



NETWORKS



# ESB Networks Innovation Strategy Framework and Governance

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Version 1.0

## 1. Innovation in ESB Networks

ESB Networks ensures electricity gets to the homes and businesses of our 2.4 million electricity customers in a safe and efficient manner. As Distribution System Operator (DSO), Distribution Asset Owner (DAO) and Transmission Asset Owner (TAO), ESB Networks works to meet the needs of all Irish electricity customers, providing universal affordable access to the electricity system. We recognise that the environment in which we operate is changing rapidly driven by new policy and regulation, the advancement of technology and the changing needs and expectations of our customers and stakeholders. This means the role of electricity is also changing, creating new challenges and opportunities.

Innovation in ESB Networks is a key enabler to our Networks for Net Zero by 2040 business strategy, and Price Review 5 (PR5) objectives as we continuously innovate to connect a clean electric future together. This report describes how ESB Networks, working together with customers, communities, industry, the Transmission System Operator (TSO), technology providers, academics and research institutions, is implementing new ideas, innovative concepts and technologies that will support climate action and provide enduring benefits for our customers and communities.

We are clear that the challenge of delivering the electricity network to support the decarbonisation of Irish society no later than 2050 requires extensive and collaborative innovation and success will not be achieved without ongoing active customer and stakeholder participation, engagement and support. We will listen to and work with our partners and stakeholders to develop innovative solutions to ensure the network is smart, flexible, resilient, safe and adaptive to support our customers adopting low carbon technologies and deliver the connection of renewable generation at scale. In support of the Governments Climate Action Plan 23, our customers and stakeholders, we have developed our innovation strategy and portfolio of innovation projects across our 3 innovation pillars of future customer, climate action and network resilience.

### 1.1 OUR INNOVATION VISION, VALUES AND MISSION

At ESB Networks, our vision is to deliver the electricity network for Ireland's clean, electric future and our customers will be at the heart of the transformation. Our ambition is to build, maintain, operate, and develop the electricity network to meet the needs of our customers, today and into the future.

A key enabler to delivering our vision and strategy is to continuously innovate towards a sustainable low carbon energy future for our customers and for Ireland.

Our definition of innovation is to implement new ideas for the enduring benefit of our customers and business.

Our values underpin everything we do at ESB Networks and are the foundation of our innovation strategy. They will continue to guide our decisions and actions as we deliver the electricity network for Ireland's clean, electric future.



Figure 1 ESB Networks Values

Our mission is to play a central role in Ireland’s transition to a low-carbon economy, and to provide secure, sustainable, reliable electricity in an affordable manner for all customers. In support of Ireland’s Climate Action Plan (CAP), the Programme for Government and the CRU’s PR5 objectives, our Innovation Strategy has been developed to facilitate Ireland achieving its climate change targets for 2030 and beyond to net zero by 2050. This means that low carbon electricity will provide Ireland with an opportunity to decarbonise other sectors of our economy such as transport and heat through the adoption of electric vehicles (EVs) and heat pumps. ESB Networks looks to embed innovation across the business and is not confining innovation to our “dedicated innovation teams”. We’re driven to continue to develop a culture of innovation which is encouraged across the organisation as we seek to challenge the status quo to find new and innovative approaches to how we carry out our business and operate our systems. This will ultimately benefit all our customers, irrespective of how or where they interact with the energy system. Our definition of innovation is to implement new ideas for the enduring benefit of our customers.

## 2. Innovation Strategy Framework

ESB Networks has developed its innovation strategy, in conjunction with robust governance and processes, to advance new innovative solutions to support the delivery of our PR5 programme and our “Networks for Net Zero” Strategy. Our strategy will enable the delivery of the Governments CAP 2023 and supports the decarbonisation of electricity by 2040, that will enable Ireland's achievement of net zero no later than 2050. Our innovation strategy and approach continues to evolve, and with the publication of our Networks for Net Zero strategy, will be reviewed in 2023 to support the actions to deliver the Network for Net Zero by 2040.

The fundamental challenges posed by climate change to our society pose significant challenges for the operation of the distribution system but also present new opportunities to innovate and continually review how we plan, develop, and operate the distribution system to deliver the electricity network for Ireland’s clean, electric future. By 2030, the network will support the adoption of 680,000 heat pumps, up to 1 million Electric Vehicles and the integration of up to 80% renewable electricity generation.

## Electricity network by 2030

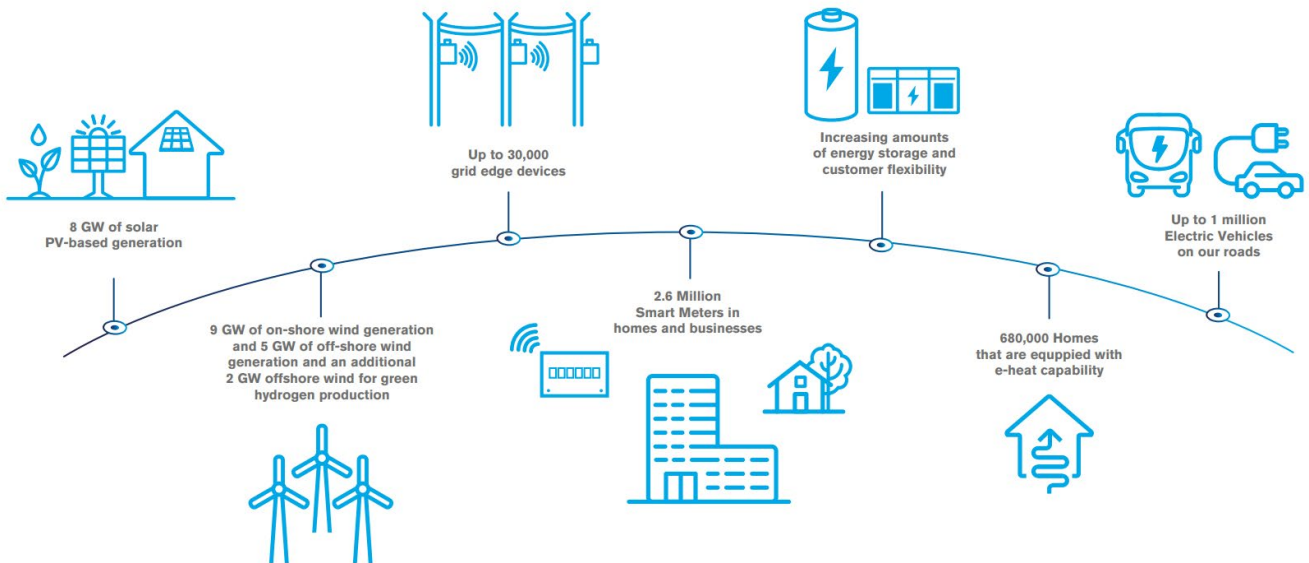


Figure 2. Electricity Network by 2030

The adoption of new materials, technologies and concepts, digitalisation and big data analytics have the potential to create greater efficiencies, while electrifying the heat and transport sectors will offer a range of new opportunities for our customers to engage with the energy system. Comprehensively understanding the capabilities and limitations of these new technologies and concepts through a combination of trials and analysis will ensure that ESB Networks will be able to deliver the electricity distribution network of the future.

Robust processes associated with the identification of innovative opportunities are a key part of ESB Networks' Innovation Strategy<sup>1</sup>. This requires us to consider the disruptive trends and identify how we see the energy landscape developing in the next decade and beyond. We have developed an Innovation Strategy Framework to manage every stage of the development and implementation of our strategic initiatives, from setting the vision to establishing Business-As-Usual (BAU). In developing this Framework and our Innovation Strategy Cycle (See Figure 1.5), we reviewed best practice from other jurisdictions, worked with external consultants, engaged in workshops with representative groups from across ESB Networks and sought feedback from stakeholders to create a solution for our organisation. This framework respects that our customers, who support the cost of these projects, expect efficient and effective dividends from the innovation process. It recognises the risks and uncertainties inherent in investing in trialling untested innovation ideas and ensures an appropriate level of oversight.

Governance		
<ul style="list-style-type: none"> <li>The Innovation Governance Framework outlines the governance of our Innovation Strategy</li> <li>Governance is provided through our Connecting Futures Board (CFB) that owns the Innovation Strategy and operates to the terms of reference approved by the Managing Director of ESB Networks</li> <li>The Innovation Steering Group is responsible for progressing issues that arise at a project level and has delegated authority from the CFB for approval of investment appraisals, certain project decisions, reports and change requests</li> </ul>		
<b>Project Identification and Evaluation</b> → <b>Delivery of Innovation Projects</b> → <b>Transition to BAU and Dissemination of Learnings</b>		
Process		
<ul style="list-style-type: none"> <li>Identifying project ideas beyond Business-As-Usual</li> <li>Project prioritisation and initial assessment</li> <li>Impact assessment framework</li> <li>Detailed project evaluation, benefit assessment, scoping and objective setting</li> <li>Strategic validation through collaboration with stakeholders and third parties</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing project assessment process to monitor project status, evolution and outcomes</li> <li>Risk assessment and mitigation planning as appropriate</li> <li>Active engagement with partners and wider stakeholders</li> <li>Progressive project evaluation to determine project continuation, cancellation or merge with others as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Develop and monitor transition plans to completion</li> <li>Identify opportunities to extend an innovation project to achieve additional benefits</li> <li>Disseminate learnings into BAU operations and/or decision-making</li> <li>Disseminate learnings to industry and stakeholders</li> </ul>
Reporting		
<ul style="list-style-type: none"> <li>Ranking of Ideas Generated</li> <li>Project Proposal</li> <li>Investment Appraisal</li> <li>Webinars/Public Consultations</li> </ul>	<ul style="list-style-type: none"> <li>Progress and Close-Out Reports</li> <li>Hand-Over Pack</li> <li>Webinars/Public Consultations</li> </ul>	<ul style="list-style-type: none"> <li>Transition Plans</li> <li>Industry Papers and Conferences</li> <li>Webinars/Public Consultations</li> </ul>
Assessment and Tracking of Benefits		
Creation	Delivery	Transition to BAU
<ul style="list-style-type: none"> <li>Qualitative and Quantitative Benefit Assessment</li> <li>Cost Benefit Analysis</li> <li>Measures of Success</li> </ul>	<ul style="list-style-type: none"> <li>Qualitative and Quantitative Benefit Assessment</li> <li>Cost Benefit Analysis</li> <li>Measured Data from Pilots</li> <li>Trial of Methods/Technologies</li> </ul>	<ul style="list-style-type: none"> <li>Transition of Qualitative and Quantitative Benefits to BAU</li> <li>Ongoing Tracking and Assessment of Benefits</li> </ul>

Figure 3. ESB Networks Strategy Framework

## 2.1. Our Innovation Framework Process

To effectively implement our Innovation Strategy, we have developed an end-to-end process for the management of innovation initiatives across our business areas. This process is part of our Innovation Strategy Cycle (See Figure 1.5) and has three main stages:

1. Project identification and evaluation;
2. Delivery of innovation projects; and
3. Transition to BAU and dissemination of learnings.

The structure of our innovation framework and ongoing efforts in collaboration and planning allow us to identify a comprehensive number of potential projects. Proactive engagement with stakeholders and continuous monitoring of the environment we operate in have helped to determine when projects warrant cancellation, expansion or consolidation with projects of similar strategic objectives. This reflects the dynamic nature of innovation and the fact that ESB Networks has developed a high-performing culture of innovation that values the pursuit of new ideas and opportunities.



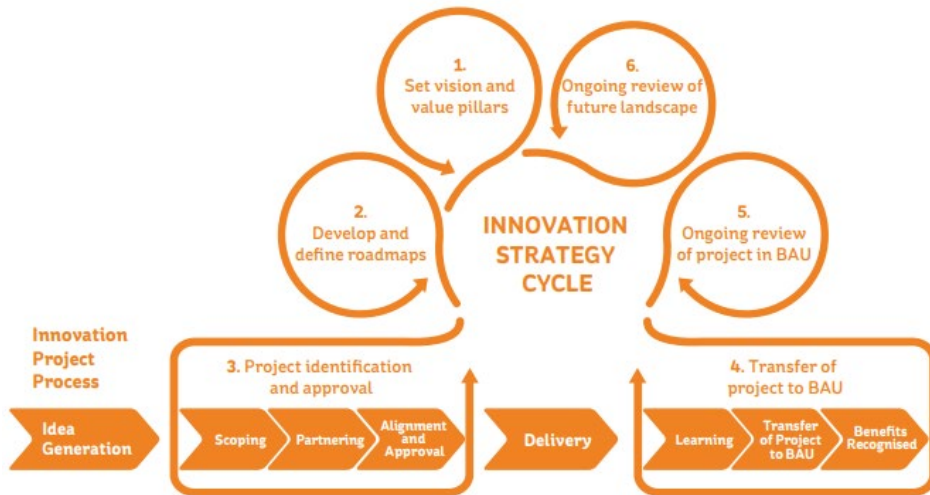


Figure 4. Innovation Strategy Cycle

### Three Innovation Pillars

Our innovation strategy framework has been designed to be flexible enough to cater for the changing requirements of our business and society. Our people and values are at the heart of delivering on our innovation strategy which is reflected in how we implement our innovation framework. The innovation framework has been applied to a balanced portfolio of projects covering three Innovation Pillars:



Figure 5. Innovation Pillars

The Innovation Pillars align with our new 2030 business strategy, and our PR5 objectives as agreed with the CRU. ESB Networks acknowledges the need to be flexible to address future challenges which may emerge. We expect to see refinements to the projects included in each Innovation Pillar as policy priorities emerge, changes in customer behaviour manifest themselves and as forecasts for generation, flexibility and low-carbon load become more certain

Our innovation activities operate across three broad horizons of innovation:

- Incremental – the innovation builds on existing systems, equipment or processes.
- Breakthrough – the innovation potentially provides new systems, equipment or processes.
- Radical – business-altering innovation.

### 3. GOVERNANCE AND RISK MANAGEMENT

Risk assessment and mitigation are essential to ensure that ESB Networks delivers value to network users and consumers. An integral part of managing risk and ensuring the operational success of innovation projects is maintaining an appropriate level of governance. This is provided through our Connecting Futures Board (CFB) and the Innovation Steering Group (ISG). The governance of our Innovation Strategy includes oversight of the processes which will allow ESB Networks to effectively identify, assess, monitor, prioritise and deliver the portfolio of innovation projects in accordance with our vision and values. It ensures that innovation is implemented at the right pace, is proportional to both customer and network needs, and realises net value and benefits for all customers. Our Innovation Governance Framework document sets out the roles and responsibilities of individuals that are part of the innovation governance structure. It also defines the communication channels that are expected, so that the members and Chairs of the CFB and the ISG are provided with comprehensive documentation that details project status and information. The Sponsor of our Innovation Strategy is the Managing Director of ESB Networks, who is a member of the Senior Leadership Team. The Sponsor has ultimate accountability to ESB Networks' organisation for the successful delivery of the innovation project portfolio.

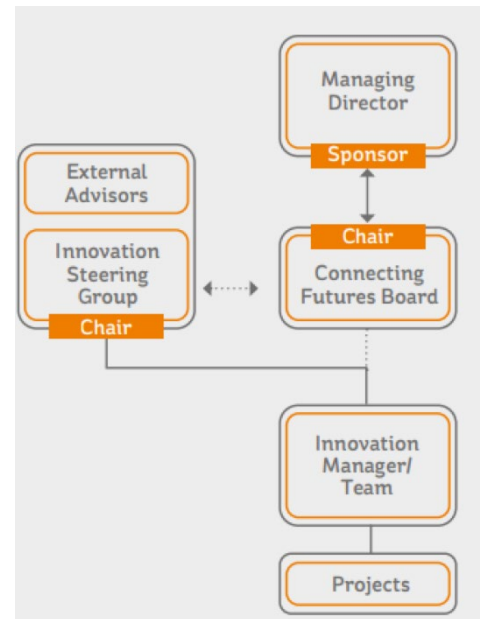


FIGURE 6. INNOVATION GOVERNANCE

The CFB is a cross-functional group of ESB Networks senior managers that provides a common governance structure for the Business and the Innovation Steering Group (ISG). The ISG is a cross functional group made up of ESB Networks Managers and external advisors with delegated authority for managing innovation. As well as providing governance the common aim of the CFB and ISG is to ensure the collaborative implementation of new ideas that will provide enduring benefits for our customers and our business.

### 4. INNOVATION CULTURE, EXPERTISE AND CAPACITY BUILDING

ESB Networks has developed one of the world's most progressive and reliable electricity networks, which facilitates changes to how Ireland's electricity is produced and consumed. To ensure that the changing needs of the environment, government and society are met, ESB Networks continues to work towards the model of innovating further and innovating faster. In order to do this, we must ensure we have the right people, with the right skills and expertise, in the right place, at the right time. To meet this challenge, ESB Networks continues to enhance innovation expertise and capacity building internally through a number of different initiatives. These initiatives provide staff with appropriate training, knowledge and experience, and provide opportunities to learn about and engage on the ongoing innovation projects and international research being collaborated on. Innovation is not just about the big innovation ideas, it's across a spectrum that also considers the everyday improvements that we can make to challenge the way we do things and deliver everyday innovation together.

**ESB Networks Internal Innovation Community:** ESB Networks internal innovation community is made up of ESB Networks staff members involved in innovation across the business and encourages all staff members to engage and learn about the innovation initiatives in ESB Networks and across industry, research and academia.

**Training and Development Programmes:** ESB Networks has a comprehensive Graduate Engineering Training and Development Programme to enable new starters to reach their full potential and to develop all aspects of their competencies. The programme includes modules titled Innovation, Design Thinking, The Smart Grid, Renewable Technologies and Emerging Technologies. Dogpatch Labs is a start-up hub, located in Dublin's Digital

Docklands, which in 2021 was chosen by the Government to run the national accelerator programme, and which offers platforms for entrepreneurs to solve problems and mentors for early-stage businesses. Graduates take part in design thinking modules in Dogpatch Labs as part of the programme to develop an innovative mindset.

A large portfolio of technical courses is available online through our training hub and at our Networks Training Centre (NTC) in Portlaoise. Our performance management process ensures staff identify gaps in skillsets and competencies on an annual basis and selects the appropriate internal and/or external training and experience to address those gaps. The innovation team is also working with the NTC in developing proposals where ESB Networks can leverage existing partnerships to provide relevant training. ESB Networks also promotes ongoing professional development through membership and support of professional institutions such as Engineers Ireland, the Irish Management Institute and CIGRE. An online portal has been developed to support staff to plan and gain their chartership through Engineers Ireland. These training and development initiatives give our staff the knowledge and skillsets to innovatively build, maintain and operate the electricity network of the future for the whole of Ireland.

### Innovation Programmes

ESB Networks supports and mentors as part of a number of innovation programmes developed to train staff in innovation processes and methods through design thinking.

The Innovation Academy is a partnership with UCD led innovation academy training programme. The programme is designed to build competency in customer centric innovation. It applies design thinking and other innovation techniques to explore new solution options to real business problems facing ESB Networks. Upon completion, proposed solution concepts are considered further by ESB Networks and, where appropriate, these are progressed as projects within the business lines.



FIGURE 7. INNOVATION PROGRAM BENEFITS

### X\_Potential – Promoting innovation and entrepreneurial skills:

X\_Potential is a structured innovation programme, run over a thirteen-week period, supported by the innovation start-up hub, Dogpatch Labs and external innovation mentors, with visible senior management sponsorship. The training programme is designed to enable the X\_Potential teams to explore innovative ideas, with the support and assistance of external mentors assigned by Dogpatch Labs, to help create new potential business solutions. Some of the projects are progressed into further development through similar programmes. A key benefit of the programme is embedding an innovation culture in ESB Networks with staff supported and encouraged to challenge the way we’ve done things and approach problems with an innovative mindset to deliver business solutions.

### Free Electrons Programme

Free Electrons is the global energy start-up accelerator programme that connects the world’s most innovative start-ups with leading global utility companies to co-create the future of energy. Through the Free Electrons Programme, ESB Networks continues to investigate new technologies and conduct pilot projects to build strong relationships with start-ups and other utilities, which will allow us to identify new opportunities to improve performance and reduce costs. The utility partners in Free Electrons are leaders in the clean energy transition, covering more than 40 countries and with access to over 80 million end customers worldwide.

Free Electrons is known as one of the world’s most innovative programme for promising energy start-ups. The other Free Electrons partner members are American Electric Power (USA), AusNet Services (Australia), CLP (Hong Kong), DEWA (Dubai), EDP (Portugal), Eon (Germany), Origin Energy (Australia) and SP Group (Singapore).



Further initiatives are in place in ESB Networks to strengthen innovation expertise and capacity building through ongoing collaboration, engagement and dissemination with our partners across industry, research, academia and communities.

**Performance Improvement:**

ESB Networks is committed to assessing and implementing performance improvement programmes to ensure we continue to build on best practice. ESB Networks is actively engaged with peer Distribution System Operators across Europe and internationally to compare best practise in assessing and delivering innovation. This occurs through our involvement in international organisations such as Cígre, Cired, EPRI as well as the Energy Network Association (ENA). We also engage in direct bilateral meetings with peer DSOs on challenges and opportunities and have memorandums of understanding (MoU’s) with a number of DSOs.

**Innovation Assessment (EFQM):** ESB Networks innovation undergoes a performance assessment to assess our innovation strategy, activities, processes and outcomes against excellence standards using the [European Foundation for Quality Management \(EFQM\)](#) model. EFQM is an internationally recognised and certified model of excellence. Founded in 1989, EFQM is an innovative, not-for profit, international organisation that supports leaders as they manage cultural change and transformation to deliver performance improvements and benefits for their key stakeholders. The EFQM Model is a tried and tested world class framework for helping organisations improve their performance. ESB Networks is the first Distribution System Operator (DSO) to be assessed under the new EFQM Innovation Lens.



FIGURE 8. EFQM ASSESSMENT LENS

ESB Networks was assessed under the EFQM Innovation Lens focusing on the activities, processes and culture in ESB Networks. The Innovation lens allows an organisation to assess its level of innovation maturity against a comprehensive suite of indicators and uses a weighted scoring mechanism across 7 areas under the frameworks of Direction, Execution and Results as per Figure 1.10. ESB Networks is recognised as a 5- star organisation, out of a maximum of 7 stars, under the EFQM innovation lens. This achievement from our first assessment representing “Growth in Innovation” demonstrates how we are integrating our innovation culture, processes, and procedures throughout the business. Under this internationally recognised excellence model framework, we received positive feedback across vision and leadership, strategy and innovation culture, stakeholder engagement, creating sustainable value, knowledge management, people engagement and culture, processes and resources, business, market and stakeholder impact. An assessment against the criteria is carried out on an annual basis and an external audit is carried every 2 years.