAP24. As a result, the scale, complexity and speed of the transition has increased, with high levels of wind, solar and storage connecting to the network and new demand for capacity coming from a range of sectors, including data centres, housing, transport and industry.

The global landscape has been significantly influenced by external factors including Russia's invasion of Ukraine, COVID-19, and inflation. The war in Ukraine has led to heightened energy security concerns and disruptions in global energy supplies, necessitating a more robust and resilient energy infrastructure. The COVID-19 pandemic has altered energy consumption patterns and highlighted the need for adaptable and reliable energy systems. Inflation has impacted the cost of energy projects, influencing investment decisions and operational costs.

Some of these global events have impacted considerably on customer needs and expectations. High energy prices, hybrid working, advances in technology, policy changes and increased climate awareness have contributed to changes in customer behaviours that are impacting on the energy network. These include increased uptake of microgeneration and electric vehicles (EVs), higher dependence on electricity and increased expectations around the use and availability of digital and data to improve customer experience.

As customers' dependence on electricity grows, the need for reliable, secure supplies of electricity will increase accordingly. The investments we make in the period ahead will be crucial in developing the electricity network that Ireland needs for a sustainable, secure and affordable energy future.

4.2 Outlook for 2030

Accelerated climate action, combined with ongoing population growth and investment in infrastructure under the Government's Project Ireland 2040 plan and Housing for All programme is driving significant demand for network capacity across all sectors. Below we highlight some of the key trends we anticipate during PR6 and outline the implications for the network and our PR6 programme.

- **Growing electricity demand:**

Electricity demand is projected to rise significantly with the uptake of new low carbon electric technologies such as heat pumps and EVs, adding to traditional demand drivers such as population growth, new housing and economic development. An analysis undertaken as part of the [Capacity Pathways Consultation](#) indicated significant investment in network capacity will be needed to meet demand for new connections, particularly in the Greater Dublin Area, where peak demand is projected to rise from 1.6 GW to 2.6 GW by 2030. For the purposes of this plan, we are preparing for demand growth of 3% annually over the period.

- **Increased Distributed Generation (DG):**

The rise of distributed energy resources (DERs) like solar panels, wind turbines, and battery storage systems, often installed at the consumer level (e.g. rooftop solar), requires increased connection capacity, more sophisticated management of bidirectional power flows and more flexible ways of operating the system to balance supply and demand in real-time, considering the variable nature of renewable energy sources.

- **Advanced Network Infrastructure:**

The integration of smart networks, which use digital communication technology to detect and react to local changes in usage, adds layers of complexity in terms of data management and cybersecurity. ESB Networks will need to continue to invest in advanced monitoring and control systems to handle data from numerous sensors and smart devices, ensuring reliable and efficient network operation.

- **Demand Response and Flexibility:**

Encouraging consumers to shift their energy usage in response to network constraints or the availability of renewables will require sophisticated demand response programmes and technologies. Working with electricity suppliers, ESB Networks may need to facilitate real-time pricing incentives. This will require the development of common standards and automation systems to effectively manage the network.

- **Energy Storage Integration:**

The widespread adoption of energy storage solutions, such as batteries, to stabilise the network and store excess renewable energy introduces new dynamics in energy flow and storage management. Coordinating the charging and discharging cycles of numerous storage systems requires advanced algorithms and predictive analytics.

- **Electric Vehicle (EV) Charging:**

The growth of electric vehicles demands a robust public re-charging infrastructure. Many of these connections are large spot loads of disturbing nature and present significant challenges, especially in the areas where the network has seen historically low electricity demand. ESB Networks must develop design solutions that will ensure compliance with power quality standards for all our customers, potentially using smart technologies.

- **Regulatory and Market Changes:**

The transition involves adapting to evolving regulations, policies, and market structures aimed at promoting renewable energy and decarbonisation. ESB Networks must stay informed and adaptable to regulatory changes at a national and EU level, which can impact network management strategies and investment decisions.

- **Climate Adaptability:**

As weather events and other disruptions become more frequent, enhancing the network's resilience and reliability is paramount. Further investments in system reinforcement, resilient network programmes automated fault detection, and recovery systems are necessary to maintain service continuity and quality.

- **Data and Cybersecurity:**

The digitalisation of the network brings significant cybersecurity risks, necessitating robust measures to protect against cyber attacks and ensure data privacy. ESB Networks is committed to ensuring the most robust and comprehensive cybersecurity strategies are in place, and to regularly update them to counter emerging threats for safe network operation.

- **Anticipatory Investment:**

To meet Ireland's Net Zero by 2050 target, it will be necessary to scale and maintain a very significant level of investment in the network from now to 2040. Potentially, such investment will be required to deliver capacity, resilience and reinforcements with growth in the demand for electricity.

- **Sustainability:**

The UN defines sustainability as meeting the needs of the present without compromising the ability of the future. The world has already exceeded six of the planetary boundaries within which humanity can continue to develop and thrive*. ESB Networks is aware of the impact our activities have on people and the environment. While most of our PR6 investment will be targeted towards the three UN Sustainable Development Goals (7,9 & 13) where we can make the most tangible and lasting difference, we are committed to embedding sustainability at the core of everything that we do.

* [Planetary boundaries - Stockholm Resilience Centre](#)

Overall, as the pace and intensity of the energy transition increases through PR6, the management of the distribution network will become much more complex. This will require a holistic investment response combining advanced technology, regulatory adaptation, enhanced consumer engagement, and investment in infrastructure to effectively manage this complexity. This points to the need for a considerable increase in investment in both digital and physical infrastructure to decarbonise electricity, maintain energy security and resilience and to meet the needs of customers in the years ahead.

4.3 Strategic Focus

National Policy Objectives:

Our plan will seek to support a wide range of important national policy objectives and outcomes that are essential to achieving economic growth, delivering major national infrastructure projects and supporting Ireland's net zero by 2050 targets. These include the Government's Project Ireland 2040 plan, the National Planning and Development Framework and the Climate Action Plan 2024. Specifically, ESB Networks has a key role in supporting:

- **The Climate Action and Low-carbon Development (Amendment) Act 2021**, which legally binds Ireland to transition to Net Zero by 2050 and reduce emissions by 51% by 2030
- **The Climate Action Plan 2024** which sets targets for 80% of electricity to come from renewable sources by 2030, c.1 million EVs, 680,000 heat pumps, a 10% reduction in emissions from industry, a >70% renewable electricity use in industry and a 10% share of renewable heat in industry by 2030.
- **The Housing for All** target of 300,000 new homes to be completed by 2030.
- **The Alternative Fuels Infrastructure Regulation**, which sets targets for the installation of EV charging infrastructure across the EU, including Ireland.
- **Population growth** to support approximately 1 million additional people living in Ireland by 2040.
- **The Government target for on-site emissions** across the manufacturing sector to fall by 35% by 2030.

Networks for Net Zero Strategy:

ESB Networks is committed to taking all necessary steps to provide a safer, more reliable and efficient network with the appropriate capacity, flexibility, and resilience to meet these requirements of Ireland's Net Zero ambition. In 2023, we published our Networks for Net Zero Strategy which sets out the steps we believe are necessary to create a net zero ready electricity network by 2040. Our strategy is structured around three key strategic objectives; Decarbonised Electricity; Resilient Infrastructure and Empowered Customers. These align with the PR6 Outcomes identified by the CRU in their Price Review 6 Strategy Paper. The Networks for Net Zero strategy can be viewed [at this link](#).

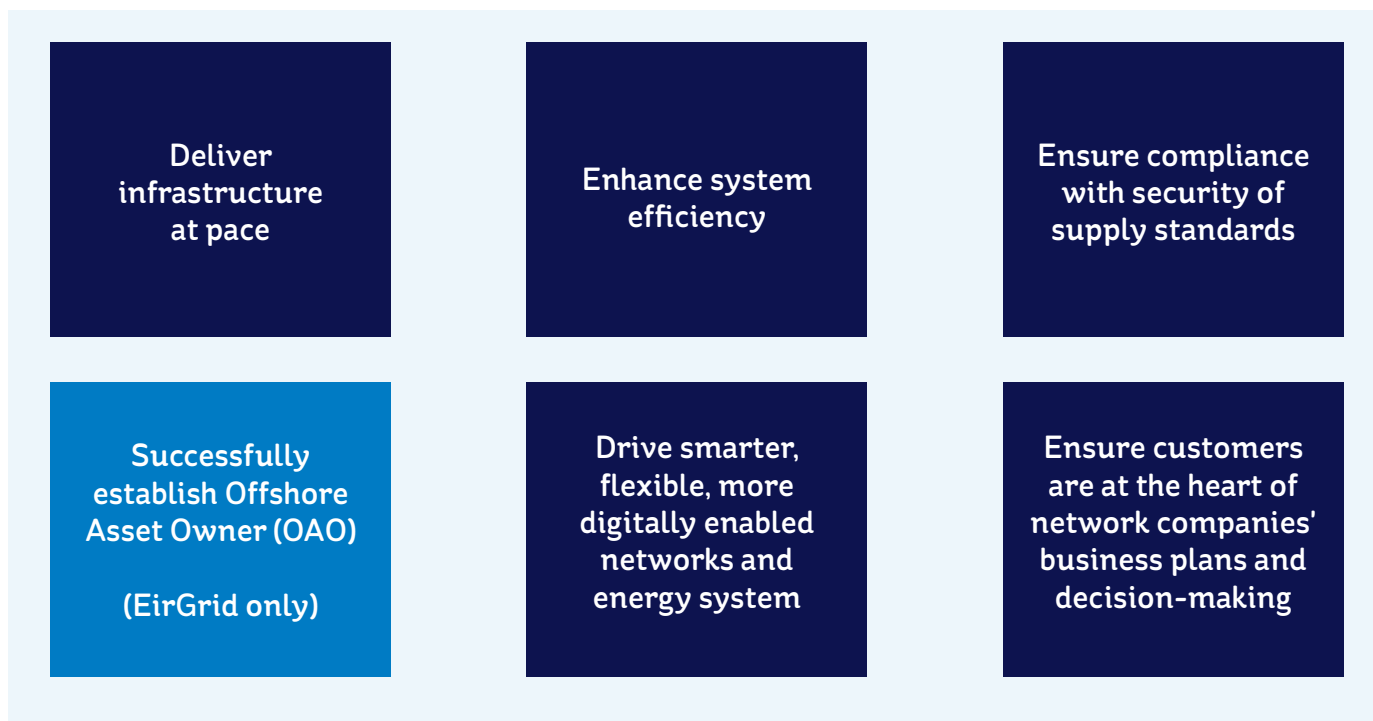
The CRU Price Review 6 Strategy Paper

Our investment plan will focus on the outcomes and objectives set out in the Strategy for PR6 published by the CRU in April 2024, which sets out to include the objectives and principles that will guide the regulatory framework for ESB Networks for the period 2026 – 2030.

PR6 Outcomes



PR6 Objectives



Specifically, we propose to address the following PR6 Outcomes:

- **Secure and Resilient Networks and Supplies:**

This PR6 Outcome recognises that, in the transition to a low-carbon future, ESB Networks needs to make significant investments to build network capacity to connect renewable generation and accommodate significant increases in demand associated with population growth, new housing developments and the electrification of heat, transport and industry, and adapt to climate change. As dependence on electricity increases, we need to ensure that the network is reliable and resilient to the impacts of climate change and disruptive events such as cyber threats. We will also need to invest in the replacement of aged and obsolete equipment. This outcome must be met while ensuring the safety of customers, employees, our contracting partners and the general public.

- **Decarbonised Electricity:**

This PR6 Outcome reflects our commitment to supporting Ireland in achieving Net Zero by facilitating the connection of renewable generation and ensuring the network can accommodate significant demand growth from across all sectors arising from the electrification of heat, transport, and industry. This involves enhancing the network to accommodate high levels of renewable electricity, deploying advanced digital technologies, and implementing smart and flexible network solutions to optimise the management of these new energy resources.

- **Empowered Customers:**

Customers value a reliable and resilient supply of electricity - this is our core purpose and we are proud to provide this essential service to 2.5 million electricity customers in the Republic of Ireland. To empower customers, we will deliver services that are personalised and convenient. Furthermore we are committed to working alongside customers and communities, supporting them to adopt new low carbon technologies that are healthier, more efficient and ultimately more affordable. We will put in place solutions to make it easy for customers and communities to participate in markets for flexibility and make active choices in their use of energy. In addition, ESB Networks will put in place protections for customers, ensuring that vulnerable customers are supported to participate fully in the energy transition.

To support the achievement of these PR6 Outcomes and in line with the PR6 Objectives outlined by the CRU for all network companies in its Strategy Paper for PR6, ESB Networks is committed to:

- **Delivering infrastructure at pace;**
- **Enhancing system efficiency;**
- **Ensuring compliance with security of supply standards;**
- **Driving smarter, flexible, more digitally enabled networks; and**
- **Placing customers at the heart of business planning and decision making.**

In our Business Plan for PR6 we propose to address each of these objectives, and identify our approach to meeting the following related challenges:

- **Resourcing and Deliverability:**

Significant investment in network infrastructure and new DSO capabilities will be required over the PR6 period to meet Ireland's 2030 targets. The scale of investment required during PR6 will necessitate a step change in the delivery of capital investment programmes. This implies a very large increase in the total workforce across all major work programmes over the period 2026-2030 as well as significant investment in skills development and training.

- **Affordability and finance-ability:**

Our PR6 Investment plan must attract the necessary level of investment to deliver a reliable and resilient network that can support electricity decarbonisation while maintaining affordability for customers. We will be including an assessment across both of these areas in our Business Plan submission to the CRU.

- **Managing uncertainty:**

There is uncertainty regarding the exact pace and nature of the transition towards decarbonisation, and how the policy and regulatory landscape will evolve over the price review period. We will propose appropriate regulatory mechanisms to manage this risk, monitor developments in the policy landscape and assess ongoing patterns of demand and generation on our network, so that we can flex our investment plan accordingly. ESB Networks will continue to work with EirGrid, the Transmission System Operator, in this area.

- **Public Engagement:**

In delivering infrastructure at the pace and scale required under PR6, widespread public support is essential. This will require proactive engagement and communications with customers and stakeholders to raise awareness of the critical role that network infrastructure will play in delivering a more sustainable, affordable and reliable energy future for individuals and communities. In this context, we will explore options to underground new network in scenarios where it is likely to drive the public support necessary to expedite project delivery. While this is likely to result in significantly higher direct project delivery costs, it will accelerate the delivery of vital infrastructure and mitigate potentially higher project delay costs.

- **Operating Sustainably:**

ESB Networks is aware of the impact our activities have on people and the environment. While we propose to focus most of our PR6 investment towards the three UN Sustainable Development Goals (7,9 & 13) where we can make the most tangible and lasting difference, our plan will also set out how we propose to embed sustainability at the core of everything that we do.

Questions for Consultation

Q1: Do you agree with the strategic outlook and strategic environment we set out that is shaping the direction of the PR6 Investment Plan? Please provide your feedback.

In the following sections we identify the key areas where we are developing our plans to deliver on the PR6 Outcomes and Objectives, and the associated actions.

5

Secure and Resilient Network Supplies



5. Secure and Resilient Network

To maintain safe, secure and resilient electricity network and supplies to underpin strong economic growth, significant investment will be required in network capacity and asset health including maintenance.

The quality, condition, and performance of the network will become increasingly important as customers adopt low carbon technologies and their dependence on electricity grows. We are committed to adapting our network to ensure it is reliable and resilient, and that it can withstand increased frequency and severity of disruptive climate events.

Our proposed investment approach will focus on:

- **Increasing the capacity of existing infrastructure, adopting a build once for 2040 approach to ensure that any new infrastructure built during PR6 can scale to meet the needs of customers in 2040.**
- **Strategically replace ageing infrastructure to improve the resilience and reliability of the network and minimise the impact of climate change.**
- **Connecting renewable generation to meet the target of 80% of electricity from renewables by 2030.**
- **Deploying new digital, data and cyber technologies to enhance customer experience, improve network efficiency and minimise risk.**
- **Investing in the processes, systems and capabilities necessary to operate the distribution network in a way that optimises efficiency and maximises the use of renewable energy.**

5.1 Network Capacity

Significant investment is required to ensure that the network has sufficient capacity to connect renewables and meet unprecedented demand arising from population growth, new housing development, economic growth and the electrification of heat, transport, and industry.

Our goal is to optimise these investments by maximising the use of the existing distribution network infrastructure and implementing smart solutions, as further elaborated in Section 7 below. In addition to building the necessary network capacity, we propose to streamline connection procedures during PR6 and adopt new systems to facilitate quicker and more efficient connections.

OUR PR6 FOCUS

This area of investment will focus on delivering the network capacity required to decarbonise electricity and meet growing demand for electricity in a timely and cost-efficient way. We believe that the most efficient way to deliver infrastructure is to 'Build Once for 2040' to ensure that any investments made during PR6 are designed and developed to meet the anticipated needs of customers in 2040. We propose to take this approach where possible, recognising that there may be particular circumstances associated with individual investments which demand alternative approaches.

Our proposed actions for PR6 include:

- **Major investments in network infrastructure at all voltage levels (high, medium and low), including overhead lines, cables, transformers, and substations with particular focus on the following:**
 - Investment in 110 kV nodes to ensure adequate capacity in areas with existing high volumes of connected and contracted generation and demand customer applications;
 - Asset maintenance and replacement programmes based on condition assessment and a risk-based asset management strategy;
 - Continuation of the conversion of 10 kV medium voltage (MV) network to 20 kV to reduce losses and provide additional capacity on the MV network;
 - Capacity increases at existing substations where appropriate.

5.2 Transmission Delivery

ESB Networks designs, procures, manages, delivers and maintains the transmission projects contained in EirGrid's Transmission Development Plan to support the electricity customer, the Government's Climate Action Plan and the Irish economy. ESB Networks has grown its transmission project development and delivery capabilities to meet these needs and continues to build on and enhance its processes and collaboration with strategic partners and stakeholders. Transmission capital projects are complex, extending over several years depending on the nature and scale of the work.

The required investment is projected to rise further over this decade to meet the climate action challenge as detailed in EirGrid's Shaping our Electricity Future publication. We commit to working with EirGrid, the CRU, the electricity industry, customers, stakeholders, and society to transform our electricity infrastructure, and deliver Ireland's clean electric future.

The delivery of a low-carbon energy system presents a range of challenges for the transmission network such as:

- **A significant increase in the number of renewable generator connection points.**
- **The development of large offshore wind generation sites and the requirement for multiple significant onshore network reinforcements to accommodate this. The alignment of the offshore and onshore development projects is a particular challenge with both programmes required to complete their scope of work within the same period.**
- **There will also be an increased requirement to further integrate new interconnectors and systems of electricity storage and other flexible system supports for periods when wind and solar are not available.**
- **Increasing renewable generation on the distribution network will bring additional demands onto the transmission network. We will continue to work with EirGrid to have an integrated "whole of system approach" to optimise investment across distribution and transmission.**
- **Growth of demand due to new housing and electrification of heat and transport drives a need for new and upgraded transmission assets supporting economic growth and wider decarbonisation of the energy system.**

OUR PR6 FOCUS

This PR6 investment will focus on the connection of large volumes of onshore wind and grid scale solar projects, connection of new interconnectors, connection of new gas-fired generators, grid scale storage solutions, connection of Ireland's offshore wind potential and delivering the assets required to serve new electricity demand.

We are currently developing our plans for PR6 setting out our approach to:

- **Delivering the Transmission Development Plan and the pipeline of projects in collaboration with EirGrid.**
- **Working with EirGrid to both maximise availability of transmission outages and utilise available outage time efficiently to complete the required construction works.**
- **Delivering the transmission projects on the east coast, to enable the development of offshore wind projects and to provide the additional network capacity in Dublin.**
- **Supporting new customers and renewable generators to connect to the transmission network, including via the contestable connections process to build their own network connection.**
- **Delivering the PR6 transmission programme by implementing robust multiyear planning, strategic procurement, and enhanced delivery mechanisms and resources.**
- **Delivering the additional Bulk Supply Point capacity in Dublin and other areas to support the forecasted demand growth.**
- **Assessing and delivering new technologies to facilitate the increase in renewable generation connections and enhance security of supply.**

5.3 Network Reliability and Resilience

As customers adopt new low carbon technologies and their dependence on electricity increases, they must be confident in the ongoing reliability of the network and its longer-term resilience to climate change.

To minimise the ongoing risk of unplanned customer interruptions on the distribution network and mitigate future risks associated with climate change and extreme weather events, major investment in our network assets is needed to develop and maintain a safer, more reliable and resilient network.

OUR PR6 FOCUS

The purpose of this investment programme is to significantly reduce unplanned power interruptions and minimise the duration of each fault. We have a companywide plan to reduce unplanned Customer Minutes Lost from 106 per annum in 2023 to 60 per annum by 2030 and reduce Customer Interruptions from 126 per annum in 2023 to 80 per annum by 2030.

To achieve this, we are developing our plan to focus on the following actions:

- **Undertake significant asset upgrade and replacement campaigns using data and analytics to continually improve network performance, enhance the reliability of the network and give customers the confidence they need to adopt new low carbon technologies.**
- **Accelerate the implementation of innovation, automation and self-healing network, to achieve network reliability at least cost. These solutions provide key continuity benefits by dealing quickly with transient faults, providing centralised fault hunting information and installing remotely operable switching points which help to reduce outage durations.**
- **Develop operating control architecture through Advanced Distribution System Management (ADMS) that will deliver automatic re-configuration of the system in fault conditions to restore supply.**
- **Continue to implement advanced asset management and asset health approaches to support investment decisions, targeting assets to deliver a more resilient network and enhance security of supply.**
- **Work collaboratively with customers, stakeholders and communities to minimise disruption and secure their support in delivering critical infrastructure maintenance and upgrades.**

5.4 Climate Adaptability

Climate change poses a significant risk to the electricity network and to our customers. We are already witnessing increased frequency of exceptional weather events, and expert evidence points to the likelihood of higher wind speeds, more frequent storms and longer and more intense periods of rainfall in the future. This poses risks to many parts of the network, with fallen trees, debris, and branches presenting risks to the overhead network and longer and more intense periods of rainfall heightening the risks of flooding and erosion. Climate change is also extending growing seasons, accelerating vegetation growth and driving increased wildlife activity, including invasive species, which similarly impact on the network.

OUR PR6 FOCUS

We are proposing to include specific measures and initiatives in our PR6 Business Plan to increase the resilience of the network in the face of climate change and enhance climate adaptability including:

- **Ongoing Risk Management:** ESB Networks ISO55001 Asset Management approach is founded on a Risk Based approach which includes physical asset risks.
- **Strategic Asset Management** to provide a safer more resilient network against climate change and severe weather events.
- **Collaboration:** We will work closely with expert groups and industry leaders to develop evidence-based solutions to support targeted network investment to mitigate the risk of extreme weather events.
- **Targeted condition-based network investment** to improve the longer-term resilience of our network and minimise the impact of climate change on our ageing asset infrastructure. This will be evidence-based and utilise data to target investment and maintenance.
- **Climate Adaptability Framework:** Our climate adaptability framework identifies specific measures to mitigate the risk of climate change - focusing on areas including automation, control, and vegetation management.

5.5 Cyber Resilience

By 2030, our network will undergo unprecedented changes as millions of endpoint devices are connected for network monitoring, grid edge activities, distributed energy resources, and the digital enablement of flexibility services.

Given the rapidly evolving cyber threats and uncertainties arising from our transformed relationship with customers as we approach Net Zero, the cybersecurity risks to our network will increase significantly. These risks will need to be carefully managed and mitigated.

OUR PR6 FOCUS

During PR6, we will continue to adopt a proactive approach to managing cybersecurity, and are developing plans focused on technical systems, culture and governance. We propose to:

- **Protect network assets and customer data and ensure the resilient operation of the network through the continued implementation of our IT/OT cyber improvement plans.**
- **Demonstrate resilience of our National Critical Infrastructure through compliance with the Network Information Systems Directive (NIS 2 Directive).**
- **Demonstrate resilience, stability, and security of our Electrical Network through compliance with the EU Network Code for Cybersecurity (NCCS).**
- **Deliver a purpose-built telecommunications network by the end of 2026 to provide resilience, stability, and security for our electrical networks.**

5.6 Safety

The safety of our customers, general public and workforce is paramount. Safety considerations are a key input to our designs and how we operate and manage the electricity network. Safety of the public, our workforce and contractors will remain central to everything we do during PR6.

OUR PR6 FOCUS

In developing our Investment Plan for PR6, we will:

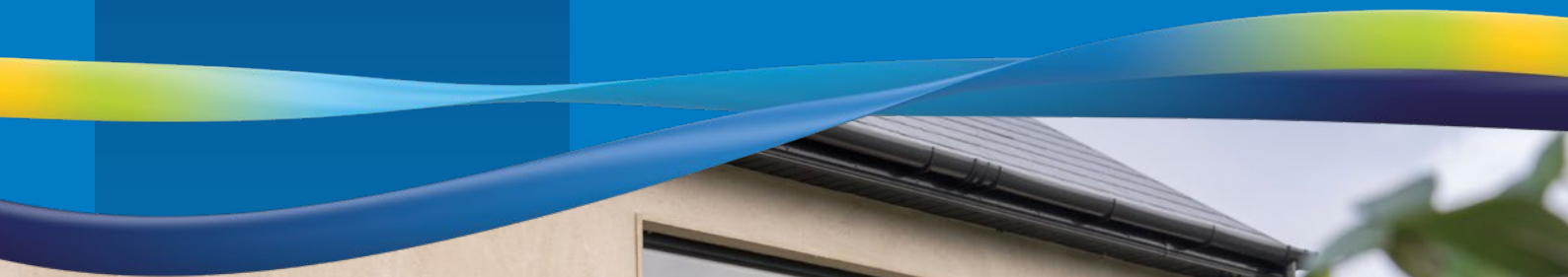
- **Continue to develop our Public Safety Strategy, including public safety awareness campaigns to inform members of the public of the dangers of coming into contact with our infrastructure.**
- **Continue to patrol and monitor aspects of our networks which the public may come in contact with, such as poles, overhead conductors, mini-pillars and substations.**
- **Continue to ensure that safety is integrated into our work processes and procedures and those of our contractor partners and sub-contractors. We will develop new e-tools and new technology both for training and for safely managing the work. As part of our process of continuous improvement we are committed to completing a process of safety culture transformation through the Safe and Sound programme.**

Questions for Consultation

Q2: Do you agree with the proposals to improve resilience, safety and reliability of the network that we set out to support our PR6 Investment Plan? Please provide your feedback.

6

Decarbonised Electricity



6 Decarbonised Electricity

6.1 Renewable Connections

ESB Networks will facilitate the connection of 22GW of renewable energy by 2030, in line with the CAP24 target to achieve 80% of electricity demand from renewable sources. This will include 9GW of onshore wind, 8GW of solar capability and 5GW of offshore wind. This will require major investment in network capacity as outlined in Section 5.1 above. In addition to the measures outlined above to deliver capacity to support renewable connections, we propose to focus on the following:

OUR PR6 FOCUS

To support connections of renewable generation we propose to:

- **Engage with the CRU, EirGrid and wider industry stakeholders in the development of a new electricity generation connection policy.**
- **Deliver faster grid connection offers for renewable projects through extensive customer engagement and move to processing two batches per year.**
- **Deliver relevant distribution and transmission projects as part of the overall delivery programme for PR6.**
- **Deliver the approved renewable energy hub pilots in line with our 'Build Once for 2040' concept and assess the impact of increasing capacity at existing substations, new renewable hub substations and connecting community projects to these hubs. The renewable energy hubs are a good example of anticipatory build. We expect that further anticipatory build will be required to meet the needs of our customer and stakeholders.**
- **Provide technical support and guidance to customers that choose to build network connections contestably.**

6.2 Developing a Flexible and Integrated Energy System to Facilitate Decarbonisation

As more renewables are connected to the distribution system and as customers adopt new low carbon technologies such as heat pumps, EVs and solar panels, it will be necessary to actively manage flows of electricity on the distribution system in real time to avoid network congestion and reduce carbon emissions. Significant investment is needed to develop a more flexible and integrated energy system to enable this. This investment will help to reduce peak load, improve network utilisation, reduce dependence on fossil fuel and enable customers to save money.

Investment in smart solutions and flexibility will provide the tools to allow ESB Networks to more effectively manage and optimise network capacity to accommodate growing demand (i.e. by increasing the intensity of use of the network) and will reduce need for renewable generation curtailment / load disconnections. These smart solutions can also enable faster connection times where network capacity is not available.

In the longer-term, flexibility may be used to postpone or eliminate the need for network reinforcement. Flexibility products offer a low-regrets solution to help manage uncertainty in relation to generation and demand growth (e.g. uncertainty around the precise speed of uptake of Low Carbon Technologies (LCTs)). By establishing capabilities and flexibility markets in PR6, we will create the foundations for these longer-term benefits to materialise in future price review periods.

In this section, we describe how ESB Networks proposes to transition to more active operation of the distribution system and our approach to investing in flexibility.

6.3 Transforming the DSO Role

Legislative and regulatory policies at both national and international levels are being updated to promote flexibility within the energy system. The EU's Clean Energy Package and 'Fit for 55' initiative, along with Ireland's Climate Action Plan (CAP) and the CRU's National Energy Demand Strategy (NEDS), set goals for a more flexible and responsive electricity sector.

At the core of this transition is ESB Networks' Distribution Markets and System Operation (DMSO), which will operate the distribution network as it evolves. The planned changes from 2026 to 2030 are intended to establish a foundation for a sustainable, clean electricity future in Ireland by 2040, supported by a distribution system ready for net-zero emissions.

This transition focuses on two objectives:

- **Efficiently, securely, and effectively managing a significant increase in connections of renewable generation and low-carbon technologies; and**
- **Empowering and incentivising a shift in how customers use electricity.**

OUR PR6 FOCUS

Our aim is to develop a smart distribution system by 2030. We propose to introduce the operational tools, systems and market arrangements required to manage a distribution network that relies on 80% renewable energy sources. Achieving this will require advances in our engineering, market strategies, technology, and data capabilities to effectively forecast, analyse, predict, and optimise our assets and operations.

In PR5, ESB Networks launched the National Network, Local Connections (NN,LC) programme to ensure the distribution system can monitor, forecast, and manage energy flexibility at a local level. Our proposed actions for PR6 build on this programme of work.

Our proposed actions to transform the Distribution System Operator (DSO) role include:

Further developing our role as a neutral market facilitator of local ancillary / flexibility service markets, to provide assurance to customers and stakeholders of the fairness and independence of these new markets.

Deploying advanced DSO tools and capabilities to manage the network and scale flexibility services, such as:

- **Low voltage monitoring devices to enable network visibility and mapping.**
- **Automated dispatching software.**
- **Communication platforms to enable signals to be sent to flexibility service providers.**
- **Data platforms to harness significant volumes of smart meter data to better understand electricity flows on the distribution network.**
- **Data analytics capabilities – including software and data scientists – to improve ESB Networks’ understanding of how the network is performing as increasing volumes of low carbon technology and distributed generation are connected.**

Collaborating and coordinating:

- **Collaborate with energy companies, including emerging energy companies, to reward customers for providing demand flexibility.**
- **Continue to collaborate closely with the TSO, and coordinate with the TSO and the wholesale market under a new TSO/DSO operating model.**

6.4 System Flexibility

ESB Networks proposes to deliver a suite of flexibility initiatives during PR6 to improve the efficient operation of the network, increase capacity utilisation and manage congestion. These initiatives will help to achieve the Irish Government's target of managing 20-30% of electricity system demand flexibly by 2030.

Flexibility refers to the ability of the power system to adapt to changes and maintain stability and reliability under varying conditions. This involves the capacity to respond effectively to fluctuations in demand, generation, and system conditions, ensuring a balance between supply and demand. Flexibility encompasses several key aspects:

- **Demand-Side Flexibility:**

The ability of our customers to adjust their electricity consumption patterns in response to meet the needs of the system. This includes demand response programs where consumers reduce or shift their electricity usage during peak periods or in response to price signals.

- **Generation Flexibility:**

The capability to ramp output up or down quickly to match changes in demand. This is particularly important for integrating variable renewable energy sources like wind and solar, which are intermittent and unpredictable.

- **Grid Flexibility:**

The ability of the network to handle variations in power flow without compromising stability or reliability. This includes managing congestion, ensuring voltage control, and maintaining frequency stability.

- **Storage Flexibility:**

The use of energy storage systems, such as batteries, pumped hydro, or other technologies, to store excess energy during periods of low demand and release it during peak demand. This helps to smooth out the variability of renewable energy sources.

- **Operational Flexibility:**

The capacity to implement various control strategies and use advanced technologies to manage the grid efficiently and overcome constraints. This includes the use of smart grid technologies, real-time monitoring, and advanced forecasting tools.

- **Market Flexibility:**

The structure of electricity markets to support flexible resources and incentivise their deployment. This includes pricing mechanisms that reflect real-time supply and demand conditions and support investments in flexible technologies.

OUR PR6 FOCUS

ESB Networks will deliver flexibility during PR6 through three mechanisms as set out in the CRU's emerging National Energy Demand Strategy:

- **Mandatory requirements**

The development of standards and different forms of agreements which will allow customers, especially large energy users to take part in a more flexible market. This would include products such as flexible connections, timed connections and large energy user products.

- **Explicit flexibility**

The development of flexibility products and services that will result in a flexibility response. This would include products such as peak shaving, a demand flexibility product such as storage, small and medium enterprise demand products and other Energy Networks Association products that contribute to flexibility. The standardised flexibility products developed by the Electricity Networks Association (ENA) in the UK, of which ESB Networks is a member, have been adopted for use and piloted as part of the NN,LC program, with adjustments as required to account for Irish market circumstances:

- **Secure**

Used to manage planned network outages for maintenance;

- **Dynamic**

Used to support the network in the event of specific fault conditions;

- **Restore**

Intended to help with restoration in the event of specific fault conditions;

- **Sustain**

Used as a pre-fault network management tool.

- **Implicit flexibility**

The scaling of flexibility through customers reacting to incentives such as those offered through pricing tariffs that result in demand reduction or shifting, enabled through the use of smart meters. This would include the use of products such as energy sharing, smart metering benefits awareness, customer smart functionality and microgeneration.

Though development of products and services across all mechanisms will take place simultaneously, it is expected that explicit products will provide the greatest early gain of flexibility from 2024-2026 and that once these are established, implicit flexibility products and services, through increased customer uptake, will assist ESB Networks in meeting its flexibility targets up to 2030.

Questions for Consultation

Q3: Do you agree with the proposals to decarbonise electricity and to develop a more flexible and integrated energy system to support our PR6 Investment Plan? Please provide your feedback.

7

Empowered Customers



7. Empowered Customers

Customers are at the heart of our business, and we are committed to constantly improving to meet their evolving needs. Customers value and expect a reliable and resilient supply of electricity, this is our core purpose and we are proud to provide this essential service to 2.5 million electricity customers in the Republic of Ireland. Furthermore, we believe it is important to support our customers on their energy transition journey. As a network operator, we recognise the importance of empowering and enabling our customers as they transition towards cleaner, more sustainable energy solutions.

The next decade will see a significant evolution in the way that customers use electricity and interact with the electricity network. By 2030, domestic customers connected to the LV network may typically have: smart meters; heat pumps; electric vehicles; rooftop solar; and, potentially, in-home storage. We are seeing increasing numbers of customers becoming 'prosumers', generating and supplying electricity to the local network from rooftop solar photovoltaic. Within this evolving landscape, it is imperative that customer services evolve in tandem to meet the emerging needs of our customers.

Supporting the needs of vulnerable customers is a priority, and we are committed to ensuring that all customers benefit from the energy transition. As the electrification of heat and transport progresses, identifying the needs and supports of these customers will become more important as their dependence on electricity grows. We are committed to ensuring that our customer services are inclusive and accessible to all.

7.1 Improving Customer Experience

As customer needs and expectations evolve, we are enhancing our service to provide customers with choice in how and when they do business with us. We aim to provide our customers with best-in-class service, ensuring every interaction is easy, convenient and suits the customer's choice of communication channel. Our essential customer service focuses on promptly answering queries and providing relevant, timely information at the first point of contact. We propose to continue to deliver online self-service options hosted in customer's personalised online account and further develop the digital experience across core customer journeys. Our customer contact channels are evolving to include virtual support in line with customer expectations but we intend always to have personal agent support as an option also. During outages, whether planned or unplanned, it is crucial for customers to easily determine if they are affected, know when power will be restored, and have the ability to report faults efficiently so we are continuing to enhance and improve information accuracy and timelines. Additionally, ESB Networks plays a pivotal role in empowering customers on their low-carbon journey. The evolving landscape and increasing complexity of customer requirements demand highly skilled and knowledgeable customer service advisors to meet these needs effectively.

OUR PR6 FOCUS

We have set the following targets for PR6:

- **Customer Support Target: Customer Contact Centre Performance across all customer service touchpoints targeted to achieve 92% by 2030.**
- **Customer Satisfaction performance score of 90% by 2030**

We are implementing an extensive Customer Transformation Programme underpinned by digital technology to continuously improve our customers' experience. However, given the scale and complexity of the overall work required during PR6, these targets are stretching, and improving overall customer satisfaction from 78% to 90% will be challenging. We propose to engage with the CRU during the overall PR6 process to establish appropriate customer service targets out to 2030 to balance the range of requirements over the period.

Our proposed actions for PR6 include:

- **Developing the next generation Customer Contact Centre.**
- **Enhancing outage management services to keep customers updated on outages (planned and unplanned) with more accurate and timely information.**
- **Expanding the services on the Customer Online account to make it easy for customers to interact with ESB Networks, whilst also maintaining our traditional customer contact centre services.**
- **Developing a platform to facilitate a single customer view to provide comprehensive 360-degree snapshot of each customer, incorporating real-time and historic data, interactions, preferences, and feedback. This centralised view will streamline customer service to support more efficient management of enquiries, issue resolution, and service requests.**
- **Continue to streamline Connections/Outage customer journeys processes, systems and digital experience.**
- **Support our customers on their journey to net zero through awareness campaigns and participation in pilots and low-carbon schemes.**
- **Implement an enduring Customer Experience Excellence initiative that will foster an enhanced customer-led mindset.**

7.2 Supporting Vulnerable Customers

Supporting the needs of customers most vulnerable to the loss of electricity supply is a priority. Vulnerable customers include those who need vital electrical medical equipment on a daily basis and those particularly vulnerable to disconnection during winter months. With the electrification of heat and transport, identifying the right actions to support vulnerable customers will become increasingly important as their dependence on electricity increases.

We recognise that certain customer groups may require additional supports to help enable participation in the energy transition and we will work to support the needs of all of our customers in this area.

OUR PR6 FOCUS

Our key actions include:

- **Developing two-way communications with vulnerable customers via direct message (WhatsApp or SMS) during power outages. This will provide enhanced information when vulnerable customers are affected by an outage and/or notify carers; and provide proactive responses to vulnerable customers in distress.**
- **Driving awareness of services for vulnerable customer via marketing campaigns and via suppliers.**
- **Providing dedicated resources and customer support to provide a more comprehensive service to vulnerable customers.**
- **Identifying and piloting innovative solutions to support vulnerable customers based on research.**

7.3 Supporting Electrification

ESB Networks is committed to supporting customers to switch to low carbon electric technologies like heat pumps and EVs so that they can benefit from a clean energy future that is healthier, more sustainable and ultimately more affordable. Under the CAP24 targets, 1 million EVs and 680,000 heat pumps will be connected to the distribution network by 2030. CAP24 also sets targets for a 10% reduction in emissions from industry, a >70% renewable electricity use in industry and a 10% share of renewable heat in industry by 2030. Separately, AFIR requires between 800MW and 1GW of public EV charging to be connected within the same timeframe. Supporting these policies and targets will require the connection of millions of new devices to the electricity distribution network, and will drive the need for significant investment.

OUR PR6 FOCUS

During PR6, we propose to support electrification by:

- **Providing the capacity for all newly built homes connected to the LV network to adopt low carbon technologies such as heat pumps, EVs and solar panels, in line with our updated LV design standard.**
- **Implementing a proactive approach to LV planning, building on the foundational work completed in PR5 to develop the structures and processes to support this on an enduring basis.**
- **Developing enhanced tools to help charge point operators, local authorities and other major electrification stakeholders make informed decisions about the location of new heating and transport infrastructure.**
- **Investing in capacity reinforcements and smart solutions to avoid network congestion and accelerate demand connections (see Sections 5 and 6).**
- **Supporting key electrification stakeholders through clear information and guidance, technical support and through ongoing improvements to our systems and processes.**
- **Engaging and collaborating closely with stakeholders to ensure a whole of system approach to optimally deliver national heat, transport and energy infrastructure.**

7.4 Smart Meters

Smart meters have been rolled out to provide customers with timely and detailed data on their energy consumption and to support accurate billing. 1.75 million smart meters are already installed and it is forecast that over 2.1 million customers will have a smart meter by the end of 2025. A small number of legacy smart meter installations will continue into PR6. A smart meter upgrade programme to enable customers to benefit from the next generation of smart meters is proposed in our investment programme. Smart meters will help customers to manage their energy usage more efficiently and be accurately compensated through feed in tariffs for electricity that they generate. Once the Smart Meter Data Access Code is in place, smart meter data will lead to new and innovative Supplier products for customers and enhanced networks for customers as the DSO utilises smart data for system improvements and flexibility.

7.5 Facilitating Connections

Connecting customers to the electricity network is one of our core services. As the population grows, we will need to cater for increasing numbers of demand connections. The Government's Housing for All Programme set a target for 300,000 home completions by 2030. ESB Networks is committed to connecting these new homes, and will work to deliver updated targets to address housing needs.

The increasing adoption of low carbon technologies such as electric vehicles and heat pumps will drive further demand for electricity connections. Facilitating the integration of small-scale and micro-generation systems, including rooftop solar panels will require additional technical support and more streamlined network connection processes.

OUR PR6 FOCUS

ESB Networks Customer Charter sets out our guarantees and commitment to timelines across the range of services that we provide. For New Connections, we commit to two timelines:

- **Time to Quote:** We provide customer quotations for new connections within 90 days for mixed developments and within 15 days for single domestic connections (7 days if no site visit is needed). Quotation charges are standard, regulated, and approved by the Regulator.
- **Time to Final Connection:** Once connection paperwork and supplier registration are confirmed, typical connection times are 10 days for a single domestic connection and 15 days for mixed developments. For large mixed developments, connection times align with the developer's construction schedule, often completed in phases.

We are investing in both the electrical infrastructure and people to cater for the forecast increase in the volume and complexity of new connections. To facilitate a streamlined service to customers, our proposed actions include:

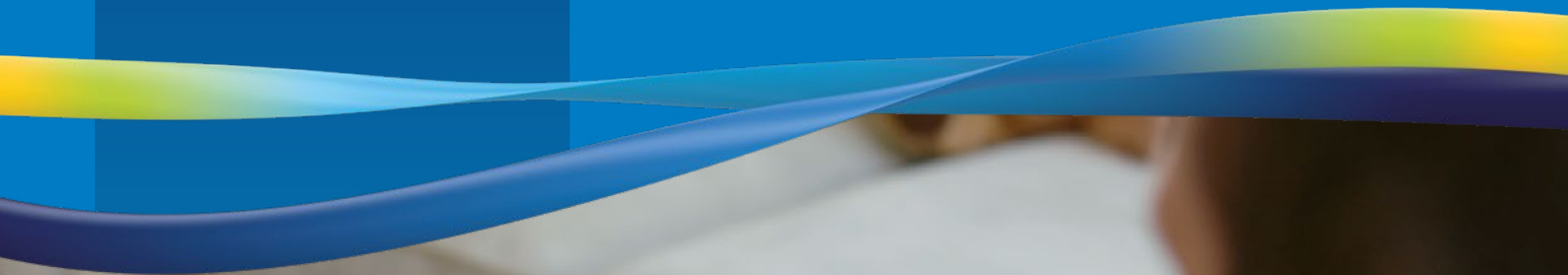
- **Delivering digital end-to-end processes on the ESB Networks Customer Portal, to provide a more convenient and simplified experience to pre-screen, apply and track the connection journey and reduce the time from application to connection.**
- **Deploying additional resources to enhance customer engagement through a single point of contact, local delivery teams for pre-planning discussions and rapid resolution of queries**
- **Enhance our design and planning process to maximise business connection throughput and cost transparency.**

Questions for Consultation

Q4: Do you agree with the proposals to further empower and support our customers to shape our PR6 Investment Plan? Please provide your feedback.



Enabling Capabilities and Structures



8. Enabling Capabilities and Structures

A number of programmes, capabilities and principles will cut across our plan and support the achievement of all the PR6 Outcomes and Objectives identified by the CRU.

8.1 Accelerating Digital and Unlocking the Value of Data

Traditionally, the distribution network was designed and managed based on predictable patterns of demand and generation, negating the need for complex management and monitoring tools. However, the transition to a smarter, more flexible network connected to millions of distributed energy resources will necessitate a significant change in how we plan, deliver, manage and operate the network. This will involve embedding smart, digital technologies into the network to manage bi-directional flows of electricity, alleviate constraints and match demand with renewable generation when it is available. Data will become critical as the volume of smart technologies increases and the overall management of the Network becomes data driven.

In addition, there are increasing requirements of ESB Networks to share data and insights to customers, suppliers, and a growing number of participants across the energy ecosystem who will all play a role in enabling Ireland to meet its climate change targets. This will necessitate increased management, governance and quality assurance around our data.

The shift in accelerating digital involves a transformative journey within ESB Networks from analog, with some paper-based ways of working, to digitisation (the process of collecting information) and then to digitalisation (the use of digital technologies) This is the basis of the ESB Networks' Powering Ahead Transformation Programme.

This transformation, which is already underway in PR5 through ESB Networks Powering Ahead transformation programme and through the new DMSO organisation, will require ESB Networks to invest further in modernising and upgrading existing systems and creating new digital ways of working. We are putting in place a digital core that will enable new and innovative working methods across all facets of our business, driving change in how we operate, serve our customers, and deliver value to society. As we digitalise how we work, the data that is created is becoming a strategic asset. This is essential to unlocking the potential of **Artificial Intelligence (AI)** and **Gen AI** as these new technologies evolve over the next 5 years.

Digitalisation is fundamental to ESB Networks ability to support the achievement of our key strategic objectives for several reasons:

- **Enhanced network management:**

To access 'network flexibility', ESB Networks will need to invest in new technologies to generate, collect and use more data than it does today and optimise electricity flows in near real-time, making best use of available network capacity.

- **Facilitation of renewable energy integration:**

As Ireland seeks to harness its indigenous renewable energy sources, digital technologies will be essential in managing the intermittent nature of these resources.

- **Increasing delivery effectiveness:**

Digital and data are key enablers of organisational effectiveness, increasing delivery capacity from optimising project identification and planning using data analytics. This will be achieved through improved integration and data sharing with contractors and further enablement of field workforce through digital devices and data sharing.

- **Improvement in customer experience:**

Customer expectations continue to increase around digital. Good progress has been made in digitalising key customer interactions however further advances are required to empower our customers and meet the changing needs and expectations.

- **Ecosystem and customer engagement:**

There is a requirement for ESB Networks to promote engagement of customers and a wider ecosystem of energy participants through the secure and compliant sharing of data and insights. This will be enabled through secure digital platforms

- **Optimisation of Asset Management:**

By adopting digital tools and analytics, ESB Networks can optimise asset management and improve the overall performance of the electricity distribution network.

To adapt to the evolving landscape, we have developed a complementary Digital & IT Strategy to accelerate digital initiatives by treating data as a critical asset. This strategy supports customer centricity, informs network-related decision-making, and enhances field efficiency.

OUR PR6 FOCUS

During PR6 we propose to continue to apply and embed a digital first approach – using new and innovative tools and delivery techniques to deliver business and market outcomes.

We are developing a framework to represent the ESB Networks business through the lens of digital transformation and propose to include this in our Investment Plan.

Our key initiatives during PR6 include:

- **Digital transformation (Transform the core business):**
 - Continued transformation of core areas of ESB Networks business through the use of data and technology including:
 - Empowering Customers and enabling a wider ecosystem of participants through increasing digitalisation of customer journey's, increased B2B integration and secure sharing of data and data insights;
 - Increase digital capability of our people
 - Regularly assess digital maturity and ensure that necessary components of a Digital Utility are in place
- **Management and use of data:**
 - Increase maturity in the management of data through implementing industry standard data architecture and driving data quality improvement initiatives
 - Continue to identify and develop data products that add value to customers, enable the wider Net Zero ecosystem or increase effectiveness and transparency across the business
 - Put in place foundational platforms for the development of AI and Gen AI solutions and take advantage of opportunities as new technology evolves
- **Management of Risk:**
 - Upgrade and maintain existing IT, Digital and Data solutions to ensure availability to critical IT systems as well as ensuring up to date security patching.

8.2 Resourcing for Delivery

With significant investment in transmission and distribution system network infrastructure together with DSO capabilities required during PR6, ESB Networks must have the right skills, systems and workforce in place for the scale up of the overall delivery programme. We are committed to maintaining and developing our workforce and to investing in their training and development to ensure they have the capabilities needed to serve our customers effectively. Over the past three years, we have recruited over 700 people to build the skills we will need for the future and doubled the number of new apprentices recruited each year.

In addition to our own workforce within ESB Networks, we propose to continue to build a total workforce which balances internal capability with contracting partners to optimise delivery. This approach will help to provide the flexibility needed to scale resources and respond effectively to delivery challenges.

The significant ramp up in resources required to deliver on national policy objectives during PR6 represents a significant risk to overall delivery. The availability of sufficient outages on both the transmission and distribution networks, challenging supply chains and a very competitive labour market all contribute to the overall delivery risk. We have taken steps to mitigate these risks over recent years. In order to continue to mitigate this risk, we will adopt measures to optimise the efficient use of resources and work to ensure that the most impactful projects are delivered as a priority. As part of the engagement during the PR6 process, the issue of prioritisation of programmes of work and potentially individual projects will be considered.

OUR PR6 FOCUS

During PR6, we propose to invest in:

- **A sustainable recruitment programme:**

Our intention is to recruit a cohort of new employees each year to maintain and build the capabilities we need to deliver transformative change.

- **Enhanced training programmes:**

We will invest in advanced training programs to ensure our workforce is equipped with the appropriate skills and knowledge to handle more sophisticated customer queries and network management tasks.

- **Significant additional capacity:**

We will maintain strong partnerships with contractor organisations and provide early programme visibility to enable them to put in place the capability and pipeline of skills necessary to support our investment programme.

- **Technology integration:**

We will leverage cutting-edge digital tools to support our workforce in managing customer interactions and network operations more efficiently.

- **Aligning production capacity with programme needs:**

We will work with our supply chain partners to align production capacity with programme needs, through critical material identification, increasing framework capacity, advanced procurement.

- **New Ways of Working:**

We will embed new ways of working to enable the deployment of infrastructure at scale and pace in a standardised, repeatable manner using modern methods of construction.

- **Productivity:**

We will develop strategies to maximise the productivity of our workforce in order to deliver the most efficient service to our customers in a timely manner.

8.3 Innovation

Innovation is fundamental to meeting the needs of our customers now and in the future as we prepare for a transformed energy landscape where customers depend on electricity to power almost every element of their lives. Throughout PR5, ESB Networks has been identifying, testing and implementing innovative technologies and solutions to support our strategic objectives and advance thinking on specific solutions as we move into PR6.

As ESB Networks ramps up to meet the expanded needs of customers in a fully electrified society, innovation must be delivered at a greater pace and scale. Our approach to innovation (as detailed in our “Innovation 2024; Innovation to Deliver networks for Net Zero Consultation”) provides flexibility to cater for developments in new technologies and provides the agility we need to respond to changing customers and stakeholder needs. ESB Networks will innovate to meet the CRU PR6 Outcomes and Objectives, and will leverage new grid technologies, operational tools and innovations to enhance capabilities and maximise the use of existing infrastructure, including facilitating maximum use of existing generation.

Our approach to innovation will be underpinned by:

- **Collaboration and Engagement:**

ESB Networks is committed to driving innovation and sustainability through collaborative partnerships with industry, academia, and other stakeholders to uncover and achieve lasting benefits for our customers and ensure whole of system thinking.

- **Innovation Culture:**

ESB Networks will continue to scan the external environment to identify emerging ideas, technologies and solutions to drive innovation and deliver customer benefits. This will involve ongoing horizon scanning activities, including research and engagement with start-ups, peer utilities, academia and industry bodies.

- **Outcome focused:**

Our innovation programme will directly respond to key challenges and opportunities that align with the Strategic Outcomes for PR6 so that we can optimise long-term benefits for customers.

- **Governance:**

We will refine our established innovation framework to ensure appropriate governance and oversight is in place to optimise returns from the innovation process while supporting agility. This will recognise the risks and uncertainties inherent in investing in untested innovation projects or trials and ensure an appropriate level of oversight. This will be regularly reviewed against best international practice.

- **Shared Insights:**

We will share insights from our innovation projects to support collaboration and ensure that investments in innovation are optimised, whether or not they proceed to implementation.

OUR PR6 FOCUS

We will continue to prioritise innovation throughout PR6 and will ramp up our innovation programme to accelerate the innovation process and meet the PR6 Outcomes and Objectives, working in partnership with contractor partners and collaborators to accelerate the pace of innovation and ensure a whole of system approach.

In developing our plans for PR6, we have consulted with stakeholders, analysed key challenges, considered emerging policy and regulation, and commissioned research into the innovation activities and approaches of other DSOs to identify proposed thematic areas and projects to include in our plan. These include:

- **Electricity:**

This project will take a whole of system approach to analysing and addressing the challenges of electrification in large urban centres. It will involve collaboration with local authorities, social housing bodies, third-level institutes, sustainable energy communities, and industry partners to develop a blueprint for urban electrification. It will also incorporate specific measures to support vulnerable and energy poor customers.

- **Electrification:**

Building on innovation projects developed during PR5, we will explore ways to optimise EV charging facilities and their impact on the network, including the use of smart EV charging tools to optimise network efficiency, vehicle to grid solutions and charging solutions for heavy goods vehicles. We will also explore innovations to accelerate and enable eheat and optimise its potential as a source of flexibility for the network.

- **Network Capacity:**

Several projects looking at the potential to expand network capacity or delay the need for network reinforcements through smart and flexible solutions were initiated during PR5. We propose to continue these to conclusion during the remainder of PR5 and into PR6 and explore further solutions in this area. Current projects include a feasibility study looking at the potential to upgrade 38kV network to 110kV and a pilot project for timed and flexible connection.

- **Network Resilience, Reliability and Safety:**

ESB Networks has collaborated with a number of start-ups during PR5 on innovation projects to improve continuity, enhance network resilience and mitigate climate risk. These have focused on wildlife protection measures, LV planning solutions, cyber security, flood risk mitigation and fault identification and repair measures. We will work to transition these to BAU during PR6 and explore other partnerships to further develop and enhance network resilience and reliability.

- **Decarbonised electricity:**

To facilitate accelerated electricity decarbonisation and long-term energy storage, ESB Networks will assess the impact of hydrogen electrolysers on the network as these technologies come on stream during PR6. We will also build on work undertaken in PR5 to find technologies to replace carbon intensive fuels used in the operation of the network including fleet vehicles and mobile generators, and in Island communities.

- **Environmental Sustainability:**

In line with our commitment to place sustainability at the core of our operations, we will explore and develop innovative projects in the areas of circularity, biodiversity and regeneration.

- **Digital and Data:**

Innovation projects focused on leveraging digital data are critical in enabling the energy transition. A number of innovation projects delivered during PR5 have provided insights and learnings to support strategic asset management, improve customer experience and optimise the use of existing infrastructure. We will continue to explore solutions and use cases for digital and data, particularly in the areas of open data, AI and augmented reality (AR) / virtual reality (VR).

- **Empowering and Protecting Customers:**

As customers become increasingly dependent on electricity for their energy needs, some customers will be particularly vulnerable to power outages, while others may risk being left behind if they are unable to access new technologies. We will explore innovative solutions from other jurisdictions that have been successful in empowering and supporting such customers to ensure that they are included in the energy transition. We will also look at innovative approaches to supporting energy communities.

In addition to these highlighted initiatives, innovation will be embedded throughout ESB Networks, with each business unit focusing on innovations that directly support the efficient delivery of their functional responsibilities. This will be supported by structured programmes to build innovation capability and identify innovative technologies and solutions from around the world that may be relevant to ESB Networks.

The rapid development of new digital and data technologies in recent years has presented new opportunities to accelerate innovation in particular areas. During PR5, two functional areas were established to progress these, including the National Networks Local Connection Programme, which is leveraging new technologies to accelerate the development of local flexibility markets in order to minimise network constraints and harness the potential of renewable generation. Separately, the Powering Ahead programme is leveraging digital and data to improve operational and network efficiency and provide strategic insights to manage risk and inform investment decisions.

8.4 Sustainability

ESB Networks recognises the impact that our activities have on communities and the environment. We are committed to embedding sustainability at the core of everything we do, while focussing specifically on the three UN Sustainable Development Goals (7,9 & 13) where we can make the most tangible and lasting difference.

In addition to supporting the key national policy outcomes listed earlier in this document through our core programme of activity, ESB Networks will continue to support other sustainability measures and requirements relating to biodiversity, carbon reduction and energy efficiency within our own landholdings, fleet and buildings. We will also report on our sustainability progress under the Corporate Sustainability Reporting Directive (CSRD).

OUR PR6 FOCUS

The key focus of this PR6 Investment will be to:

- **Implement carbon reduction and energy efficiency measures across all current and future building upgrade works to reduce our building CO2 emissions by at least 51% by 2030, improve the energy efficiency for our buildings and transport fleet by 50% by 2030, and bring all buildings up to a rating of at least BER B and 40% of buildings at a BER A standard by 2030.**
- **Continue to transition our fleet of approximately 2,000 vehicles away from fossil fuels to reach the target of 100% by 2040.**
- **Integrate Carbon Emission Assessments as part of all infrastructure capital investments as required under CAP19.**
- **Incorporate climate-related processes and risks into ESB Networks' overall risk management framework and risk reporting.**
- **Investigate and adopt new low emissions technologies to replace SF6 equipment as soon as they are proven to be viable.**
- **In line with the 'Nature Positive' policy direction for public authorities, implement our Biodiversity Strategy to bring a regenerative environmental benefit to the local communities where we operate.**
- **Continue to enhance diversity in our workforce to improve decision making, innovation and overall performance.**
- **Adopt purpose-led sustainable procurement strategies and practices that deliver value for money and socially responsible outcomes for customers. Sustainable procurement seeks to have the most positive environmental, social and economic impacts possible on a whole life cycle basis.**

Questions for Consultation

Q5: Do you agree with the proposals to address the enabling structures and capabilities required to deliver on the PR6 Outcomes and Objectives and which are being considered for our PR6 Investment Plan? Please provide your feedback.

9

Other Considerations



9. Other considerations

A number of factors will need to be considered in developing our Investment Plan in addition to those outlined above.

9.1 Financing Our Plan

It is critical that our PR6 plan can attract the level of investment needed to provide a safe, reliable and resilient network to support electricity decarbonisation while maintaining affordability for customers. ESB Networks will fund the significant network investments required through operating cash flows from revenue receipts, raising of new debt and retention of earnings as required.

The external financing environment is significantly more challenging than in previous periods. Market rates have reached a ten-year high following monetary policy decisions and the environment is highly competitive, marked by uncertainties in global economies and intensified competition for access to capital. In PR6, it will be important that the Regulator accounts for this in their assessment of the appropriate level of return and their finance-ability assessment. We propose to include a finance-ability assessment as part of our Business Plan for PR6.

9.2 Impact on Customer Bills

Large increases in wholesale energy prices arising from Russia's invasion of Ukraine have contributed to very high electricity bills in recent years and have required State interventions to alleviate the threat of widespread energy poverty. We are very conscious of the hardship that this has caused to domestic and industrial / commercial customers and recognise that even small changes in customer bills make a difference. We are committed to ensuring that any investment made in the network provides value for money for customers and brings long-term benefits in terms of reliability, affordability and sustainability.

ESB Networks derives its revenue principally through charges for use of the distribution system levied on electricity suppliers and charges for use of the transmission system levied on EirGrid. Based on data sent by suppliers to the CRU during 2023, the transmission and distribution network tariffs, which cover the costs of operating and investing in each network, together represent approximately 25 - 30% of a typical domestic end user electricity bill. This percentage will vary each year depending on electricity wholesale prices and other costs which make up the final bill.

The costs associated with network investment are typically paid for by customers over a long period of time reflecting the long-term value of network assets. Our tariff forecasts reflect the cost of ongoing investment in the network and significant new programmes to improve safety, manage the increasing level of renewables connections and the uptake of Low-Carbon

Technologies. So, while the overall scale of investment required for PR6 is significant, the recovery of the required upfront investment costs via customer tariffs is spread over a long period. This means that the annual costs recovered via customer tariffs will be much smaller than the upfront investment costs incurred by ESB Networks. As part of the preparation and submission of our Business Plan we will include an assessment of the impact of the investment programme on customer bills.

9.3 Managing Uncertainty

The pace and pathway of the transition to Net Zero is uncertain and this means that there will inevitably be uncertainty as to the exact nature, scale and timing of investment needed throughout PR6.

To manage this uncertainty effectively, it is crucial to adopt a flexible approach that can adapt to changing circumstances. In response, we are planning to collaborate closely with the CRU to develop innovative price control solutions to manage effectively the risk and manage the competing objective of rapid investment. In addition, the use of flexibility offers a low-regrets solution to help manage this uncertainty.

9.4 Public Support

To deliver networks infrastructure at the necessary pace and scale during PR6, public support will be essential. We will proactively engage with customers and stakeholders to raise awareness of the critical role that network infrastructure will play in delivering a more sustainable, affordable and reliable energy future for individuals and communities.

Questions for Consultation

Q6: Are there any other considerations, benefits or outputs that ESB Networks should consider as we develop our Investment Plan for PR6? Please provide your feedback.

10

Summary List of Questions



10 Summary list of questions

- Q1:** Do you agree with the strategic outlook and strategic environment set out that is shaping the direction of the PR6 Investment Plan? Please provide your feedback.
- Q2:** Do you agree with the proposals to improve resilience, safety and reliability of the network that we set out to support our PR6 Investment Plan? Please provide your feedback.
- Q3:** Do you agree with the proposals to decarbonise electricity and to develop a more flexible and integrated energy system to support our PR6 Investment Plan? Please provide your feedback.
- Q4:** Do you agree with the proposals to further empower and support our customers to shape our PR6 Investment Plan? Please provide your feedback.
- Q5:** Do you agree with the proposals to address the enabling structures and capabilities required to deliver on the PR6 Outcomes and Objectives and which are being considered for our PR6 Investment Plan? Please provide your feedback.
- Q6:** Are there any other considerations, benefits or outputs that ESB Networks should consider as we develop our Investment Plan for PR6? Please provide your feedback.



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