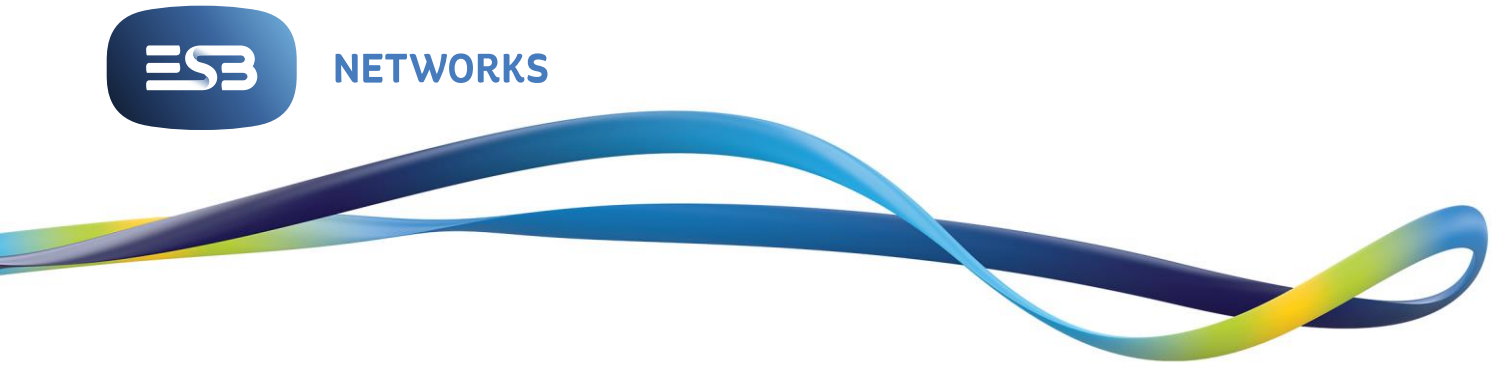

ESB NETWORKS' RESPONSE TO STAKEHOLDER FEEDBACK RECEIVED TO OUR CONSULTATION 'INNOVATING TO TRANSFORM THE ELECTRICITY NETWORK'

ESB Networks' Response Paper

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1. Introduction

ESB Networks published an update on our innovation activities entitled 'Innovating to Transform the Electricity Network' in February 2021 and invited feedback from interested parties via a public industry consultation. Stakeholder feedback was received from 15 respondents in the following sectors:

SECTOR	
RES Wind	✓
Flexibility - Demand Response	✓
Flexibility – Storage	✓
Academia/Research	✓
Utility / TSO	✓
Equipment/Systems Manufacturers	✓
Electricity Suppliers	✓
Industry Consultants	✓

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. We also received support for new or enhanced initiatives we started in 2020 and proposed plans for 2021, some of this feedback included:

- Support of ESB Networks' '*well structured'* Innovation process and Innovation Strategy Framework that '*will provide the structure and supports needed to build capacity, develop ideas and deliver the necessary changes to enable the transition to the low carbon network'* and '*deliver significant benefits to ESB Networks' customers and stakeholders'*.
- Recognition of increased stakeholder engagement, consultation, dissemination and transparency.
- Positive feedback on our Spring and Autumn Innovation Webinar Series that were held in 2020, as a result we intend to hold these series again in 2021.
- Support for the improvements made to the innovation section of the ESB Networks' website, which is viewed as a '*valuable information resource for stakeholders and customers'*.
- Support for our Innovation Audit carried out by an independent third party, '*completion of an audit of your innovation framework and then putting in place a number of working groups, with clear actions, to address any feedback was a very good initiative undertaken during 2020'.*
- Acknowledgement of the '*increased visibility in the "Transform" report of dashboards and metrics/KPIs'.*
- Support for our Fast Follower approach and leveraging learnings from other jurisdictions.
- The efforts by ESB Networks to assess/audit its innovation functions and activities '*is really impressive and demonstrates a high-degree of self-awareness that is critical to improvement'*.
- ESB Networks' culture and training activities were applauded – '*These are often under-appreciated by innovation functions at utilities, but so critical to enabling the open innovation ecosystem at any organization.'*

- A keen interest in and support for our Active System Management (ASM) Programme.
- Positive response to the establishment of ESB Networks' Innovation Stakeholder Panel.
- Support for ESB Networks to build on our culture of innovation across the organisation.
- Support in relation to our plan to consult on our Open Data Policy in 2021.

Stakeholders were encouraged by ESB Networks' '*proactive and systematic approach*' in the consultation. They were impressed by the progress to date and expressed their support for improvements we made to this consultation following feedback received to our 2020 consultation. Improvements noted included:

- '*We welcome the inclusion of a publications section within the report and are encouraged to see that ESB Networks have authored or co-authored a number of peer-reviewed papers and articles. These peer reviewed publications provide an important evidence base that can be presented to policymakers and regulators*.'
- *'Increased emphasis on the value of collaboration with other stakeholders, which is very strong in this document.'*
- *'Increased emphasis on the innovative community engagement dimension of projects, including:*
    - *Enhanced recognition, support, and funding for stakeholder and community engagement activities within ESB Networks*
    - *Fostering and development of community engagement skills within ESB Networks, including the integration of skilled engagement practitioners within local community projects'*
- *'Shift towards more positive language with reference to engagement with citizens and communities, including the use of phrases such as: 'listening to and engaging with', 'shared learning', 'deeper engagement', 'stakeholder survey', 'based on stakeholder requests and consultation feedback'.*
- *'Recognition of the current collaboration between ESB Networks and EirGrid'* and commitment to enhancing that collaboration in the future.

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

1. Suggestions to improve the **Innovation Strategy Framework** employed by ESB Networks.
2. Suggestions to improve ESB Networks' **approach to dissemination, engagement and collaboration**
3. Suggestions to enhance innovation **projects currently being conducted** by ESB Networks.
4. **New ideas/proposals** for innovation projects which are not in the current innovation portfolio.

ESB Networks' Innovation Team will offer an individual meeting with each of the respondents to the 2021 consultation as there were a number of topics that warrant further engagement with specific respondents to:

(i) better understand their 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 additional 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.

2. Innovation Strategy Framework

Several consultation responses focused on the Innovation Strategy Framework employed by ESB Networks and suggested modifications to the innovation process and governance, and the scope of projects considered. A summary of the feedback and initial ESB Networks' response is included in the table below:

Feedback Received	ESB Networks' Response
In relation to the **Three Roadmaps,** the level of detail provided is quite limited. As a stakeholder it is difficult to grasp from the level of detail provided what the aim of the roadmap is, and this must be inferred from the projects listed. Suggestion to carry out a gap analysis across the three roadmaps that would inform project proposals discussions with stakeholders.	In response to the innovation audit highlighted in Section 1.6.1 of the consultation, a number of internal working groups were set up to address the recommendations. One of the working groups reviewed, analysed and revised the innovation roadmaps objectives and areas of focus. As an output of this review and as per the consultation Section 1.3.3, '*in order to better reflect project groupings and to capture objectives of each group it has been decided that from 2021 onwards the three innovation roadmaps will be known as innovation pillars*.' The objectives of the three innovation pillars of Future Customer, Climate Action and Network Resilience are aligned with ESB Networks' strategy for 2020-2030, our priorities for PR5 and the Commission for Regulation of Utilities' (CRU's) Strategic Innovation Fund incentive mechanism objectives and are framed against the Irish Government's Climate Action Plan. The innovation pillars provide a method for grouping projects under areas of focus linked to their objectives. This is supported through our processes for engagement, evaluating and approving projects proposed through the Innovation Steering Group to ensure we have a balanced portfolio of projects across the three innovation pillars and the type of Incremental, Radical and Breakthrough innovation projects. The Future Customer pillar focuses on areas of community energy, peer to peer, safety and efficiency, flexibility services, energy storage, LV visibility and modelling. The Climate Action pillar focuses on areas of electrification, policy, connecting

	renewables, microgeneration and storage, flexibility, climate adaptation requirements and impacts of low-carbon technologies. The Network Resilience pillar focuses on areas for the smart grid, active network management, asset health and optimisation and reinforcement innovations for continuity and resilience. While the innovation projects are grouped under a specific innovation pillar, they are not precluded from supporting objectives or areas of the other pillars. This enables projects to have potential overlap across the innovation pillars and their objectives to meet our customers and society's needs. Additional information is available for each innovation pillar on the Innovation in ESB Networks webpages. In addition to the review of the innovation pillars in 2020, a separate working group undertook a review of the current innovation project portfolio and an analysis of the way in which higher risk projects were assessed. This analysis determined how to adapt our project assessment processes and criteria to encourage the selection of Breakthrough and Radical projects to ensure an appropriate balance across our portfolio for an organisation of our size and resources. An innovation webinar was held on October 8th, 2020 on ESB Networks' pipeline of innovation projects to garner feedback from stakeholders on our pipeline projects and the assessment of various Radical and Breakthrough projects. Throughout 2021 we will continue to explore collaborations with third parties in relation to higher risk Radical and Breakthrough innovation project proposals, while seeking to maintain a balance across our innovation pillars.
The description of the **Future Customer Roadmap** focuses on enabling customers to transition from a passive customer to an active energy citizen. Suggestion to include industrial and commercial (I&C) customers in the list of key activities.	The Future Customer pillar relates not only to residential customers but also to our industrial and commercial (I&C) customers, this comment will be taken into consideration when revising the pillar descriptions as noted in the point above. The Dingle Electrification Project and +CityxChange are examples of projects that fall under this roadmap. For the Dingle Electrification Project, the five project ambassadors are representative of the wider citizen population on the peninsula. Of these, one is a farmer, while another is a bar / restaurant owner, both helping to provide insights on the active energy citizen journey from the perspective of small business owners. For the +CityxChange project, this aims to establish a positive energy block within the Georgian Quarter of Limerick City and in line with its location, the partners on this project include a number of I&C customers. A number of activities relating to the Future Customer pillar will now be covered under the Active System Management (ASM) Programme. Through the development of our ASM Programme,

	communities and customers (including industrial and commercial) will be able to participate in and have new routes to market to provide services to the Distribution System Operator (DSO) and Transmission System Operator (TSO), for example in flexibility markets.
Project Evaluation and CBA Request for the CBA template to be shared with stakeholders and published. This would further enhance the transparency provisions which are set out in the CRU's Price Reviews. In line with Ireland's Climate Action Plan and the move towards Net Zero, perhaps the CBA from ESB Networks should have an explicit weighted factor relating to environmental, carbon emissions and other natural accounting methodologies.	The Cost Benefit Analysis (CBA) tool that is used by ESB Networks is an adapted version of the UK industry-approved CBA tool (Ofgem RIIO EDI CBA template) used by UK DNOs to undertake CBAs in a consistent and transparent manner. The original CBA tool is available on Ofgem's website here, stakeholders can download this template and adapt it to suit their organisation/industry. In May 2020, as part of our Innovation Webinar Series, we presented on 'Innovation Projects – Identification and Evaluation Process', as part of this webinar we brought the stakeholders through the CBA methodology relating to specifics of the project 'Using Drones for the Inspection of OHLs'. This included the step by step process of the analysis of the costs and savings and the application of the CBA tool. We would be happy to go through other CBA examples as requested as part of our bilateral meetings with stakeholders. We believe we are addressing our innovation responsibilities towards enabling the Climate Action Plan through our Innovation Strategy and more specifically through our Climate Action pillar. We seek to have a balanced portfolio of projects across our three innovation pillars Future Customer, Climate Action and Network Resilience if we are to address the challenges of the energy transition. We do not see the need to have an explicit weighted factor over and above the criteria by which we use to assess and prioritise projects. Enabling electrification of heat and transport, supporting increased integration of renewables and flexibility will all ultimately support the low carbon goals.
On the **Life Cycle Savings Potential**, has ESB Networks given thought to extending the timeframe for potential savings? Five years makes sense from a budgetary standpoint, but much of the rationale for innovating the electricity network is based on long-term benefits and future climate risk/mitigation. Particularly for Horizon 3 activities, a five year window is unlikely to be a useful period for evaluation of savings potential.	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 doesn't consider savings over five years as the nature of these innovation types is enduring.

	Following the shortlisting process for Incremental, Breakthrough and Radical projects, an investment appraisal is carried out. Life Cycle Costing is used to assess costs and benefits, typically with 25 years being the useful economic life of investments, although with shorter lives of perhaps 10 years for ICE (Information, Communication and Electronics) assets and 40 years for cable or transformer assets.
Evaluation of Breakthrough/Radical Projects On the Time Frame/ Complexity criterion, similar to the savings potential discussed above, shorter go-to-market may not be the best indicator of potential scale/impact of benefits. Similarly, with much of the smart grid/smart grid infrastructure, markets are unable to assess and understand the opportunities it creates until it is actually deployed. Could ESB Networks consider how the opportunities provided to the market by new smart grid initiatives be explained to the market in advance?	ESB Networks agrees with this point and we believe it has been addressed in Section 3.4.2 'Process Improvements for 2021'. For pipeline projects that predominately benefit society and have long time scales, the screening matrix in Table 3.2 is not appropriate and we have proposed using more appropriate initial assessment criteria through a project screening matrix specifically geared for Breakthrough / Radical projects. Following this initial screening, the project will then go through the full investment appraisal where such factors as the long implementation period and benefit payback profile are taken into account. Part of the benefits of the smart grid initiatives is to enable new markets, so explaining to customers and industry what initiatives ESB Networks intends to deploy would indeed help alert society to the opportunities being created. To this end ESB Networks runs consultations (such as 'Innovating to Transform the Electricity Network'), where we look for feedback from our stakeholders. We also engage with our stakeholders through our Innovation Webinar Series where we have interactive sessions on specific projects and areas of interest. To this end ESB Networks runs consultations (such as 'Innovating to Transform the Electricity Network'), where we look for feedback from our stakeholders. We also engage with our stakeholders through our Innovation Webinar Series where we have interactive sessions on specific projects and areas of interest. Customers and stakeholders are given the opportunity in advance to select webinar topics that would be most of interest to them via an online survey. In addition we also host bilateral meetings with stakeholders, participate in and present at external conferences/webinars, and share information via the innovation section of ESB Networks website. The establishment of the Innovation Stakeholder Panel also gives cross sector feedback on our innovation projects and activities to bring their own perspectives/expertise to the discussion. Over the course of the ASM programme, we will be optimising how we manage the distribution system for renewable connections, customer and community participation. We will also be driving out the technologies and facilitating the future market and operational arrangements needed. As we embark on this journey, getting the support and early engagement with key

Request to add a specific question/description on the criteria for Breakthrough/ Radical projects, about the availability of a partner to augment an internal capability, since it's unlikely that ESB Networks will have a great number of individuals oriented towards these types of projects (by design).	industry participants, communities and customers is of critical importance. In the high-level design phase of the programme, we will be conducting stakeholder engagement groups with industry participants across generation, demand, and technology businesses / representative groups. We will also be conducting customer research with a selection of customer representative groups and separately we will be conducting customer surveys. An objective from this research is to understand and examine how best to inform, engage and collaborate with industry, customers and communities, and to embed an approach into the additional phases of the programme. Agree with the point made. Please note such descriptions are already included within the screening criteria. There is a realisation in the screening criteria for Breakthrough/Radical concepts/ideas that ESB Networks will be working with a project sponsor with a track record in that area, and also that ESB Networks may not have the core competencies required and as a result will need to work with external partners to leverage and develop such core competencies. This is shown in the first two screening criteria in Table 3.3 of our consultation. The 'Project Sponsor;' must have '*a track record and knowledge'* that makes their support of a proposal realistic and also that working on such projects may '*require core competencies outside ESB Networks and are appropriate partners available to provide these competencies'*.
Impacts of Breakthrough and Radical Projects Query as to whether the overall benefit to society is fully reflected in the examples given in Figure 3.2. The societal benefits of a clean, reliable electricity system extend well beyond the provision of an electricity service and include economy-wide decarbonization, economic opportunity, promotion of equality and other important benefits. ESB Networks is in a position to enable these broader benefits through Breakthrough / Radical projects and it might be worth identifying focus areas that lie outside ESB Networks' core mandate.	ESB Networks, through its ownership and operation of the distribution network, may be in a position where its decisions on how the network is developed can help customers deliver much greater societal benefits to the greater economy. However, as ESB Networks is a regulated utility such solutions must lie within its area of responsibility. An example of this might be the Smart Meter rollout programme, where the bulk of the benefits delivered are to the customer, through the enabling of markets and the facilitation of generation, whilst the metering implementation work is done by ESB Networks. Accordingly, ESB Networks' view is that in areas where the improvement of societal benefit is enabled / made possible through the development of the network, then ESB Networks have a role, but not otherwise. Furthermore, ESB Networks' involvement in areas outside of the electricity network and our regulated business is unlikely to provide the best solution, as it would then be operating in non-core areas where it is quite likely that other entities with specialist knowledge and experience are already present and would provide a more appropriate solution.

Flexibility Metrics Suggestion to include a 'flexibility' metric in the evaluation procedure, that demonstrates commitment to the development of system flexibility and also provides a clear unambiguous signal to the market. Suggestion that the future innovation reports include metrics to demonstrate how the projects deliver against defined flexibility and visibility outputs.	While we note the suggestion for a 'flexibility' metric in the evaluation procedure, we do not believe it would be appropriate to prioritise flexibility over other innovation initiatives at the project pipeline stage. We acknowledge that system flexibility services will be a key enabler to facilitate increased penetration of renewable energy on the networks however flexibility is not the only area that requires innovation as we move towards a lower carbon future. ESB Networks is committed to delivering a *balanced* portfolio of innovation projects across the Future Customer, Climate Action and Network Resilience pillars in order to support the transition to a lower carbon electricity system. We have set out our commitments in PR5 to re-purposing our passive network, these include providing enhanced LV network visibility, developing more active system management to enable new routes to market for flexibility services and progressing non-wires alternatives to conventional reinforcement. Innovation will drive these changes and we are confident that projects in our Future Customer and Network Resilience innovation pillars will progress and support the delivery of these commitments.
Sharing of Data One area that is particularly challenging for the research community is access to good quality data. Consideration should be given to making the data from different projects available for further research. The data gathering of future projects should be designed with anonymity and re-use in mind.	ESB Networks acknowledges that the development of a structured open data policy would be beneficial to stakeholders. We plan to publish an industry consultation on our open data policy in 2021, where we will welcome feedback on our proposed approach to sharing data. Feedback received in relation to the design of data gathering to ensure high quality data, anonymity and reuse will be shared with our internal team developing the draft policy. ESB Networks is aware that some stakeholders may want access to more granular results and data related to some of our innovation projects but at the same time we need to ensure we remain compliant from a data privacy and GDPR perspective. While our open data policy is being developed and consulted on, we are including in all of our project reports our email address for stakeholders to request further information and data on specific projects, these requests will be dealt with by the Innovation Team on a case by case basis.
Innovation Programme 2030 Plan Suggestion to publish a plan for the Innovation Programme out to 2030 showing the scheduled changes expected to deliver the future grid. This plan would outline the actions, milestones and timelines	ESB Networks' work plans are based on a five year regulatory cycle aligned with the now confirmed PR5 plan and framed against the Climate Action Plan targets. For more detail, the PR5 Determination is available here. The innovation programme has a balanced portfolio of projects across the three innovation pillars to support the development of the network to enable the decarbonisation of the electricity system. This is aligned to the PR5 programme of work, and supports ESB Networks' strategy 2020 to 2030, which will be published in April 2021.

required to move the network from its current form to the future state needed.	Our annual innovation consultation is one of the main channels by which we share our plans with stakeholders. The document outlines the pipeline of innovation projects we are considering for delivery, the projects we are currently delivering and the projects that have concluded and transitioned to BAU (Business as Usual). The timeframes associated with these projects are published as part of our consultations but also are shared publicly on a quarterly basis via our Innovation Portfolio Project – Summary Report that can be found on our website.
ESB Networks' Strategy 2020 - 2030. Request for a detailed and succinct plan by ESB Networks as to how it sees the change process occurring in the next 10 years, and to set out the actions needed to deliver the expected 2030 outcome.	ESB Networks' strategy for 2020 to 2030 is scheduled to be published in April 2021. It is framed by the Climate Action Plan and is driven by ESB Networks' central role in leading the transition to a secure and affordable low-carbon future using clean electricity to drive carbon in the form of fossil fuels out of heat, transport and the economy. It is expected that regular updates on progress against the strategy will be provided in our stakeholder engagements.

3. Feedback on ESB Networks' Approach to Dissemination, Engagement and Collaboration

Several consultation responses focused on how ESB Networks could improve 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
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. Suggestion for more formalised and structured engagement with industry for new pipeline ideas. Benefits highlighted for pilot projects delivered by industry and ESB Networks jointly.	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 this response paper that will require further engagement with specific respondents to (i) better understand their 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 2021 consultation. This offer will also be extended to any additional interested stakeholders as the opportunity arises or request is

Suggestion of an annual or six monthly call for projects / ideas / opportunities for collaboration.	received. Throughout 2021 we will continue to hold bilateral meetings across industry, academic and public organisations. In 2020 ESB Networks hosted eight webinars through its spring and autumn Innovation Webinar Series as well as other webinars on a number of consultations. In 2021 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 has already been 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 2021. In 2021, we will use our new 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 19 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. With the above engagement ongoing, ESB Networks does not believe there is a need for any additional calls for projects / ideas / opportunities for collaboration.
Further **Transparency of Project Costs and Anticipated Lifecycle Benefits** would be of interest to stakeholders.	As part of our initiative in 2020 to enhance the detail in our published project reports, we now included more information on project costs and anticipated lifecycle savings (when applicable). In some circumstances where project costs are commercially sensitive, for example where they include tender prices, this information will not be shared publicly. An example of this is in our Winter Peak Close-out Report where we share the high-level project costs and give an approximation of the device costs but not the actual breakdown costs related to the purchased devices. In Table 5.2: *Innovation Projects Dissemination and Transition,* we outline the benefits and learnings delivered by projects in 2020, we will continue to build on and expand this section of our report as more projects and their learnings transition into the business. All projects, whether they transition to BAU or not, have valuable innovation and sector learnings. ESB Networks has robust processes in place to transition the learnings into the business and disseminate to our stakeholders. Our 2021 Innovation Webinar Series and our bilateral meetings will give ESB Networks an opportunity to discuss and share further information related to project benefits and learnings with our stakeholders.

The Case Studies presented throughout the document provide useful insight; it would be useful if lessons learnt and next steps were included such as transition to BAU, follow-on projects etc.	It is welcome feedback that the case studies have provided useful insights in the consultation. The purpose of the case studies was to provide concise examples for stakeholders to highlight how ESB Networks engages and implements its processes for each section. To highlight the lessons learned and next steps such as the transition to BAU, we took the approach of including this in Section 4, where a description and project status is given, and Section 5 where benefits and learnings for projects transitioning into the business are relayed. Table 5.2 gives a summary of the benefits and learnings for projects which are transitioning into BAU and for projects that are not transitioning but have key learnings to be disseminated to the wider industry. As part of our dissemination activities we share project learnings and benefits through a range of channels. The project reports published on our website, and promoted through LinkedIn, are used to share the lessons learned and next steps of projects in more detail including any follow-on projects which the learnings would transition into. In addition to this we have hosted a number of webinars on projects selected by our stakeholders through the Innovation Webinar Series to further disseminate this information.
Engagement on Demand Response Emphasis on early engagement on proposals and inputs relating to demand response perhaps through discussion papers.	The Active System Management (ASM) Programme will be central to enabling the transformative change required in Irish society to deliver the 2030 climate and energy targets. Over the course of this programme, ESB Networks we will be optimising how we manage the distribution system for renewable connections, and customer and community participation. We will also be driving out the technologies and facilitating the future market and operational arrangements needed. At the time of writing, ESB Networks is preparing for early engagement as a key step in informing the high-level design phase of the full ASM Programme. We appreciate that we will be designing solutions for the future which involve and will rely on the participation of key industry participants, communities and customers. For the solutions to work we need to work together. Please see Section 5 for more detail on our proposed ASM Programme engagement activities.
Public Calls For those projects which are to be considered for public call it would be helpful if there was a proactive communication from ESB Networks when the calls are issued. Otherwise, active monitoring is required from	For calls for collaboration there are a number of channels by which we share the information with our stakeholders, for example any such calls we issue are shared with our 250-plus stakeholders who have requested to be included on our mailing list, as per GDPR. We also share details relating to the calls over LinkedIn, our website and via our innovation consultations as applicable. As part of the Dingle Electrification Project, ESB Networks sought an electricity supplier to partner with on a trial of peer-to-

stakeholders, and this could result in partners missing out on the opportunity to respond to public calls.	peer energy trading. A call for expressions of interest (EOI) was issued across all electricity suppliers for this. This public call was well advertised across the target respondent group, through on-going and extensive engagement on this topic over the preceding months. Prior to the call for EOI, ESB Networks hosted a webinar as part of the spring Innovation Webinar Series on the proposed Dingle peer to peer trial and EOI, as well as holding a number of bilateral meetings with energy suppliers facilitated through the Electricity Association of Ireland (EAI). ESB Networks published a report on its website, detailing its efforts to initiate this trial, which includes the timeline of engagement across the industry. Recently the Dingle Electrification Project launched its Electric Vehicle trial, which was preceded by local public engagement, through which ESB Networks sought expressions of interest from members of the community in Dingle to become EV ambassadors and trial an electric car. As part of the public engagement ESB Networks participated in a number of local events and promotions across a range of channels, including: • Local community events such as the Dingle Food Festival and Corca Dhuibhne Energy Masterplan (pre-Covid) • Local radio – Radio Kerry / Radio na Gaeltachta • Local press –The Kerryman and Kerry's Eye • Direct engagement (pre-Covid) and subsequently through online meetings with local community groups • Direct contact with those who registered interest • Social media such as LinkedIn, Instagram and Facebook
Global Collaborations Suggestion to expand collaborations beyond UK-based utilities and organisations to provide a more global perspective. This could include an examination of DSO innovations across European and international jurisdictions, some of which demonstrate a very high level of innovation and ambition.	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. However, we also have strong links and engagements with other DSOs around the world through our membership and engagements with other international organisations such as EPRI, Eurelectric, CIGRE etc. 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 to co-create the future of energy. As part of ESB Networks' engagement with the Free Electrons programme we are also engaged with peer DSOs across EMEA, US, Australia and Asia on potential breakthrough innovations in conjunction with access to innovative start-ups involved in the programme. Through these organisations and programmes as well as involvement in international conferences we have engaged with

	peer DSOs on innovation throughout 2020. This will continue and grow in 2021 and it is worth highlighting that through this engagement with peer DSOs next phase of our fast follower innovation project review will be assessing projects in Asia and Australia for suitable fast follower projects.
Customer Engagement and Building Awareness Around eHeat and eTransport Inform and increase awareness of e-heat and e-transport through a more consultative form of dialogue or public engagement. ESB Networks have a major role to play in sparking the engagement of customers. While all the ideas listed in the innovation pipeline, under 'Future customer' will benefit customers, most of the items listed may be more appropriately positioned under the Network Resilience workstream and will not address the issue of sparking customer engagement in relation to the potential benefits of becoming an active consumer and developing active energy communities.	ESB Networks has no formal role in behind-the-meter activities and through our role as DSO must remain a neutral market facilitator. Our emphasis on 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. We welcome collaboration opportunities though our Future Customer and Climate Action innovation pillars from those responsible for behind-the-meter activities to explore how we can innovatively, cost-effectively and efficiently design the network of the future. We do not believe we have a major role in 'sparking engagement' of customers and consumers to pursue the low carbon energy transition as there are government agencies, e.g. SEAI, tasked with the role of positively influencing and changing consumer behaviour in this regard. Additionally, there are energy agencies, energy suppliers and groups such as the EV Owners Association who all have a more significant role to play in consumer engagement especially those involved in behind-the-meter activities. Our position in the sector means we have a support and facilitating role to play. In our recently published Electrification of Heat and Transport Strategy, we noted that we have a role in engaging, enabling and empowering customers to electrify. We defined this as having supportive clear processes for customers; developing guides, online applications and tools that will enable customers to quickly and safely connect heat pumps and EV charging infrastructure to the distribution system; and engaging with customers and stakeholders to collect and share the correct data and information.
Horizon Europe and Similar Projects Suggestion for greater participation (beyond support letters) in international collaborative research programmes such as Horizon Europe. This would allow Irish research performing	We note the feedback suggesting that ESB Networks reconsiders its position on Horizon Europe projects. However, we do not propose to change our position at this time and do not see us partnering in any new Horizon Europe projects over the next 12 months. 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

organisations to fully participate in international collaborative research on DSO-relevant topics, where DSO involvement is often a pre-requisite.	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. To deliver best value for our customers given the resources we have at our disposal, we believe it is still 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. That said, an ESB Networks working group last year determined that it may be appropriate to have more of a mix of projects across the Incremental, Breakthrough and Radical innovation horizons and over the next 12 months we will consider whether specific collaborations may assist in cost effectively providing us with a better balance across these innovation horizons.
ESB Networks' Website Request for ESB Networks to publish a simple yet robust reporting programme/ dashboard on its website using specific metrics to demonstrate how innovation projects are delivering the benefits for the customer, how system costs to industry are being minimised, and how projects are being delivered in an efficient and effective manner.	In 2021, in response to last year's stakeholder feedback we published our first quarterly report, Innovation Project Portfolio Summary Report (Q4 2020) on our website. The purpose of this document was to update our stakeholder on a regular basis on the high-level status of our innovation projects, sharing various KPIs and statistics. In 2021, we will look at expanding the information provided in this report to incorporate the suggestions we received in response to this consultation. In the consultation document we outlined our strengthened approach to project reporting and benefit analysis. Progress and close-out reports can be found at ESB Networks Innovation Projects webpages and will provide this detail.
Publication of Consultation The details of projects in the consultation document would be of interest to industry more generally, not just those who would make the time to read / respond. It would be useful to have a link on your website to this information.	Please note that our consultation is available to the public and industry generally via our webisite at the following four webpages: Innovation Programme - ESB Networks' Innovation Projects Recent Public Consultations - Public Consultations Publications - Publications (Innovation Category) Innovation Programme - Innovation in ESB Networks
Surveys There are a number of references to surveys in the document; it would be useful if the report detailed what	The surveys that we refer to in our consultation are both a stand alone survey that was issued to stakeholders in October 2020 and survey questions that were issued to participants as part of our various webinars throughout the year.

actions ESB Networks proposes to undertake on each of these responses.	The survey issued to stakeholders in October gave stakeholders the opportunity to share their preferences on the upcoming Innovation Webinar Series in relation to the webinar topics and the timing of the delivery of the webinars (weekly or in one session). We also used this survey to ask our stakeholders questions to understand which were their preffered channels of engagement and how successful ESB Networks had been in increasing their knowledge in relation to our innovation projects and activities. As part of each webinar delivered in 2020, there were a number of project/area specific questions put to stakeholder participants to engage and garner feedback on the specific topics which were being presented. The answers to these questions were used to inform the activities and next steps associated with the topic being presented on. For example, as part of Autumn Innovation Webinar Series the questions and feedback from our stakeholders on the electrification of transport webinar helped to inform the consultation on the Electrification of Heat and Transport Strategy.
Strengthening Innovation Culture, Expertise and Capacity Building In **Section 1.5** there is reference to a number of innovation initiatives which ESB Networks is active. Whilst these are interesting to note, we would like to understand better how this programme delivered a value add for ESB Networks, Irish businesses and start-ups.	Section 1.5 details initiatives and training progammes that are in place to strengthen innovation culture, expertise and capacity building within ESB Networks. 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. This ensures that we have the right people, with the right skills and expertise, in the right place, at the right time to deliver our innovation projects that will deliver both value and service for all our customers now and in the future. Our Free Electrons programme supports businesses and startups. It is a programme developed by participating utilites in different markets to identify network solutions to issues of common relevance, through collaboration with innovative new startup companies. Working with such companies develops an awareness not only of new technological developments but also about the developing customer needs which drive these innovations. In particular ESB Networks has worked with Depsys and Gridwatch Mac on the developement and trials of load measurement and associated telemetry for monitoring LV loads, and consequently was able to put this learning to use when a requirement to assess loads on MV/LV substations was required prior to their uprating for electrification. Currently there is a planned rollout of 1,000 such monitoring devices in 2021. Similarly ESB Networks has an upcoming Free Electrons project with Future Grids to assess how Smart Meter data can be used to assess transformer loads remotely by aggregating the smart meter loads of the customers connected. In conjunction with Tesselo, ESB Networks seek to marry traditional Lidar data with

	satellite imagery so that costs of vegetation management on overhead networks can be optimised by tree cutting at the correct time and in the correct places on the network, improving network continuity. However, some projects prove too complicated and have not been taken further as was the case with the proposed use of blockchain in peer-to-peer trading. This was looked at in the context of the Dingle Project, and whilst proved unsuccessful, it did identify and reveal the complexity of the issue and the need for very low transaction costs where margins were very small.

4. 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
Energy Storage The potential of energy storage, particularly in relation to alleviating network congestion, does not seem to be reflected in the innovation pipeline. Such a project should examine market mechanisms for payment for such a "congestion mitigation" service as well as the technical considerations.	Under EU market rules and our role as DSO in the electricity market, we are essentially prohibited from owning battery storage. Our observations from other jurisdictions is that non-wires solutions to network reinforcement seems to have the potential to offer viable alternatives in approximately 20-25% of situations. We included this in our consultation on the Electrification of Heat and Transport Strategy in October 2020 and received no additional evidence to contradict this. Notwithstanding that we are engaged in a number of innovation initiatives on energy storage including the fact that our Active System Management (ASM) Programme aims to provide the systems and supports to offer new routes to market for such flexibility solutions at both distribution and transmission levels. Under the Smarter HV and MV Customer Connections project, ESB Networks proposed a Non-Wires Alternatives approach which facilitates the consideration of flexibility in the network development process. This flexibility, which may be provided by energy storage, demand response, distributed generation, or other methods, could be contracted as a service by ESB Networks, in order to alleviate network congestion or provide reinforcement delay or deferral, or to provide other future services. ESB Networks has processed and contracted a number of battery energy storage connections in ECP1, which are in different stages of the post offer acceptance process.

	At this point in time, though different technical or control requirements may apply for different technologies, to the extent that a range of different technologies could deliver a service to a given technical specification, ESB Networks is seeking to develop technology-neutral market based mechanisms (i.e. as opposed to storage specific). The creation of local flexibility services for congestion and other services is the subject of planning, scoping and high-level design activities over the coming months. This will be the subject of consultation and engagement in 2021. The development of a value framework and process to establish an associated funding model for such services will be an element of this work. In relation to other ESB Networks' projects that are looking at the area of energy storage: ESB Networks was one of a number of collaborative partners on the StoreNet project, which established a battery-based Virtual Power Plant in the local Ballyferriter area of west Kerry. In this project, ESB Networks was interested to understand whether residential-based battery energy storage might provide opportunities to support the local electricity network, in particular through peak shaving and active power management to support voltage in the area. A report on our learnings from this project will be published shortly. IERC, the lead organisation for this project, also considered potential business models involving battery-based service providers and information arising from its research will be included in their final report on StoreNet when published. The Dingle Electrification Project will also see ESB Networks install battery energy management systems at the five Dingle Ambassador premises. These batteries will be optimised in conjunction with the other clean energy enabling technologies at those locations, in order to understand their combined potential for the provision of flexibility services. Similarly, our EV trial in the Dingle project has seen a number of V2G battery chargers deployed and we will look to share the learnings from our trials with our ASM Programme. The REACT project aims to assess the self-sustainability of island communities that adopt renewable energy technologies. As part of this Horizon 2020 project, PV and batteries are being installed on three European islands - with Inis Mor on the Aran Islands being one. Several premises in Kilronan and elsewhere on the island have agreed to join the project, with four community buildings to receive solar panels and batteries. Data obtained following the installation of the batteries and other equipment, will feed into a model of the island's networks to assess its' potential of becoming energy self-sustaining.
FlexTech Integration Initiative	We believe we have provided adequate resources in our role as partner to the TSO-led FlexTech Integration Initiative. A wide

FlexTech needs to be prioritised and appropriately resourced within ESB Networks. The FlexTech programme needs a clear focus or a robust roadmap to support delivery of its stated aim - to break key barriers across a broad spectrum of technical, operational, commercial, regulatory, and market challenges to facilitate the integration of renewables.	programme of TSO/DSO co-operation has been agreed between EirGrid and ESB Networks. Both parties have committed to clear deliverables and incentives. This incorporates activities and proposals which were initiated as part of the FlexTech initiative. A proposed programme of work, prioritising activities identified in partnership with industry has been submitted to the CRU as the basis of 2021 activities, and this is being progressed in a timely manner, with the full commitment of ESB Networks and the TSO. In a number of instances, the activities identified within the FlexTech initiative had also been identified, independently, as necessary from a local distribution system management perspective, and are thus being progressed, resourced and led by the DSO, with the support and collaboration of the TSO. Stakeholders will be consulted and involved in this as the work progresses. We recognise the criticality of addressing the full spectrum of technical, operational, commercial, regulatory and market challenges to facilitating the integration of renewables. As such, ESB Networks has established the ASM Programme, to drive out an ambitious programme to address these needs, on the distribution system, in a holistic manner. Engagement like FlexTech, and DSO/TSO coordination are an important part of this.
Dingle Project – Advocation for additional community engagement capacity building with other stakeholders, and expansion of the innovative work being undertaken on the Dingle Project, particularly with regard to novel engagement methodologies, which are being tracked and evaluated, and outreach activities within the community. While ambassador support initiatives and support for local community events are mentioned in the context of the Dingle Project, there does not appear to be mention of ESB Network's collaboration with local community stakeholders, research bodies, or other agencies, which is worth highlighting.	In our response to comments on building awareness around eHeat and eTransport, we noted above that ESB Networks has no formal role in behind-the-meter activities and through our role as DSO, we must remain a neutral market facilitator. Our emphasis on 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. Within the Dingle Electrification Project, we are collaborating with citizens, organisations and community groups to create shared understanding of mechanisms and initiatives that best diffuse active energy citizen behaviours. To this effect and in line with the support role that we play in the transition by consumers to low carbon energy, we are leveraging the behavioural science expertise of MaREI to help surface insights in this area. We will look to share any learnings from the Dingle Project with the broader stakeholder group and other sustainable communities nationwide. While ESB Networks' Dingle Electrification Project will conclude at end 2021, the process of transition by energy consumers to active energy citizens across the peninsula will continue beyond that, led by community based initiatives.

Smarter Connection Opportunities Frustration and disappointment with the slow progress in rolling out smarter connection opportunities to all distribution projects and the large cost increases proposed under the new standard charges. **Arc Suppression Coil** One such new charge with significant cost is the arc suppression coil. The proposed project 'Provision of Optimised Design for 38kV Arc Suppression Coil (ASC) to Support RES Connections' was welcomed as it seeks to facilitate a reduced cost of connection and improve system protection for generation customers in this area, but a query was raised as to why such a large standard charge is being proposed at this time when there is a parallel project to reduce the cost?	Under the Smarter HV and MV Customer Connections Project, ESB Networks consulted on a Non-Firm Access approach for 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. Under the ASM Programme (detailed below in Section 5) which is now underway, it is hoped to develop and introduce further, different and more active or variable approaches, applicable for generator connections under different conditions and at other voltage levels. The Generator Standard Charges (GSCs) do not fall under our innovation activities, rather it falls under our Regulation and Commercial Team. The CRU is running a consultation process in relation to proposed changes to GSCs, they are currently considering feedback to that consultation and will make a determination in due course regarding any changes to the GSCs. Therefore, it is not appropriate for us to comment on specific GSC costs in this response paper. Regarding the improvement to the ASC itself, this involves a change to the positioning of a component so that the associated clearances required during installation which can cause difficulties not only to the installation itself but also during subsequent maintenance, are being examined with a view to amending the specification. If this pipeline project is approved, delivered and transitioned to BAU, any savings from these changes would relate to the ASC only, but would only apply as new ASCs are tendered and then introduced onto the system.
Pipeline Project - Impact and Facilitation of Microgeneration in Various Scenarios - in relation to ESB Network's recent consultation on the allocation of capacity at substations for potential future growth in microgeneration, concern was raised that this approach would reduce the capacity at stations where renewable projects are planning to connect, thus potentially driving up connection costs. This response advocated for more active system	Given the prominence placed on microgeneration in the Climate Action Plan 2019; the strong support stated, the formulation and availability of a support scheme for payment for exports (from mid-2021), and the general increase in profile of microgeneration in society, it is reasonably expected that connection requests for microgeneration exports will increase. The capacity of microgeneration installations, whilst individually modest, may aggregate to a level which becomes material on the distribution network, e.g. on MV circuits and HV transformers. The approach taken in the Smarter HV and MV Customer Connections Project was to provide an allocated capacity in planning for microgeneration export. It is worth noting that the ASM Programme may support alternative approaches as suggested however it will take some time for ESB Networks to deliver an active management system and it was considered

management and analysis of the impacts of microgeneration and therefore welcomed the potential of this pipeline project if it leads to smarter allocation of capacity on the grid. It was proposed that measures such as these should be introduced rather than ring-fencing capacity at substations for microgeneration that may or may not materialise.	prudent to make an allowance in this way as an interim measure, particularly to avoid any unintended consequences to the processing of ECP2.1 connection applications and to continue to facilitate increasing numbers of microgeneration applications. ESB Networks committed to hold a public consultation on this measure in 2020. This consultation launched in December 2020 and remained open until late January 2021. A number of responses were received, and the views and proposals made will be assessed and considered, with a view to determining if an alternative approach should be taken for future rounds of offer processing. It is expected that an enduring approach will be finalised, and proposed for approval by the CRU, with a plan to publish later this year, in Q3.

5. Feedback on New Ideas and Proposals for Innovation Projects

Several consultation responses provided feedback to ESB Networks on 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:**
Requests for increased focus on **Flexibility Services and Non-Wire Alternative Solutions** for commercial and industrial customers of ESB Networks, and the potential for local, DSO-led flexibility markets. Requests/suggestions include: 1) Prioritise projects/trials in this area. 2) Adopt a fast follower approach to flexibility trials based on the learnings from other jurisdictions. Reference made to the NIE Flexibility project as a positive development and a similar approach proposed	ESB Networks has a Memorandum of Understanding (MoU) on innovation with NIE Networks and we look forward to continuing to share learnings through this initiative on a range of topics, not only flexibility. In 2020, ESB Networks initiated a follow-on project from the Smart HV and MV Customer Connections innovation project that looked to pilot the Non-Wires Alternatives to conventional reinforcement based on the criteria consulted on during the previous innovation project. However, given the established of our Active System Management (ASM) Programme in late 2020 detailed below, we have taken the decision in March 2021 to halt the NetFlex project as a standalone project. The NetFlex objectives will now be merged into the activities of the ASM Programme. This decision was taken on the basis that it reflects the most efficient use of resources in ESB Networks and avoids duplication of effort. The ASM Programme has been established to deliver the capabilities needed in ESB Networks, to change how the electricity distribution system is developed and managed, creating opportunities for demand, storage, renewable generation, active customers and communities to participate. This includes in particular:

for ESB Networks' NetFlex Project. 3) Collaborate on trials relating to flexibility solutions and flexible technologies. 4) Provide a clear unambiguous signal to the market that demonstrates commitment to the development of system flexibility. 5) Innovate further to find solutions to the significant barrier created by instruction sets. For example, improve network forecasting capabilities before the roll-out of equivalent demand response initiatives to residential customers on the LV network can begin. 6) Provide electricity system market participants with more information on what constraints the network is facing, what flexibility assets are operational and where further flexibility services may be needed. 7) Begin on the market design for procuring flexibility approaches. There are different approaches available for how to manage these markets or auctions, but it is essential that the approach is transparent and serves to produce competitive outcomes.	• The delivery of a redesign and upgrade of our operational control infrastructures (introducing forecasting, optimisation and active management capabilities); • The extension of operational control capabilities to LV, so that flexible solutions can, over time, become a reality at the most local level; • The design and delivery of a marketplace for flexible solutions, as a central aspect of local system management, while securely coordinated with TSO and SEM activities; • The establishment of technical standards and requirements for new technologies and services, so they can be securely integrated into distribution system operations; The Clean Energy Package sets out that 'all consumers should be able to benefit from directly participating in the market', a core objective of the ASM Programme is to enable this. The programme will involve extensive piloting and full-scale rollout of the solutions delivered, with a clear focus on solutions which make a difference as we work to achieve our 2030 targets, and which are scalable to support the longer term ambition on the Irish electricity system. At the time of writing, we are preparing for early engagement as a key step in informing the high-level design phase of the full ASM Programme. We appreciate that we will be designing solutions for the future which involve and will rely on the participation of partners from right across industry, through to end customers. For the solutions we deliver to work, we need to work together with experts across the innovation and energy community and listen to the insights and feedback that industry customers and communities can share. We welcome the comments received from this innovation consultation that raise a number of points in relation to engagement and collaboration. At this point in time, early, before we enter the design process, our priority is to ensure that we are engaging in the right ways to make sure that our customers, community, and industry can help to shape the process. With this in mind in Q1 and Q2 this year we are establishing stakeholder focus groups to share their insights and expectations, to inform the high-level design of our project, and also to inform how we consult and communicate throughout the delivery of this project. The members of the stakeholder focus groups will be made up of a selection of stakeholders across the relevant industry sectors. Our future engagement and how we approach it will be an output of these focus group workshops and associated surveys. However, we expect engagement will be a blend of issue led engagement with key experts across industry, public consultations, focus groups, bilaterals and webinars.

	The areas of focus at this early stage include topics relating to: 1. How we create the active energy system 2. How we optimise the system for renewables, customer and community participation 3. How we bring flexibility to the system by reimaging future market arrangements Currently our proposed objectives under these three areas are: • 2030 Power System Requirements • Flexibility Market Plan • Data and Signals Guidance for new technologies • Platforms and Dashboards Roadmap • First tender for flexibility • Consultation Framework for ASM • Local Visibility Plan • Multiyear Rollout Plan If you would like to be part of this deeper engagement, please register your interest to participate by emailing engagement@esbnetworks.ie. In addition to the above focus groups, in Q1 and Q2 we will also be presenting at industry events, conducting customer surveys and we will be holding an interactive session on ASM as part of our Spring Innovation Stakeholder Panel meeting.
Microgeneration ESB Networks needs to increase its focus on the facilitation of microgeneration, there is very little in the current portfolio promoting microgeneration.	ESB Networks continues to support customers who wish to install or learn more about microgeneration and any perceived under-representation of our activity in this area was unintended. Since Q2 2020, ESB Networks has published four reports / consultations relating to microgeneration. These publications set out the building blocks associated with microgeneration and outline the role ESB Networks plays as more people install microgeneration and transition from consumers of electricity to prosumers. In Q2 2020, ESB Networks published our microgeneration framework seeking feedback from our customers in relation to microgeneration related topics. In Q3 2020, ESB Networks published a simplified guide to the technical impacts of microgeneration to the distribution network and in Q4 2020, we published a response and next steps document to the earlier consultation. In Q4 2020, ESB Networks published a consultation regarding the allocation of capacity at MV and HV when considering increasing levels of microgeneration. ESB Networks has a key role to play in facilitating customers in their decarbonisation journey and we believe that the publications outlined above, should assist our customers and contribute to a greater understanding of microgeneration. Additionally, we note that the solutions being developed within the ASM Programme will include measures to support the

	integration of microgeneration on the local system. A number of key 2021 deliverables (see Section 5 above) are seeking to begin to break down technological barriers to secure and accelerate the integration of microgeneration. We will be consulting on these objectives over the course of 2021 and would welcome input from stakeholders with a particular interest, insight or expertise relating to microgeneration technology, uptake or related matters. If you would like to be part of this engagement, please register your interest to participate by emailing engagement@esbnetworks.ie
Policies for Generator Connections e.g. Hybrid Connections Network Policy request for generator connections (e.g. multiple legal entities). Support expressed for a hybrid connection policy i.e. multiple legal entities and sharing of MEC behind connection points. This is an area of significant potential for sites to optimise their connection capacity via hybrid RES distribution network connection trials. It was noted that the TSO's FlexTech Integration Initiative has a hybrids workstream and a suggestion was made that projects could be progressed via this mechanism, with industry and the System Operators collaboration.	ESB Networks worked closely with the CRU on hybrids within the CAP Annex of Actions to assist the CRU in their deliverables under CAP Action 18: Facilitate additional hybrid connections (e.g. solar/wind/batteries) operating in the electricity market to increase RES-E penetration. A full hybrid delivery programme was developed jointly by the DSO and TSO and was issued in the FlexTech Response to Consultation on the14/07/2020, the hybrid section of the FlexTech programme feeds directly into the CAP Action18 Hybrid deliverables. ESB Networks working directly with the TSO and in consultation with the CRU issued a hybrid delivery programme in the FlexTech Response to Consultation outlining the Short Term (2020-2021), Medium Term (2022-2024) and Long Term (2025-2030) hybrid deliverables, covering the key contractual/administrative and system design/engineering projects that are required, to integrate further hybrids into the energy system to meet our national targets. While it is currently possible to obtain a connection for a hybrid site or unit and connect to the system, increasing the levels of hybrid sites or units presents an added opportunity to increase renewable energy penetration. As a project under the hybrid workstream, ESB Networks has been working with the CRU, the TSO, and industry, through the Joint DSO/TSO Hybrid Working Group – Multiple Legal Entities Consultation published in September 2020.The consultation outlines potential contractual options for multiple legal entities in hybrids, with a view to understanding industries' potential need for additional flexibility within current regulated contracts. As part of the FlexTech project a response from ESB Networks and the TSO to this consultation is due out in April 2021. Also, the TSO published A Request For Proposal (RFP) ENQEIR726 DS3 System Services Qualification Trial Process 2020/2021 on etenders in Q3 2020. Hybrids were included in this project trial tender designed to test DSO or TSO potential hybrid sites in line with the TSO/DSO FlexTech hybrid programme. Unfortunately, no hybrid project was proposed by industry. A review of the trial requirements is underway with a view to future trial project proposals in 2021/2022.

	Sharing of MEC is part of the Medium Term Hybrid Programme published in the September 2020 FlexTech Response to consultation by the ESB Networks and the TSO, this will form part of the ASM project.
Hybrid MEC Sharing Dynamic (sharing) of MEC may require trialling to understand system and market interactions. There is potential to adopt a fast follower approach here, learning from experiences in other markets such as Great Britain, to expedite the roll-out of these frameworks.	This is being considered (from both technical and market perspectives) within the ASM Programme, to ensure that effective solutions to supporting the integration of generation and demand on our system are delivered. As part of our assessment and working with industry we will take into consideration relevant experience and learnings from other jurisdictions/markets. In parallel, ESB Networks in collaboration with the TSO will be assessing options and capabilities for trading of MEC (Maximum Export Capacity) as part of the TSO's FlexTech Integration Initiative's hybrid working group objectives. The implications on system, market and other commercial arrangements will be considered and explored with stakeholder input in 2021.

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