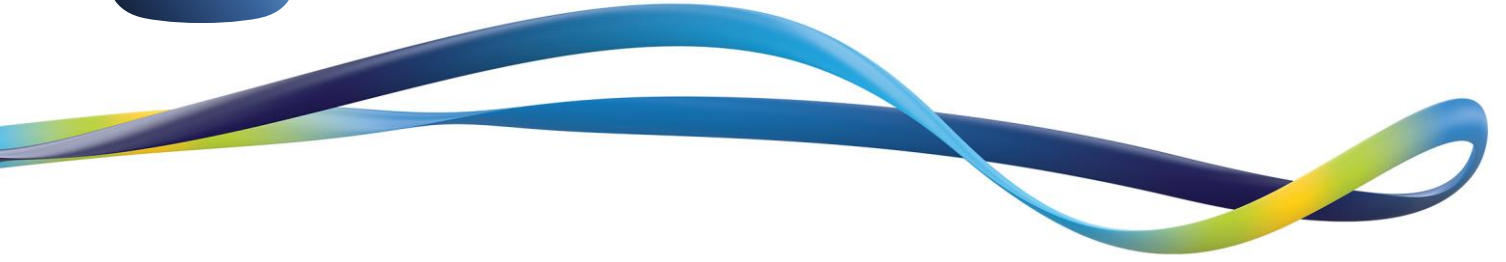




NETWORKS



ESB NETWORKS EXPRESSION OF INTEREST FOR RADICAL INNOVATION PROJECT IDEAS

DOCUMENT ID: DOC-240622-HMF

JUNE 30TH 2022

Expression of Interest Document Purpose:

The purpose of this Expression of Interest (EOI) is to encourage our stakeholders to provide input and ideas in the radical space to add to our existing portfolio of ESB Networks Innovation projects. This is to support our target for 5% radical projects across ESB Networks innovation portfolio.

This document provides an opportunity to:

1. Provide your input and ideas on radical innovation projects to add to our existing ESB Networks Innovation portfolio.
2. Provide a background to the call and details of the portfolio split of innovation projects across the 3 broad horizons of innovation: Incremental, Breakthrough and Radical.
3. Give an overview of Innovation in ESB Networks across our 3 Innovation Pillars; Climate Action, Future Customer and Network Resilience.

1. Call for Radical Innovation ideas:

ESB Networks views radical innovation projects as “business altering innovation” with wider benefits that impact the energy market, system and society. As the Distribution System Operator (DSO) and Transmission Asset Owner (TAO) we recognise the need to collaborate through innovation to develop solutions to enable our journey to Net Zero.

We would like to get your input and ideas on:

- What business altering innovation idea(s) should ESB Networks be focusing on for our journey to Net Zero
 - Please provide a high level summary [500 words max] highlighting the: problem to be addressed, the desired transformation end state and ensuing market, energy system or societal benefit.
- What would be the requirement from ESB Networks to progress your radical innovation idea, and please highlight the potential roles of other collaborative actors in such a transformation [500 words max]
 - An example of some questions to consider, when formulating your idea include:
 - The duration, costs and resources required.
 - Details of any technology or system related aspects of the innovation
 - Are there regulatory areas which require wider stakeholder involvement to advance this innovation?
 - What are the customers or society benefits of your idea?
 - Is this outside ESB Networks current regulatory licensed roles?

[We have prepared a Microsoft Form here which you can submit your feedback](#)

Alternatively, you can email your feedback based on the format above to:

Innovationfeedback@esbnetworks.ie

The closing date for the Expression of Interest is August 31st 2022

We welcome your feedback and proposals and will engage directly with respondents who have submitted an idea/proposal to further explore your ideas.

2. Background to the Expression of Interest

ESB Networks innovation strategy is framed by the Climate Action Plan and is aligned to and supports ESB Networks 2030 strategy and delivery of our PR5 objectives by employing innovative means to lead the transition towards Net Zero, in which the electricity network enables and facilitates that transition.

Our Innovation Project Portfolio and Pipeline is a balanced portfolio of projects across our 3 Innovation pillars. Figure 1 shows our Innovation project portfolio at the different stages of the innovation process.

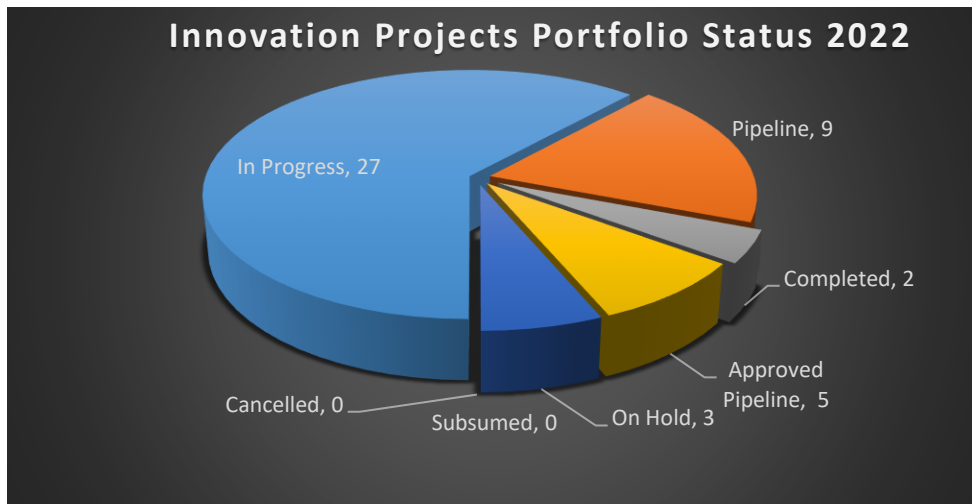


Figure 1. Innovation Project Portfolio

Our current innovation projects are split across the 3 innovation horizon types of 74% Incremental, 26% Breakthrough and 0% radical projects. Following feedback from our stakeholders we have set a target to achieve a split of 70% incremental, 25% Breakthrough and 5% radical across our innovation portfolio. For a DSO of our size and scale 5% is appropriate. This was highlighted in our recent innovation consultation – [Innovation to Connect a Clean Electric Future](#). In relation to our current Innovation Project Portfolio this represents 1-2 Radical Innovation Projects.

These opportunities are being sought through bi-lateral meetings, webinars, our Innovation Stakeholder Panel and through this expression of interest.

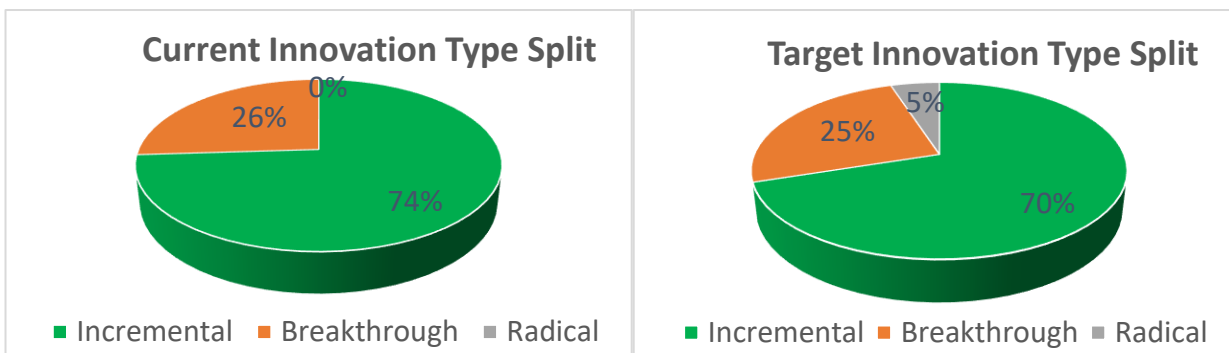


Figure 2. Innovation Type Split

ESB Networks prioritises Innovation projects from Technology Readiness Level (TRL) 7 and above as we believe this level of ambition is appropriate to give best value to our customers in view of the scale

of resources available within a utility of our size. TRL is a system used to measure a technology's maturity to the market. There are 9 technology readiness levels from TRL 1, basic principles observed and reported, to TRL 9, actual system proven through successful operations; methodology widely adopted throughout industry. From TRL 7 technologies are ready for trial in operational environment deployment. While we prioritise innovation projects with a TRL7 or higher, this does not preclude lower TRL levels should a relevant project be proposed. Following feedback from stakeholder engagements and through consultation on our focus of innovation projects this EOI facilitates further opportunities for a lower TRL.

3. Overview of 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 the Distribution System Operator (DSO) ESB Networks is responsible for the operation, maintenance, and development of a safe, secure, reliable, economical, and efficient electricity distribution network. As the Transmission Asset Owner (TAO), ESB Networks works with the TSO to develop and maintain the Transmission Network. 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.

We are clear that the challenge of enabling a low carbon Ireland requires extensive and collaborative innovation. At ESB Networks, our vision is to continuously innovate towards a clean electric future together with our customers who will be at the heart of the transformation towards a low carbon energy future. Our ambition is to build, maintain, operate, and develop the electricity distribution network to meet the needs of our customers, today and tomorrow. Our vision and values serve as the foundation of our innovation strategy, informing every new idea and the development of every project.

Our Innovation strategy is framed by the climate action plan targets and is aligned to and supports ESB Networks 2030 strategy and delivery of our PR5 objectives by employing innovation and innovative means to lead the transition to a low carbon economy in which the electricity network enables and facilitates that transition. 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 network for a clean electric future. By 2030, the network will enable the adoption of 950,000 EVs, and 600,000 heat pumps as well as the integration of up to 80% renewable electricity generation.

3.1 Innovation Pillars

ESB Networks Innovation Strategy Framework is applied to a balanced portfolio of projects across our three pillars that broadly define the scope of work and the areas where we need to deliver new and improved services. The three new pillars; Future Customer, Climate Action and Network Resilience align with our 2030 business strategy and our PR5 objectives.

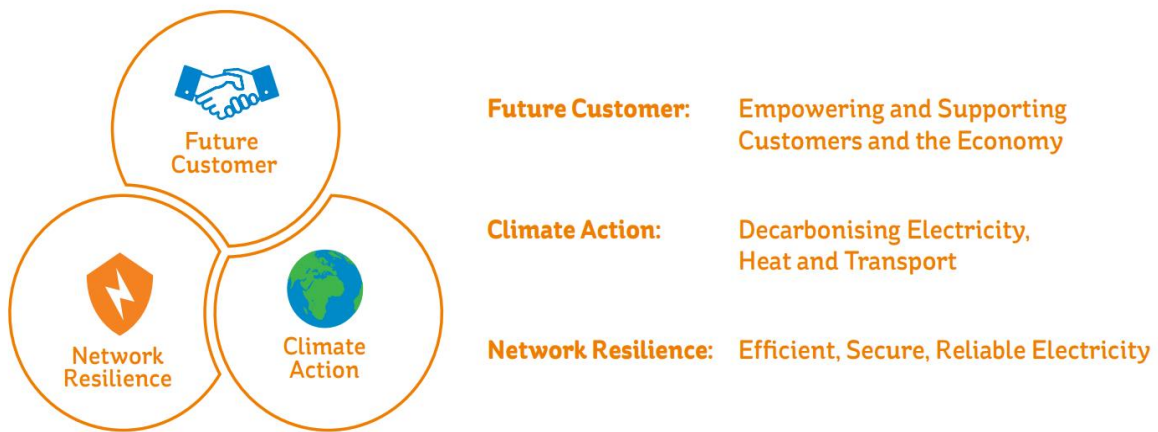


Figure 3. Innovation Pillars

Future Customer - Empowering and Supporting Customers and the Economy: This pillar focuses on delivering the innovation that will meet the requirements of future customers in a cost-effective manner. For example, innovation to make the electricity network ready to support societal transition to a low carbon economy and to enhance the interface experience between ESB Networks and our customers.

Climate Action -Decarbonising Electricity, Heat and Transport: This pillar focuses on delivering the innovations that will ensure that ESB Networks cost-effectively delivers the right infrastructure at the right time for a decarbonised energy system supporting the integration of significantly increased levels of renewables and electrified heat and transport on the system.

Network Resilience - Efficient, Secure, Reliable Electricity: This pillar focuses on delivering the innovations to provide an efficient, resilient and reliable future network supporting increased renewable generation and electrification in a low-carbon future.

Our definition of innovation is to implement new ideas for the enduring benefit of our customers and business. Our innovation projects are aligned to innovation as defined in the Oslo Manual* (2018, published by the OECD and Eurostat) as a technological innovation, a business process innovation or a combination of a business process and technological change.

3.2 Innovation Horizon Types

Our innovation activities operate across three innovation horizon types:

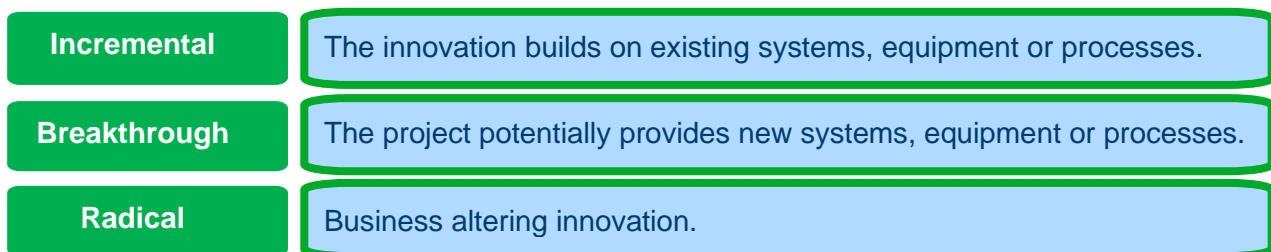


Figure 4. Innovation Horizon Type

Figure 5 gives a summary example of the Innovation project horizons and potential types of projects and the areas in which most benefit is expected.

* [The 'Oslo Manual, 2018' is available for download from Eurostat](#)

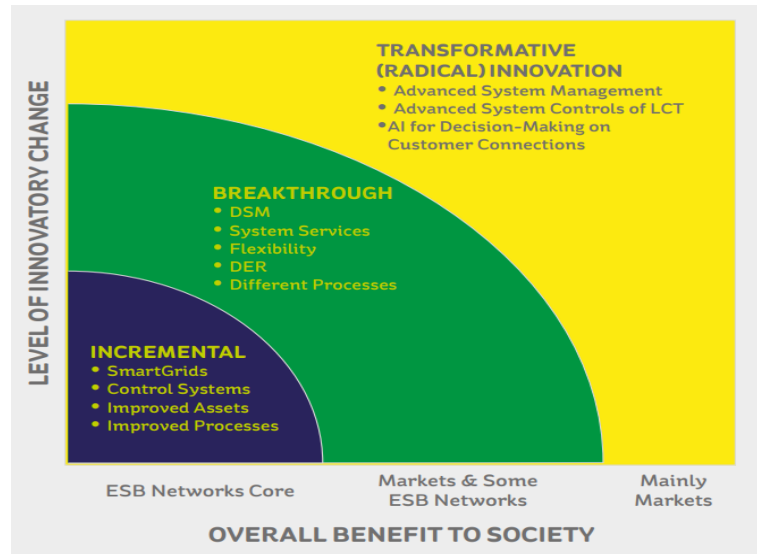


Figure 5. Innovation Horizon

During 2021 we made improvements in our processes with a review of the screening approach for assessing innovation projects across incremental, breakthrough and radical projects occurred. A new assessment criterion for breakthrough and radical projects has been implemented so as not to bias them against incremental projects. An interesting aspect of the review is that in assessing the benefits of ‘Incremental’ projects, they tend to lie primarily within ESB Networks core expertise and tend to focus on the network development and network resilience, whereas for ‘Breakthrough’ and ‘Radical’ projects, they are increasingly shared benefits between other stakeholders and ESB Networks.

ESB Networks prioritises Innovation projects from TRL7 and above as we believe this level of ambition is appropriate to give best value to our customers in view of the scale of resources available within a utility of our size. ESB Networks is able to leverage research carried out in academic/research institutions, which includes research at lower TRL levels, and we will continue to support academic research in Ireland. We also continue to support research project proposals for 3rd party funding calls through letters of support. This research has a role in Ireland’s transition to a low-carbon economy and is key to building the necessary skills in Ireland.

For further details on ESB Networks Innovation Programme and Portfolio of projects please see our recent innovation consultation here: [Innovation to Connect a Clean Electric Future](#). (Section 2 of this document details our project identification processes and section 4 details our innovation projects.)

Expression of Interest Feedback

We will continue to seek opportunities through, bi-lateral meetings, webinars, our Innovation Stakeholder Panel and through this expression of interest for radical innovation project ideas. We welcome and encourage your input and feedback to work together on developing the electricity network to enable Net Zero.

[We have prepared a Microsoft Form here which you can submit your feedback](#)

Alternatively, you can email your feedback based on the format above in section 1 to: Innovationfeedback@esbnetworks.ie

The closing date for the Expression of Interest is August 31st

We welcome your feedback and proposals and will engage directly with respondents who have submitted an idea/proposal to further explore your ideas.