



NETWORKS



ESB NETWORKS' RESPONSE TO STAKEHOLDER FEEDBACK RECEIVED TO OUR CONSULTATION 'INNOVATION TO CONNECT A CLEAN ELECTRIC FUTURE'

ESB Networks' Response Paper

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Introduction

ESB Networks published an update on our innovation activities entitled '[Innovation to Connect a Clean Electric Future](#)' in February 2022 and invited feedback from interested parties via a public industry consultation. We welcomed stakeholder feedback from 11 respondents in the following sectors:

SECTOR	
RES	✓
Flexibility - Demand Response	✓
E- Heat & E-Transport	✓
Academia/Research	✓
Utility / TSO	✓
Equipment/Systems Manufacturers	✓
Industry Consultants	✓
Local Authority	✓

Table 1: List of Stakeholder Sectors that Responded

We received positive feedback and support from the respondents in relation to many of our ideas, pipeline projects and active projects and they were of a view that the consultation document was well structured and was easy to digest by the end user. A common theme was acknowledgment that “*ESB Networks clearly has a pivotal role in enabling and developing a future electricity network which empowers end-users, delivers value for money, and provides a sustainable energy system for all*”.

Positive Feedback received included:

Consultation document:

“The report is positive and engaging – it recognises that through effective collaboration and innovative engagement we can work together to overcome the challenges and make the most of the opportunities in support of the overarching ambition to transition to a clean electric future. The strategic framework, governance and innovation process set out in the report continues to provide a firm foundation to build capacity, develop ideas and deliver the necessary changes to enable the transition to the low carbon network.”

“The Innovation to Connect a Clean Electric Future is an excellent publication, which provides an important, accessible and comprehensive update on the innovation programme.”

“This document sets out in a very clear and transparent basis what Innovation means for ESB Networks, the internal frameworks and governance, methods to improve the innovation performance, as well as active projects and how these then transition to business as usual.”

“I have come from an academic background and needed to explain technical details to non-technical people, this document does this very well, while also providing academic information that I find interesting and useful.”

“The Innovation KPIs reported provide a clear indication of the level of innovation carried out across ESB Networks.”

Projects:

“Firstly we would like to praise your team on the efforts to date, a lot of interesting projects at various stages of development.”

“It is reassuring to see a good number of the current innovation projects focused on grid reinforcement initiatives to support the electrification of heat and transport.”

“The introduction of "Breakthrough/Radical projects" is very welcome. This will improve the portfolio of ESB Networks innovation projects with a good balance between low-risk/incremental projects and high-risk/potential breakthrough projects.”

“Chapter 3 is very useful for proposing projects to ESB Networks.”

“It is very encouraging to see a “Publications” section with research publications in journals and conferences.”

Collaboration and Engagement:

“We are fully supportive of the approach set out in the ESB Network’s Strategic Stakeholder Engagement Framework and considers that it provides an effective platform to allow stakeholders to contribute to innovative projects. Importantly, it gives stakeholders the opportunity to raise concerns and provide feedback to inform the decision-making process at the early stages. This will not only give them a better understanding of priorities but will also give them increased ownership of outcomes.”

“To date I have found the previous Innovation Stakeholder Panel discussions and associated webinars informative, open and engaging and look forward to further collaboration via the new panel.”

“Stakeholder y recognises and appreciate ESB Networks interaction and engagement with us.”

“Acting on the feedback from your innovation audit from 2020 demonstrates the ‘We’re Courageous’ value as part of your innovation strategy. The constant evolution of the approach to innovation enables the benefits to be achieved.”

“The use of the EFQM Innovation assessment to validate the direction and performance of innovation within ESB Networks further demonstrates the willingness to challenge the business and determination to deliver excellence.”

The stakeholder feedback received from the public consultation fell within four broad categories below and ESB Networks has prepared summary responses to the feedback in the tables overleaf based on these four categories:

1. Feedback on **Innovation Strategy Framework** employed by ESB Networks.
2. Suggestions to enhance ESB Networks’ **approach to dissemination, engagement and collaboration**
3. Suggestions/commentary to enhance innovation **projects currently being conducted** by ESB Networks.
4. **General Feedback, New Ideas and Proposals** for Innovation Projects.

ESB Networks’ Innovation Team will offer an individual meeting with each of the respondents to the 2022 consultation as there were several topics that warrant further engagement with specific respondents to:

1. better understand their feedback and how we might incorporate it into our activities.
2. follow-up on specific offers of collaboration and/or proposed solutions that are aligned to ESB Networks’ priorities and that may offer an opportunity for ESB Networks to leverage additional innovation capacity.
3. follow-up on specific offers of collaboration and/or proposed solutions that have not been on ESB Networks’ radar and innovation pipeline.

Feedback on Innovation Strategy Framework

A summary of the feedback and initial ESB Networks’ response is included in the following tables:

Feedback Received	ESB Networks’ Response
<p>Subsection 3.4.1 Overview of Project Prioritisation and Initial Assessment includes the process to shortlist potential innovation projects, Tables 3.1 and 3.2 highlight the criteria for this. The first criterion "Lifecycle savings potential" is allocated a score depending on how much money can be saved by ESB Networks or relevant stakeholders. It appears that this criterion does not consider the investment requirements of the project, and perhaps it should be reformulated (i.e., it should not only speak of savings, but savings relative to investment).</p>	<p>We welcome this point as the criteria for a project is indeed considered at the investment appraisal stage of the project assessment which includes a cost benefit analysis and equally includes the qualitative and quantitate benefits for the project. The project evaluation screening matrix is simply an internal mechanism to aid in the quick assessment and ranking of projects in a sufficient and effective way. This list is then used to facilitate the selection of projects which are likely to be worth further investigation. A period of five years for benefits is chosen simply because this gives a reasonable initial indication for short listing purposes of the likely trajectory of benefits and has the advantage that such savings can be assessed reasonably well, because the time being considered is short. In the case of Breakthrough and Radical innovation projects, the screening system is based on long-term benefits and does not consider savings over five years as the nature of these innovation types is enduring. In order to Innovate ESB Networks has to invest time and resources and follows the agreed process outlined in our consultation report. ESB Networks will offer a bi-lateral meeting with the stakeholder to discuss further to ensure the queries have been answered.</p>

Feedback on ESB Networks’ Approach to Dissemination, Engagement and Collaboration

Several consultation responses focused on how ESB Networks could enhance the way it engages and collaborates with stakeholders and how it disseminates learnings from innovation activities to the wider industry. A summary of the feedback and initial ESB Networks’ response is included in the table below:

Feedback Received	ESB Networks’ Response
<p>Can ESB Networks share Data for research and analysis for universities?</p>	<p>Yes, ESB Networks has a variety of data currently available via the ESB Networks website. We are aware that some stakeholders may want access to more granular results and data related to some of our innovation projects. ESB Networks will share data where possible whilst ensuring we remain compliant from a data privacy and GDPR perspective. Requests for information and data on specific projects will be dealt with by the Innovation Team on a case-by-case basis via our email: innovationfeedback@esbnetworks.ie</p> <p>More broadly, we are also exploring how we make data available. For example, the Smart meter program are developing a framework for appropriate data provision for research purposes by approved 3rd parties, in line with GDPR, our Data Protection Impact Assessments (DPIA), and the upcoming provisions of the CRU’s Smart Meter Data Access Code. The Dingle project team is anonymising data as part of flexibility trial and exploring options on how to make the data available for research purposes. Reports on our learnings from Dingle are expected to be available in Q2 2022.</p>
<p>It is very encouraging to see a “Publications” section with research publications in journals and conferences. In future, it would be useful to include hyperlinks to allow easy access to each publication, preferably to a (green) open access version of the publication, or if not, a DOI hyperlink to allow interested readers to find publications easily online.</p>	<p>We welcome that helpful suggestion and ESB Networks will accommodate this request where applicable.</p>

Engagement and Collaboration

ESB Networks received numerous offers for enhanced engagement, suggestions for collaboration on various projects and opportunities for information sharing with ESB Networks.

Engagement and collaboration on projects and information sharing allows ESB Networks, our stakeholders and customers to leverage from a network of knowledge, expertise and experience to efficiently deliver relevant innovation projects that enable the transition to a low-carbon economy.

There are a number of topics in the responses i.e., new LV technologies, electrode boilers & strategic plans for the electrification of heat & transport that reach across our 3 pillars that will require further engagement with specific respondents. This engagement is important to (i) better understand the feedback and how we might incorporate it into our activities; (ii) follow-up on specific offers of collaboration and / or proposed solutions that are aligned to ESB Networks' priorities and that may offer an opportunity for ESB Networks to leverage innovation capacity; (iii) follow-up on specific offers of collaboration and / or proposed solutions that have not been on ESB Networks' radar and innovation pipeline.

To that end, ESB Networks' Innovation Team will offer an individual meeting with each of the respondents to the 2022 consultation. This offer will also be extended to any additional interested stakeholders as the opportunity arises or request is received. Throughout 2022 we will continue to hold bilateral meetings across industry, academic and public organisations.

In 2021 ESB Networks hosted 6 webinars through its spring and autumn Innovation Webinar Series as well as other webinars on a number of consultations/projects. In 2022 we will continue to disseminate and engage with customers through our Innovation Webinar Series across a range of topics voted for and selected by our stakeholders. The topic list for our upcoming webinar series will be circulated for our stakeholders to vote on their preferences. The schedule for our upcoming Innovation Webinar Series will be shared with our stakeholders in April 2022. In 2022, we will use our refreshed Innovation Stakeholder Panel as a platform to enable open discussion and feedback with stakeholders from across all industry sectors on our Innovation Strategy, projects and activities. We will also continue to encourage our 21 panel members to share project pipeline ideas and opportunities for collaboration with us.

As demonstrated above, we use a number of communication channels as a means for industry stakeholders to share with us proposals for new project pipeline ideas. These channels include our innovation consultation, our stakeholder panel and bilateral meetings.

Engagement in innovation is guided by ESB Networks Strategic Stakeholder Engagement Framework, which sets out our enduring engagement strategy to enable an open and ongoing dialogue with all our stakeholders. See our [ESBN Stakeholder engagement site](#) for further details.

Suggested Enhancements/Commentary on Current Innovation Projects

Several consultation responses focused on how ESB Networks could improve and enhance innovation projects currently underway. A summary and initial ESB Networks' response is included in the table below:

Feedback Received	ESB Networks' Response
<p>It would be useful to get the shared learnings from the EV research and trials in the Dingle project</p>	<p>ESB Networks will be continuing to disseminate information from Dingle as the project concludes and final reports are expected to be complete in Q2 2022. The Dingle Project focused on EV charging at domestic / residential property settings and considered the challenges involved in controlling EV charging as part of a potential demand response service. The project also carried out a limited trial of V2G charging. Learnings to date were shared during the Dingle Project Webinar Series which is available on ESB Networks' web site.</p> <p>The Dingle Project also analysed data on total distance driven by each EV per day throughout the trial. The analysis showed that for those properties equipped with an EV charger, the battery range of the modern EVs used in the Dingle trial met the drivers' needs more than 99.5% of the time. With an increase in EV charger roll-out at hotel and B&B accommodation sites, this, together with the planned upgrade of EV charging stations on the road network will help meet the EV charging needs of people travelling to rural locations.</p>
<p>What work is being done in relation to EV's?</p>	<p>As per consultation ESB Networks has 2 active projects in the Innovation portfolio specifically related to EV's, which are the Dingle project and the MV Modular Substation for EV charging hubs. We also have a number of broader business projects that relate to the transition to the electrification of heat and transport.</p> <p>In January 2021 we published our Electrification of Heat and Transport (EOHT) Strategy, which sets out the direction of travel we have chosen to do this and ensure collaboration with stakeholders is a fundamental pillar of this journey. ESB Networks restructured and formalised an Electrification function within the area of Network Development in ESB Networks, which is intended to lead in and coordinate all-of-organisation activities that relate to the electrification space.</p> <p>Through our now active implementation of our EOHT Strategy, we are working to prioritise and deliver on our strategic objectives in line with stakeholder and market requirements, as the transition to electrification takes place in Irish society.</p> <p>ESB Networks will continue to engage and collaborate extensively with customers and stakeholders as our plans and objectives evolve to develop a cost effective, smart, sustainable, and resilient distribution system that will support our customers make the transition to electrified heat and transport.</p>

DSM, System Services, Flexibility and DER are expected to be especially important in supporting the power system transition. Recognising that the electrification of heat and transport and increased levels of Distributed Energy Resources (DERs) will require new innovative thinking to develop 'fit for purpose' flexibility solutions

ESB Networks are looking at this as part of our National Network, Local Connections (NNLC) programme. The core objective of the National Network, Local Connections Programme is to bring together changes in how we are generating electricity, and how we are using it, enabling all electricity customers and communities to play an active role in climate action, by using or storing renewable electricity when it is available to them locally.

Following the NNLC Programme consultation in Q4 2021, we updated the Phased Flexibility Market Development Plan with stakeholder feedback. The Phased Flexibility Market Development Plan, available here (<https://www.esbnetworks.ie/who-we-are/national-network-local-connections-programme/our-consultations>) sets out our plan for the development of market-based flexibility products and services on the distribution system. These flexibility products and services will enable all electricity customers and consumers to play an active role in climate action and the decarbonisation of Irish society.

We recognise the importance of developing these flexibility products and services in collaboration with stakeholders. Given this, we have adopted a discovery-led approach to the development of flexibility through a series of flexibility pilots. We expect one of the programme's pilots (Pilot 3) will include a particular category to facilitate Residential demand response. The pilots will also target larger Industrial & Commercial customers on DSR (Pilots 1 and 3).

For more information, please see the Piloting Roadmap, available here (<https://www.esbnetworks.ie/who-we-are/national-network-local-connections-programme/our-consultations>) .

Lessons learned and outcomes from the pilots will be shared with stakeholders and are a key part of the development of long-term proposals for flexibility.

To support close collaboration and engagement, the programme intends to establish a consultative stakeholder group in 2022, the terms of reference of which are being defined in consultation with industry and stakeholders.

The Phased Flexibility Market Development Plan sets out the longer-term vision of what flexibility services could deliver for the distribution system and its customers. We acknowledge importance of detailed engagement with stakeholders to develop the enduring flexibility products and services.

Mixed feedback on the progress, speed and extent of Non- Firm Access

ESB Networks acknowledges the feedback in relation to Non-Firm access for generation customers and would like to offer reassurance about ongoing activities in this area.

Under the Smarter HV and MV Customer Connections Project, ESB Networks consulted on a Non-Firm Access approach for

Clarity on NFA calculation

distribution connected generators, which was approved by the CRU to be implemented for ECP2.1 connection offers. The new approach permits the consideration of a Non-Firm connection, under certain conditions as published in the Non-Firm Access for Generators Guide for MV connection applications, which make up approximately 80% of generator applications to the distribution system. This provides our planning team with an additional tool in the tool kit for determining connection methods for our customers. This option provides the customer with a quicker and more cost effective connection versus the standards applied pre ECP2.1 as it negates the requirement for uprating the existing transformers under certain scenarios.

On Non-Firm access, we have adapted our National Network, Local Connections Programme Piloting Roadmap to undertake a definition phase for a RESS 2 Community Non-firm Access pilot to determine the viability of a pilot to provide a number of community projects with Non-Firm access under N-1 conditions. As part of this definition phase, we will account for stakeholder, customer and industry developments.

The planned pilot go-live in 2023/24 will be pending the pilot's progress-pause-or-adapt decision which will be taken at the conclusion of the definition phase.

Over 2021 ESB Networks had a number of engagements with industry representatives to provide clarity on the NFA policy and calculation. ESB Networks will pass the feedback via the BAU team to engage further with industry.

What is the level of international engagement in Innovation?

ESB Networks has significant international engagement across our Innovation activities and looks to leverage learnings and innovations from international sources in a variety of ways.

ESB Networks has strong links and engagements with other DSOs around the world through our membership and engagements with other international organisations such as EPRI, Eurelectric, CIGRE, CIRED, Universities, etc.

As part of ESB Networks' membership of the Energy Networks Association (ENA) for the UK and Ireland we have looked to maximise our engagement and collaboration through our innovation activities with peer member DNO/DSOs.

ESB Networks has been a participant in the Free Electrons Programme, the global energy start-up accelerator programme that connects the world's most innovative start-ups with nine leading global utility companies (EMEA, US, Australia and Asia) to co-create the future of energy.

We also have over 50 collaboration partners involved in the EU Horizon 2020 projects as part our existing portfolio of projects.

Suggestion for greater participation (beyond support letters) from ESB Networks on Horizon Europe and Similar Projects.

ESB Networks welcomes opportunities for potential collaboration on projects that will benefit ESB Networks and our customers. The proposed project/collaboration will be reviewed on a case-by-case basis. To deliver best value for our customers and given the resources we have at our disposal, we believe it is correct to prioritise projects that are TRL7 and above. Horizon projects tend to consider and evaluate concepts at a lower TRL so we will continue to focus our resources on the more immediate and higher priorities.

On occasion some of the Horizon projects have quite large numbers of project partners with quite broad scopes of work that can make it challenging to achieve specific targeted objectives and quantifiable benefits for ESB Networks and customers as the DSO.

ESB Networks has engaged with the Irish representative on the EU Horizon committee/panel to provide feedback on topics of interest that would be aligned with our innovation objectives with the aim that they would be included as eligible areas in future Calls for Projects. The topics we recommended being included in the European list such as voltage uprating, use of AI for Network GIS and advanced network modelling.

We have sought to reframe our involvement in those types of projects to ensure we are achieving best value for an organisation of our modest size and scale.

We will continue with the compromise agreed following previous stakeholder feedback, i.e. we will provide Letters of Support to Irish-led consortia bidding for such EU projects (aligned with our innovation pillars) where we will agree to participate in project advisory boards or similar. We recognise that there is value to both ourselves and these projects in sharing our distribution utility perspectives and learning about the projects' recommendations and outcomes and believe this is an appropriate compromise at this time given the resources available to a utility of our size.

General Feedback, New Ideas and Proposals for Innovation Projects

Several consultation responses provided feedback to ESB Networks on general feedback, new ideas and innovation project proposals. A summary of the feedback and initial ESB Networks' response is included in the table below:

Proposals Received from Stakeholders:	ESB Networks' Response:
<p>Feedback on how ESB Networks is considering the introduction of more disruptive technology behind the meter, eg. Electrode boilers</p>	<p>As part of the bi-lateral meeting we propose to have with this respondent, we look forward to engaging on this subject of flexibility using electrode boiler technology to learn how it might impact on the network.</p> <p>Our emphasis on these type of innovation projects is to learn how changing consumer behaviour and customer requirements will impact the network so that we can design the future grid to accommodate those needs. We look to share any learnings from our projects to the broader stakeholder group and other sustainable communities nationwide.</p> <p>It must be noted ESB Networks has no formal role in behind-the-meter activities and through our role as DSO must remain a neutral market facilitator.</p> <p>We welcome collaboration opportunities through our Future Customer and Climate Action innovation pillars + NNLC from those responsible for behind-the-meter activities to explore how we can innovatively, cost-effectively and efficiently design the network of the future.</p>
<p>Challenge faced in getting grid connections with sufficient capacity at required locations for EV charging hubs?</p>	<p>Our purpose in ESB Networks has always been to connect and distribute electricity - safely, securely, and affordably. Now, acknowledging the central role that electricity plays in climate action, our purpose has evolved. We have developed network investment plans over the next 5 years around the Climate Action Plan to cater for the increased renewables and electrification of heat and transport so that clean electricity can drive the carbon out of heat, transport and our economy. We have successfully connected EV charging hubs to our distribution network. Connection applications for EV charging hubs follow the same regulatory-approved process as all our larger demand customers. Like all customer demand connection applications, a study is required to determine what capacity is available at that specific location and what is the most effective connection method. Network capacity is a finite resource and new customer demand applications may trigger the need for new network development to provide more capacity. For example, there are some instances when customer connection applications are in geographical locations where there has historically been little other customer demand and as such there is not the network infrastructure to cater for new larger single point loads. This means we must develop new infrastructure to cater for the new demand in compliance with required national and local planning laws and regulations. Therefore, we advise all prospective developers of such EV charging hub infrastructure to engage with us at an early stage so that our engineers can plan appropriately to facilitate these connections.</p>
<p>Is there any innovation projects or work being done</p>	<p>The main efforts within the Innovation teams relate to the development of modular substations (i.e. MV customer</p>



to support delivery and lead times associated with establishing EV connections?	connection standard module for EV Charging Hubs as described in section 4.4) and our NNLC programme. However, in the broader sense there are a number of business initiatives being implemented across the business to improve connection delivery times, e.g. Lean Connections programme that aims to embed the lean-cell concepts to deliver faster connection times.
Stakeholder offered to share their strategy for Electrification of heat and transport in the Dublin region	As part of a bi-lateral ESB Networks will engage to get a further insight into the strategic plans in relation to the electrification of heat and transport in the Dublin area. This knowledge could potentially feed into our network planning assumptions for capacity on the network.

For any additional information, please contact ESB Networks' Innovation Team via email: innovationfeedback@esbnetworks.ie