NETWORKS

Consultation Response Paper Appendix 1

NATIONAL NETWORK, LOCAL CONNECTIONS PROGRAMME

DOC-161221-HGF

2030 POWER SYSTEMS REQUIREMENTS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Co-location of renewable and demand customers	A large utility notes that co-location of renewable and demand customers is important and can offer opportunities. In particular, the stakeholder notes an Energy Park facility where demand and generation are co-located.	Although we are aware that this is not always an option for our customers, this observation is consistent with the results of the 2030 Power System Requirements. For this reason, solutions which encourage and facilitate coordination between collocated demand and generation, including microgeneration, is a core objective of the programme.
Constraint criteria for pilot selection	A government body advocates that ESB Networks should include targeting the rollout of the flexibility market on some grid nodes with the highest levels of network constraints and highest level of dispatch down, because multiple benefits might be accrued through this.	We welcome the support and interest expressed by these stakeholders. These recommendations will be accounted for in the next stage of pilot definition and the associated stakeholder engagement.
Flexibility service products	An SME (Energy) notes that ESB Networks should consider locations where industrial heat is available as this can offer dispatchable demand.	
Generation by the commercial sector	A representative body indicates that the commercial sector will be keen to support a more resilient network and notes that, at times when commercial load is low and domestic load is high, any excess generation produced by commercial entities could be used by domestic customers.	
Flexibility services - domestic customers	An SME (Energy) notes that domestic battery storage should be included in pilots.	While the piloting proposals are currently being developed on a technology neutral basis, we acknowledge the importance of stimulating the involvement of domestic customers and new technologies. As such, we will endeavour to consult with stakeholders on how best to achieve this through piloting design and delivery.
	An SME (Energy) emphasises the importance of domestic customers in dealing with the management of peak demand.	
Market signalling	A representative body notes the requirement for a clear flagging of system need in order to stimulate the supply of demand side flexibility services (among others) which can compete for market flexibility products.	We welcome this feedback, noting that a key objective in publishing the 2030 Power System Requirements is to provide the market with a clear signal of the need for flexibility, by location and point in time, over the coming years. In early 2022 the full 2030 Power System Requirements document will be published and care will be taken to account for this feedback in the final publication.

2030 POWER SYSTEMS REQUIREMENTS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Microgeneration	A private householder notes the importance of microgeneration and that equal emphasis should be placed on this as is placed on EVs and HPs.	While EVs and HPs tend to need more focus at this point in time as a result of their relative size and uptake, we can confirm that the programme places equal emphasis on the role of microgeneration. There will be more detail in the final paper on microgeneration.
	A private householder notes the importance of ensuring that local networks have the capacity to accommodate the immediate roll out of microgeneration.	The National Network, Local Connections Programme will support customers' ability to connect micro-generation at low voltage (the most local level) on the distribution network. Our analysis has shown the importance of a strategy which brings together smarter solutions through National Network, Local Connections Programme as a complement to the ongoing upgrade of our low voltage networks in delivering cost effective solutions, at the right pace. We would encourage customers planning on installing microgeneration to engage with suppliers registered with the SEAI, and to follow the processes outlined in the Conditions Governing the Connection and Operation of Micro-generation Policy. (Available here)
	An SME (Energy) notes that 'Customer participation is essential for the network to be able to facilitate the additional demand placed on network components by new and emerging low carbon technologies as network reinforcement will not be able to meet the additional demand of LCT alone.'	We welcome this observation and agree that customer participation and awareness is vital. For more information on the programme's approach to building awareness, engagement and education with customers, please refer to the Consultation Framework document.
Modelling assumptions	A representative body notes that changes to Part L of the criteria for the Building Regulations 2010 will render the microgeneration projections inaccurate.	We note this information and will closely monitor the relevant data to ensure that the impact of planning legislation is appropriately reflected in future studies.

2030 POWER SYSTEMS REQUIREMENTS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Modelling feedback	A large utility suggests that ESB Networks should work with EirGrid to quantify which congestion areas are the biggest potential blockers to the local flexibility market.	We can confirm that ESB Networks and EirGrid have engaged closely on our respective system analyses over the course of the year, through the Joint System Operators Work Programme introduced in 2021. The updated 2030 Power System Requirements (to be published early 2022) will provide more detailed results of the studies undertaken to date, facilitating further DSO / TSO engagement also.
	An SME (Energy) notes that customers will 'bypass load management' - i.e., occasionally use load at a time which is not most convenient for the network and that the market design (and network plans) needs to allow for this.	We can confirm that our analyses will always assume that a certain amount of load will still arise at local system peak times.
	A state body requests more detail to be provided on assumptions used in studies.'	Further detail on the assumptions underpinning the studies, along with more detailed results, will be published in the finalised 2030 Power System Requirements in early 2022.
	A state body suggests that district heating should be considered as an alternative to air source heat pumps.	We would welcome (and will seek) the opportunity to engage further on this topic, so that future studies can consider the potential impact of district heating.
Non firm access	A state body queried some detail as to: 1. Information which will be provided to customers, 2. Whether small generators will be constrained.	1. As managed generation connections are introduced, those customers who avail of this opportunity will be provided an indication of the likely degree of constraint they will be subject to. 2. Where a small generator avails of a managed connection to secure quicker and/or more cost-effective access, it is implicit that some portion of the time they will be constrained. NOTE: We cannot comment on the potential for constraint or curtailment arising of future transmission system requirements.
	A representative body comments that '[ESB Networks] must stop planning connections based on full output from wind and solar at the same time as minimum demand.'	We are collaborating across ESB Networks to extend the availability of non firm access (i.e. connections which are not designed to support full coincident output from all resources). The pace with which the National Network, Local Connections Programme can deliver automated solutions will be central to enabling this in a secure manner.
	A representative body comments that the non firm access policy requires urgent review.	
	A state body notes that the report did not include information on anticipated dispatch down of generation.	More detailed information on the management of generation (at commercial scale) and potential constraint will be shared in the finalised 2030 Power System Requirements to be published in early 2022.

2030 POWER SYSTEMS REQUIREMENTS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Piloting locations	A state body notes that it may be possible to direct uptake in a given area by promotion or incentives.	We welcome this comment and will engage further to identify how best this can be achieved through the piloting programme as well as through future publications in line with the 2030 Power System Requirements.
Planning standards	A party representing a community project notes, that in this paper, ESB Networks wishes to address the planning standards which have triggered this limitation [for the community project in question].	We are collaborating across ESB Networks to extend the availability of non firm access (i.e. connections which are not designed to support full coincident output from all resources). The pace with which the National Network, Local Connections Programme can deliver automated solutions will be central to enabling this in a secure manner.
	A party representing a community project noted: 'The capacity limit only occurs during full wind output from the 1.7MW wind farm, full solar output and minimum demand at Cloyne 38kV. These 3 conditions cannot occur at the same time. ESB Networks has acknowledged this but the planning standards still say this is what must be 'studied and applied.'	We would like to clarify that the 2030 Power System Requirements noted that *'solar and wind will not **frequently** be coincidentally exporting at their full MEC'* and *'solar peak **does not tend** to be aligned with Summer valley load'*.
Support for proposals	A representative body notes that the iterative piloting approach was a good one and also noted the importance of ESB Networks always piloting new ideas and responding to customer needs.	We welcome this support for our proposed approach to piloting and a discovery led programme
	A state body acknowledges the great effort undertaken by ESB Networks in developing a database and scenarios to envisage the future of LCT take up.	We welcome this acknowledgement and seek to extend it to those parties who supported the development of this work.
Security of supply	A representative body indicates that, by managing their own local load, the commercial sector could also have a positive impact on the transmission system and relieve constraints on same.	We want to acknowledge this comment and confirm that it we will seek to leverage this synergy where possible, in coordination with the transmission system operator.
System operator coordination	A large utility commented on the importance of TSO and DSO co-operating and co-ordinating their plans for dealing with constraints and congestion. The utility also noted that the Dublin area should be prioritised.	We can confirm that we are working in partnership with the TSO, including sharing our respective analyses and developing joint strategies through the Joint System Operators Work Programme.

LOCAL NETWORK VISIBILITY MULTI-YEAR PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Measurement on the network	An SME (Energy) suggests that other forms of network measurement in addition to customer metering be utilised.	We can confirm that as per the Local Network Visibility Plan, the National Network, Local Connections programme involves the rollout of MV/LV sensors across the network.

CONSULTATION FRAMEWORK		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Awareness, education and engagement	Several stakeholders propose that the programme would build on the awareness, education and engagement campaign to engage with customers more directly (to support industry and customers with propositions e.g., rooftop solar as a solution).	The National Network, Local Connections Programme plans to build on the engagement and collaboration initiated in 2021, as we move forward with the design and implementation of the programme. The engagement and consultation in 2021 are just the beginning of what we intend to be a dynamic and collaborative process over the life of the programme.
Build customer awareness so customers understand the part they can play via adoption of propositions	A representative body and a state body recommend that the programme build on the awareness, education and engagement to make products and services more tangible and incorporate lessons learned. This will help shape propositions which customers will want to engage with and will know how to adopt.	As set out in this document, through the definition of an Agile Customer/Community Pilot, we will seek to design an approach, leveraging our network visibility, to provide customers with insights into their local energy system, and test and measure the customer/community behavioural impact of different approaches to drive awareness and participation.
ESB Networks' neutrality / new market fairness	An SME (Energy) and a large utility emphasise the importance of neutrality and transparency in ESB Networks' role.	We would like to clarify that ESB Networks is not seeking any competitive role. By encouraging the development of an effective and liquid market for aggregation and energy management, we hope to support customers' participation in flexibility on the distribution system. Article 32 of the Electricity Market Directive (2019/922) sets out that as DSO, subject to approval of the CRU, we are responsible for establishing the specifications for the flexibility services procured and standardised market products for such services at least at national level, in a transparent and participatory process that includes all relevant system users and transmission system operators. The market design activities set out in the Phased Flexibility Market Plan and associated workshops and webinars are our first steps in seeking to deliver this.

CONSULTATION FRAMEWORK		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Insight led approach to awareness, education and engagement	A representative body and a state body acknowledge the research-led approach to our initial awareness, education and engagement approach on the programme and request that this continues into the future.	We welcome these comments and can confirm our commitment to delivering the programme in collaboration with stakeholders from all segments. Research will play a vital role in this throughout the life of the programme, and is built into the consultation framework and our multiyear plans.
Consultative steering group	Several stakeholders suggest the need to consider a consultative steering group to support the roll out of the programme for the purposes of shared learning and piloting and engagement.	We are proposing the introduction of a consultative steering group, for which terms of reference and ways of working will be proposed in early 2022. The group will play a central role in engagement, collaboration and supporting stakeholders' ability to plan for and influence the timing of consultations in future.
Sharing data on network constraints	A householder requests that data on network constraint be shared.	As set out with respect to the 2030 Power System Requirements, further insights into the potential for the constraint of generation will be shared in the finalised publication in early 2022. Furthermore, as managed generation connections are introduced, those customers who avail of this opportunity will be provided an indication of the likely degree of constraint they will be subject to.
Stakeholder engagement on piloting/ flexibility Services	Several stakeholders have • requested more in-depth engagement with potential providers on the value proposition of participating in pilots and • noted the need for market signalling and engagement with market participants	We can confirm our strong intent to engage in an open and constructive manner with existing and potential market participants to support their development of solutions to deliver flexibility (both for piloting and future business as usual rollouts). This will include signalling future locations where flexibility is required in advance of commencing the associated procurement processes. This engagement has commenced with an initial market consultation for parties seeking to participate in the first pilot (to go live in 2022). However, we note that pilots may not provide a strong, long term investment signal. As such, we are targeting locations where market participants have or can readily recruit customers without substantial additional investment at this time.
Stakeholders would welcome the opportunity for more collaboration on pilots	While there is widespread support for the programme's iterative approach to piloting, several stakeholders request that we broaden the scope of earlier pilots. Specifically, some stakeholders request that residential demand response features in pilots from 2022 to proactively build engagement with this segment.	As set out in this document, through the definition of an Agile Customer/Community Pilot, we will seek to design an approach, leveraging our network visibility, to provide customers with insights into their local energy system, and test and measure the customer/ community behavioural impact of different approaches to drive awareness and participation. Through the definition phase, we will seek opportunities to design stakeholder participation in throughout the life of the pilot.

PILOTING ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Piloting knowledge transfer	A large utility requests findings and recommendations from piloting be shared with stakeholders during the pilot and at the pilot's conclusion.	We can confirm that dissemination of results through workshops and other channels will be included in the multiyear plan. Additionally, the consultative / steering group, for which terms of reference and ways of working will be proposed in early 2022, will have a central role in shaping the definition of pilots and considering the learnings arising.
	A representative body raises concerns that the programme's focus on the use of piloting to develop new processes and facilitate the implementation of new technology should not limit the approach to leveraging existing approaches and experiences in parallel.	We welcome this note and can confirm that the programme will seek to introduce new solutions as a complement to existing approaches and experiences which are delivered in parallel on an ongoing basis.
	A representative body asks that a pilot be targeted at identifying the interaction between wind and solar PV when connected as the same location.	While the piloting roadmap does not currently include a pilot which would support this analysis, to the extent that the potential arises (through piloting or other developments) we will seek to gather measured information to support future modelling and analysis.
Piloting Locations	An SME (Energy) is of the view that pilot locations should have a geographic spread across Ireland to maximise customer engagement.	We welcome this commentary regarding the prioritisation for locations for piloting. It will be given due regard in the development of piloting proposals.
	The stakeholder is of the view that the more customers that participate, the more learnings ESB can achieve from the pilots.	We can confirm that this is consistent with our intent. Through the definition of an Agile Customer/ Community Pilot, we will seek to design an approach, leveraging our network visibility, to provide customers with insights into their local energy system, and test and measure the customer/ community behavioural impact of different approaches to drive awareness and participation. Through the definition phase, we will seek opportunities to design stakeholder participation in throughout the life of the pilot.
	An Energy Community highlights the work that they have undertaken in their location to promote decarbonisation and expressed a view that this location would be suitable for the Pilot of Scale.	We welcome this contribution regarding the selection criteria for the pilot of scale. We can confirm that it will be given due regard in developing proposals for the location for the Pilot of Scale, which will be the subject of further stakeholder and community consultation in 2022.

PILOTING ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Piloting Participation	A private householder notes the Vehicle to Grid (V2G) energy trial ongoing in the UK and offers to participate in such a trial if it were organised in Ireland.	The piloting roadmap has been developed in a technology neutral manner, and V2G is amongst the technologies which could participate, pending the outcome of a competitive recruitment process. V2G has particular potential in the context of residential demand flexibility, and thus we note that the definition of the Pilot of Scale will consciously seek to promote the participation of domestic customers. Finally, though we are adopting primarily technology neutral approaches, we note that there would value in testing the processes and systems developed across a diverse set of end-user technologies, and that there may be services that a specific technology enables (e.g. system restoration from grid forming inverters).
	A windfarm (community scale) offers to partake in the RESS 1 pilot.	We welcome this engagement and will have due regard for the conditions arising in the case described in the development of transparent and objective participation criteria.
	An SME (Energy) is of the view that domestic customers should feature in the earlier pilots. The stakeholder notes that given domestic customers are the largest market and may be the most challenging to engage, they should feature in earlier pilots to build engagement and buy-in.	We hope to encourage the participation of domestic customers at the earliest opportunity in the programme. While the definition of the Pilot of Scale will consciously seek to promote the participation of domestic customers, we note that the first pilot in 2022 is also open to the participation of aggregated domestic demand.
Piloting Roadmap Timelines / New Pilots	A windfarm (community scale) is of the view that the pilot Go Live of October 2023, with tender consideration from Q4 2022 is too late. They share their concern that for the pilot to have a positive impact on RESS 1 projects, ESB Networks would need to bring forward these timelines. The stakeholder proposes that the timeline for the RESS 1 pilot qualification process to be brought forward for completion in Q2 2022.	In response to the strong stakeholder responses in this regard, we can confirm our intent to bring forward engagement with candidate projects to Q2 2022 and – pending pilot definition and the associated decision to proceed – will seek to facilitate the participation of projects seeking to go live from Q2/3 2023 subject to project readiness for energisation.
	A representative body called for clarity on the remuneration that would be available to flexible service providers in the RESS 1 pilot.	In response to the strong stakeholder responses (1) to bring forward the timeline of the RESS 1 early access pilot and (2) not to seek to introduce market based approaches initially, we will no longer seek to include market based approaches (and the associated remuneration) in the definition of the RESS 1 early access pilot.
	A windfarm (community scale) notes that under existing planning standards, N-1 contingency needs to be catered for when considering available transformer capacity in substations.	We are collaborating across ESB Networks to extend the availability of non firm access (i.e. connections which are not necessarily designed to support N-1 contingency needs), including through the RESS 1 Early Access Pilot, and an additional RESS 2 / Community Non Firm Access Pilot.

PILOTING ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Piloting Roadmap Timelines / New Pilots	An SME (Energy) highlights the impact of costs relating to grid connection on the viability of smaller renewable generation projects in the context of the RESS-2 support scheme.	In response to the strong stakeholder responses to bring forward the timeline of the RESS 1 early access pilot we can confirm our intent to bring forward engagement with candidate projects to Q2 2022. Pending pilot definition and the associated decision to proceed, we will seek to facilitate the participation of projects seeking to go live from Q2/3 2023 subject to project readiness for energisation. In response to strong stakeholder feedback relating to piloting a wider range of non firm access options, we propose the definition of a second non firm access pilot in the scope of the programme, with a particular focus on supporting RESS 2 community projects.
	A representative body highlighted the urgency to facilitate faster connections for renewable energy projects.	
	A representative body asked that the extension of non firm access to wider areas and configuration on the distribution system be progressed as a matter of urgency.	
Piloting domestic customer participation	An SME (Energy) notes that from Pilot 1 there should be some inclusion for domestic customers. It notes that early inclusion for domestic customers will bring beneficial learnings to ESB Networks for a critical customer segment where demand will rise sharply as attractive business models emerge. An early start with domestic projects will prove beneficial when trying to increase scale in later stages. A representative body is of the view that the schedule of releases and pilots with an earlier focus on industrial and commercial customers is a sensible approach.	We hope to encourage the participation of each customer segment, including domestic customers at the earliest opportunity in the programme. While the definition of the Pilot of Scale will consciously seek to promote the participation of domestic customers, we note that the first pilot in 2022 is also open to the participation of aggregated domestic demand.
Piloting roadmap / new pilot	An SME (Energy) suggests that all geographical 'corners' of Ireland should be covered within the piloting roadmap, to bring the customers along the journey.	We welcome this feedback which will be given due regard in the consultative definition phase of the pilots within the piloting roadmap. In particular we note that the updated proposal for the programme introduces the definition of an Agile Customer/ Community Pilot available to energy communities nationwide which seek to participate. Pending its progress-pause-or-adapt decision, this could involve the provision of local electricity system dashboards, supporting the participation and awareness of customers across the country.
	A community scale renewables project and a representative body suggest the timeline for the RESS 1 pilot be adjusted to allow the project to be financed and constructed using the pilot scheme smart grid technology. The feedback suggests that pilot projects be identified and confirmed by Q2 2022.	In response to the strong stakeholder responses in this regard, we can confirm our intent to bring forward engagement with candidate projects to Q2 2022 and – pending pilot definition and the associated decision to proceed – will seek to facilitate the participation of projects seeking to go live from Q2/3 2023 subject to project readiness for energisation.
Piloting- Include regulatory uncertainty	An SME (Energy) recommends that regulatory uncertainty should be addressed to mitigate unacceptable risk to potential developers.	We note this feedback which will be given due regard in the consultative definition phase and detailed design of individual pilots.
Piloting knowledge transfer	An SME (Energy) notes that the more customers participate in the pilots, the more learnings ESB can achieve.	We welcome this feedback which will be given due regard in the criteria for and consultative definition of each pilot.

VISIBILITY & DATA PLATFORMS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Agile customer/ community pilot	An SME (Energy) recommends the use of platforms and dashboards to support piloting activities.	We can confirm our intention to leverage platforms and dashboards developed within the programme to support piloting activities.
Build awareness, education and engagement	An SME (Energy) makes suggestions as to how platforms and dashboards can support customer awareness and education.	Furthermore, through the definition of an Agile Customer/Community Pilot, we will seek to design an approach, leveraging our network visibility, to provide customers with insights into their local energy system, and test and measure the customer/ community behavioural impact of different approaches to drive awareness and participation.
Dashboard user experience	An SME (Energy) makes suggestions on user experience considerations including on usability, tailoring to user needs, data transparency and granularity.	We can confirm that subject to its definition phase, it is proposed to tailor dashboard views to the user, accounting for factors including DER type (PV, Wind, EV, etc) and customer type (residential / agricultural / industry / tertiary). The further suggestions will be accounted for in the development of detailed specifications, and the subject of further stakeholder consultation.
Dashboard functionality	An SME (Energy) seeks clarity as to whether it will be possible to drill down to street level in addition to county/regional level.	We want to thank our stakeholders for these insightful suggestions. To the extent that they are not already accounted for in proposals, they will be considered in the development of detailed specifications, and the subject of further stakeholder consultation. In some instances it will be important to establish their feasibility, noting the requirements arising of GDPR and other relevant regulations.
Data accessibility via an API	An SME (Energy) proposes that ESB Networks make data accessible to the wider market by provisioning an API.	
Business as usual metrics	An SME (Energy) notes the importance of providing consistent, authoritative data needed to facilitate BAU requests and processes.	
Map visualisations	An SME (Energy) notes the value that can be derived from utilising geographic referenced data.	
Open Data Directive	A state body proposes the programme to consider application of the Open Data Directive.	
Platforms & dashboard roadmap	A state body provides a list of specific market and policy objectives that the programme could address through the platforms and dashboards roadmap.	
Local network constraints	A householder proposes that the programme would provide a channel to keep customers informed of any potential local network constraints.	
Spatial mapping	An SME (Energy) proposes the use of spatial (mapping) data infrastructure to help customers understand and represent their demand and to thereby gain greater visibility, security, and certainty.	

VISIBILITY & DATA PLATFORMS		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Clarification	A SME (Energy) seeks clarity as to whether the dashboards and platforms will monitor and measure impacts and report on these.	We can confirm that this is the intent, as relates to distributed energy resources.
Lessons Learned	A SME (Energy) notes that lessons learned, and insights can be drawn from the EirGrid and other listed dashboards.	We can confirm that global case studies and detailed research into other utilities' dashboards – their strengths and also their limitations – has been accounted for to date, and will continue to be throughout the development of the dashboards. We also engage directly with other utilities to share insights, including with the TSO.
Role of the dashboards	A large utility notes that it is difficult to obtain a full picture of the distribution system in real-time.	We welcome this feedback and can confirm the intent of this initiative is to provide stakeholders and customers with a picture of their local energy system, and in particular, of the impact of distributed energy resources on their local distribution system.
Stakeholder collaboration	A state body proposes further discussion and collaboration. Examples provided include how platforms and dashboards could support community groups considering developing a community owned renewable energy generation project, and engagement with Local Authorities, SECs and other parts of the supply chain.	We welcome this collaboration, and hope that the proposed Agile Customer/Community pilot could support engagement of this nature.

SIGNALS & DATA EXCHANGE GUIDANCE FOR DER		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Alignment with standards	A state body notes its role as a stakeholder to this process, given its role in mandating, ensuring awareness and compliance with relevant technology standards.	We note and welcome the engagement of this party as a key stakeholder to the initiative.
	A representative body notes that the protocol requirements as set out in the consultation could be quite involved and costly for stakeholders.	Economic implications are an important consideration, and will continue to be given due regard throughout the process. Care is being taken on an ongoing basis to adopt cost effective strategies through the architecture and standards adopted. The review of international best practice included in the document was undertaken with a view to adopting standards which are readily available on international markets, thus helping address cost considerations.
	An SME (Energy) proposes that standards for equipment should align to and not exceed European Standards and Requirements.	We can confirm that this is as set out in the Signals & Data Exchange Guidance paper.
Architecture approach	An SME (Energy) suggests that the National Network, Local Connections architecture approach could follow a map centric oil and gas approach to achieve decarbonisation and system flexibility.	While we welcome all opportunities to leverage effective techniques, we note that from a technology control path perspective - the Data & Signals paper architecture approach is based on the state-of-the-art CENELEC M490 Smart Grid Architecture Model (SGAM) standard. This standard is streamlined and commonly accepted across EU states as the best method to represent complex future smart grids that represent all the key actors and component on the network.
	An SME (Energy) sets out the role of an aggregator as being one possible body to manage residential/commercial assets.	We can confirm that as a general approach, this is consistent with the direction of the programme and thus addressed as a core architectural element of the Signals & Data Exchange Guidance paper.
Communications & technologies to integrate with DERs	An SME (Energy) proposes ESB Networks investigate a wide range of communication mediums that will facilitate the largest possible penetration of devices to support local and national networks. It proposes APIs be used for communications & data exchange. It suggests that technologies using internet and mobile phone networks be included in the design.	Over the past number of years, ESB Networks has undertaken a range of R&D projects, including EU Horizon 2020 projects, investigating different communications media. This is being accounted for in the telecommunications strategy underpinning the programme rollout. At this point in time, we are concerned that APIs (application programming interfaces) for DER communication may not offer a sufficiently secure channel for direct communication links interfaced to operational systems. However, APIs may have applications for non-critical functions of market systems. We can confirm that the use of internet (secure TCP/IP) is consistent with the approach set out in the Signals & Data Exchange Guidance. An example is the proposed IEEE2030.5 with secure TCP/IP as a future communication protocol between ESB Networks' operational systems and DER. We can confirm that we are currently exploring mobile networks for DER communications.

SIGNALS & DATA EXCHANGE GUIDANCE FOR DER		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Control interfaces for DER technologies	A state body notes the importance for piloting to define and trial DER's control interfaces.	We can confirm that this will play an important role in the scoping of pilots.
DER flexibility market	A vendor recommends sending clear signals and providing as much information to the market as possible. It believes this is key to successfully establishing flexibility markets and can mitigate the concerns of flexible service providers on participating in pilots.	We want to thank the stakeholder for their comments which will be accounted for in the detailed design of the requirements for data/platforms/dashboards into the piloting roadmap.
DER interoperability	An SME (Energy) notes the DER interoperability that is currently available and what is needed in the future as a minimum standard.	We welcome this feedback, in particular as relates to battery energy storage, and can confirm that it is consistent with the Data and Signal Exchange Guidance as proposed.
DER network capabilities	A state body suggests it would be helpful to clarify if any changes to scope are needed to the exchange list set out to include small-scale generation.	We can confirm that the signal exchange list set out in the paper addresses the entire scope of service requirements (active/reactive power, power factor) associated with small scale generation.
DER technical challenges	An SME (Energy) notes that many local generation assets may not have the technical capability to become DER assets as set out in the consultation.	We appreciate that legacy non-controllable generation will not have the capability to meet the standards set out. The focus and objective of the Data and Signal Exchange Guidance is to ensure that future small scale distributed generation has the technical capability to participate actively in system management.
Market data	An SME (Energy) notes that market and network data will require ongoing analysis and updates.	We can confirm that resourcing and capability requirements associated with data management and analysis are a central consideration in the programme.
Microgrids	A representative body expressed concern for the impacts of the programme's changes on microgrids in Ireland.	We will reach out directly to the stakeholder to clarify this item as the term microgrid has multiple definitions.
Network controllability	An SME (Energy) suggests that the programme would investigate if varying the set-point voltage of the distribution network could minimise any restrictions on DER outputs.	We can confirm that this is amongst the solutions which we will seek to include in the definition phase of pilots planned to go live in 2023.
Standards working group	An SME (Energy) suggests that a working group be established to facilitate further discussion and collaboration.	We agree that a working group based approach will be required to further progress the work started this year regarding standards, interoperability, and communication requirements for DER in Ireland. With a view to this, engagement with the NSAI has commenced in 2021.
Suggestion on the services DER can provide	An SME (Energy) suggests that architecture provided is compatible with current state of the art for grid integrated DERs that offer a variety of system services, such as active/reactive power control.	We welcome this perspective on the developments to date.

OPERATIONAL SYSTEMS ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Automation & Digitisation	An SME (Energy) notes that digitalisation is a key enabler and proposes a parallel project with the regulator to make regulatory oversight more accurate & transparent.	We agree that digitalisation is a key enabler and thus a central element of this programme. As regards regulation, we can confirm that we are working in an open manner subject to the oversight of the CRU, but cannot comment on any further regulatory developments (which are the remit of the CRU).
	An SME (Energy) suggests that automation is required to support a successful rollout.	We agree and can confirm that enabling scalable automation is a central focus of the Operational Systems Roadmap. Subject to the regulatory targets set, in early 2022, the next step in the Operations Systems Roadmap is to test the market for an advanced distribution management system and integrated distributed energy resource management system. The degree and timing of when this automation can go live will vary from application to application over the life of the programme. The appropriate level of automation will be a key consideration in the definition of each pilot, with factors including cost, maturity, ease, stranding risk and customer experience taken into account.
DER/DERMS Integration	An SME (Energy) highlights the importance of integration with multiple 3rd party DER management platforms.	We can confirm that this comment is consistent with the approach proposed in the Operations Systems Roadmap and Data & Signals Guidance. Our intention is to leverage international protocols and standards such as IEEE 2030.5, IEEE 1815 and IEC 61850 to ensure interoperability across multiple DER technologies and management platforms.
Network-linked load and generation switching	An SME (Energy) suggests that Network-linked load and generation switching needs to be rolled out now so that it can be used to control and manage heavy loads in the coming years.	Albeit within appropriate operational and market frameworks, we can confirm that this is in line with our programme objectives. As such, the Data & Signals Guidance (and associated control architecture) and the Operations Systems Roadmap seek to define the standards, protocols and technologies required to facilitate interconnection with physical assets (e.g. inverters, switches, etc.) as well as telecommunication (e.g. RTUs) to achieve this. We will continue to consult with industry and technology stakeholders as the architecture and deployment plan evolve.
Security design	An SME (Energy) suggests that the National Network, Local Connections Programme security model should be based on a 'defence in depth' model instead of a 'closed' perimeter security model.	We welcome the feedback and will give this suggestion due regard as the relevant cybersecurity design, architecture and requirements underpinning the National Network, Local Connections Programme and developed out.

OPERATIONAL SYSTEMS ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Positive endorsement	A representative body highlights the need for ESB Networks to implement next generation operational and market technologies. The body's members support this important investment on the distribution system over the coming decade, noting it is essential for the delivery of a decarbonised overall energy system.	We welcome this understanding and feedback.
Capabilities required to realise the benefits of demand side flexibility	A representative body notes that the limited nature of system scheduling tools and operational processes is presenting challenges currently.	We can confirm that the development of scheduling and operational processes and tools which can be adapted in an efficient and agile manner is a core objective in the programme. We note that the scope of National Network, Local Connections Programme extends beyond the definition of market structures and rules, also addressing the operating models, processes, tools and technologies required to execute them efficiently and reliably.
Piloting - technology	A large utility suggests that there is a need to embrace new technologies through the pilots.	We can confirm that this is consistent with the approach proposed for the programme.
Flexibility service technology	A large utility suggests that the enablement of grid forming technologies, local storage solutions and how the distribution system communicates and interacts with the transmission system are important for piloting.	While the programme approach as currently proposed is primarily technology agnostic with regards to how a given service is delivered, it is true that there would value in testing the processes and systems developed across a diverse set of end-user technologies. Additionally, there might be services that a specific technology enables (e.g. system restoration from grid forming inverters). As such, these issues will be given due regard in the definition phase of each pilot.

OPERATIONAL SYSTEMS ROADMAP		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Neutrality in market systems	A large utility suggests the use of an independent third-party market platform by both system operators.	We can confirm that a range of solutions for market management are under consideration, including software, software as a service, and platform as a service offerings. Key considerations in this regard include cost effectiveness (upfront costs and ongoing support and maintenance), adaptation/ change management, hosting and cyber security, ability to support local technical conditions, market risks, lock in, costs for participants, transparency and repeatability.
DER/DERMS integration	A vendor mentions its intentions to develop flexibility project learnings into an open-source global standard which would define interface requirements between Distribution Energy Resource Management System (DERMS) and marketplaces.	The technology designs underpinning the National Network, Local Connections Programme seek to achieve security, efficiency, interoperability and scalability. As such, we welcome initiatives like that noted, in particular where (like the technology designs of the National Network, Local Connections Programme) they align with international best practices, standards and protocols.
Flexibility service technology	A representative body notes that there are numbers of Irish start-up companies developing innovative technologies in the field of smart grid systems. It suggests leveraging these organisations in developing the new operational systems.	We welcome this observation and while cognisant of our obligations with respect to competitive procurement and cost effectiveness, we hope that opportunities present to source some of the requisite technologies from local Irish companies or start-ups. We will investigate these opportunities throughout our technology roadmap. Furthermore, our experience in other initiatives, for example the Dingle Project, is that even where technology solutions are not indigenous, there is a local economic benefit arising of the indigenous services used to install, connect and commission new technologies.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Collaboration	A vendor recommends taking a partnership approach to FSPs, engaging with FSPs early and often to create joint ownership over the process, which will in turn drive engagement from FSPs to participate. It recommends that the programme is responsive to the market during the procurement process. It suggests utilising FSPs as a knowledge base and adapting to their feedback where possible. It recommends a joint communications approach from the DSO and marketplace given this has been successful in engaging FSPs and building awareness and trust.	We can confirm that the updated proposal developed based on the feedback received through consultation includes a proposal to work closely with competitive FSPs (e.g. aggregators, suppliers, emerging energy companies) who are seeking to develop viable opportunities to deliver flexibility services. Furthermore, we can confirm our intention to be responsible to the market during the procurement processes. For example, in Q4 2021, our proposals for the first call to tender were adapted based on the responses received to a preliminary market notification and questionnaire. Finally, based on the feedback received, we can confirm our intention to establish a consultative stakeholder group in 2022, the terms of reference of which are to be defined in consultation with industry and stakeholders.
Consultative steering group	Several stakeholders emphasise the importance of close collaboration between ESB Networks and stakeholders in the design and implementation of the market.	Firstly, based on the feedback received, we can confirm our intention to establish a consultative stakeholder group in 2022, the terms of reference of which are to be defined in consultation with industry and stakeholders. Secondly, we wish to confirm that the purpose of publishing a proposed market framework at this time was to outline the longer-term vision of what flexibility services could deliver for the distribution system and its customers. We agree with our stakeholders that the development of an enduring solution will take time and detailed engagement. As such, we consider the publication of an initial direction at this point in time an important first step – but just a first step nonetheless.
	A representative body expresses its commitment to shaping system flexibility through demand side flexibility and welcomes the opportunity to collaborate with the programme.	We welcome this engagement, which will be important as we seek to develop market protocols and processes which are informed by, and consulted with, our stakeholders.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Participation in the flexibility markets	A state body notes that more focus on how electricity consumers could participate in the flexibility markets would be beneficial.	We can confirm that this is strongly in line with the intention of the programme, and further we note that our updated programme plan includes an action to work closely with consumer facing organisations (e.g. aggregators, suppliers, emerging energy companies) who are seeking to develop viable customer propositions to deliver flexibility services.
ESB Networks neutrality / fairness in market design	An SME (Energy) suggests that cost socialisation be designed so that customers without new technology aren't paying to support those with microgeneration, EVs etc.	Firstly, we note that the primary mechanism for the allocation of socialised costs is tariff design, which is beyond the scope of this programme. Notwithstanding this, the design of flexibility services will create new questions of whether individual costs are or are not socialised, as set out in the Phased Flexibility Market Plan. The funding of different products or use cases may vary by application, pending the CRU's judgement of how the value created is distributed amongst different customers
	A large utility emphasises the importance of enabling a level playing field between technologies and customer types.	We can confirm that the programme proposals as currently drafted are technology neutral (while noting, as set out previously, that there would value in testing the processes and systems developed across a diverse set of end-user technologies, and that there might be services that a specific technology enables (e.g. system restoration from grid forming inverters)).
	A large utility and a representative body request clarification on whether the programme's remit is to Ireland only or if it extends to the ISEM jurisdiction (both Ireland and Northern Ireland).	We can confirm that the National Network, Local Connections Programme is an ESB Networks' initiative which will involve the introduction of flexibility services in our operational jurisdiction only. However, ESB Networks and NIE Networks engage and collaborate on an ongoing basis and are continuously sharing insights and learning regarding the introduction of flexibility services.
	Several large utilities seek clarity on ESB Networks' role and emphasise the importance of ESB Networks remaining neutral and facilitating market development in an independent manner. A large utility proposes that interactions with customers should be via suppliers, aggregators, or other commercial structures and not through ESB Networks.	We would like to clarify the role of the DSO with respect to flexibility services on the Irish distribution system. Firstly, ESB Networks is not seeking any competitive role – we want to support the development of an effective and liquid market for aggregation and energy management which supports customers' participation in flexibility on the distribution system. Notwithstanding this, the role of the DSO with respect to flexibility and managing demand and generation will change, in line with the provisions of the Clean Energy Package. Specifically, Article 32 of the Electricity Market Directive sets out that as distribution system operator and subject to approval of the CRU, we are responsible for establishing the specifications for the flexibility services procured and standardised market products for such services at least at national level, in a transparent and participatory process that includes all relevant system users and transmission system operators. This is what we are endeavouring to do by engaging in market design activities in an open and consultative manner, as set out in the Phased Flexibility Market Plan which has been the subject of recent public consultation.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
ESB Networks neutrality / fairness in market design	A large utility suggests that the DSO clarify which products may be competitively procured and which will remain in the core competency of the DSO as monopoly system operator.	We can confirm our intention that all of the products proposed to date would be competitively procured, subject to the ability of the market to deliver solutions which meet transparent and objective technical criteria.
	A large utility suggests that independent economic advisors should shape the overarching approach, governance, and principles for developing flexibility services.	Firstly, we want to acknowledge the role of the CRU in the National Network, Local Connections Programme. The programme was established in response to key objectives set out by the CRU for the PR5 period, and since the beginning of the programme, the CRU has played a central role in mandating and encouraging its development. All of the materials developed have been submitted to the CRU, and the programme is being delivered with regulatory oversight. While we cannot comment on future approaches to oversight or governance which the CRU may adopt over the life of the programme, we will welcome and act in accordance with whatever steps the CRU seeks to take.
	A large utility notes that market power/perverse incentives could arise where those causing congestion could be remunerated for relieving it and that this opportunity should be afforded to all customers.	We can confirm that we are mindful of this risk in the design of proposals with respect to flexibility services. We also note that the different socialisation principles for congestion driven by different network uses may also serve to protect against this risk.
Peer to peer solutions & microgrids	A representative body and SME (Energy) note the value of peer-to-peer solutions & microgrids and request more information on how the programme will facilitate this.	We can confirm that the programme will seek to introduce solutions for localised coordination and trading, where all customers (including within and between communities) can participate, to enable increased renewable production and consumption at a more local level. We note that there are a breadth of peer-to-peer models and interpretations of the term. However, we can confirm that the objectives of peer-to-peer models with respect to facilitating localised and community based energy coordination and "sharing" will be a core focus within the programme.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market / product design considerations	Several stakeholders make suggestions around market / product design considerations, with diverse views expressed regarding availability vs. utilisation payments, contract duration, notice periods etc.	We welcome these stakeholders' input which will be given due regard as the development of products and market design progresses, in a consultative manner, over the next phase of the programme.
	A UK vendor recommends leveraging learnings from international experiences and mentions the value in setting out a clear vision to iteratively shape market progress.	We can confirm that insights and experience from the UK, amongst other markets, are being accounted for in the development of the programme. We note that ESB Networks is a member of the UK based Energy Networks Association, and NN,LC team members participate in working groups of the ENA Open Networks Project.
	A representative body suggests care be taken in making assumptions around modifying existing structures.	We can confirm that care is being taken to design local flexibility markets (a new rather than existing structure) in a manner that is operationally compatible with other market arrangements, including existing market structures. The modification existing market structures is a matter for the relevant regulatory authorities. Local flexibility requirements inherently differ from any other products or structures currently available in the Irish and all island markets. However, where possible we will seek to design an appropriate degree of alignment and compatibility to enable participants "stack" or earn revenue in multiple markets. The Phased Flexibility Market Plan sets out how aggregated structures for the delivery of localised services might be designed. Finding the right balance of minimising entry barriers for new providers, and supporting the efficient participation of existing providers (from other markets) has been a central consideration in this. While we note that current aggregated structures in the SEM do not reflect the requirements for localised services, we do not suggest that the proposed structures would displace or modify existing structures. Rather, we are seeking to map between different market structures and achieve alignment / compatibility. We note the stakeholder's feedback and recognise that existing structures such as DSUs were designed to serve wholesale energy and transmission system needs. We look forward to market participants' specific feedback on how the proposed localised structures could be developed to support the ease and efficiency of existing aggregators' participation.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market / product design considerations	A SME (Energy) and a representative body propose the development of a demand up product. Other comments relevant to this includes stakeholders noting the value of various technologies in this regard, including power-to-heat, or non-firm demand connections availing of surplus renewable generation.	We can confirm that demand shifting services to enable localised storage or consumption of renewable generation output is a core objective of the programme. We believe that smarter use of the resources already available (i.e. storing or useful consumption of renewable energy, rather than dispatch down) is an important strategy to achieve our 2030 renewable energy consumption targets. We welcome the participation of all technologies in localised balancing services of this nature. The information received through this consultation process is a valuable input to our ongoing horizon scanning of the technologies which might participate in such services. Care is needed in the design of these services, noting that while the use of flexibility or non-firmness usually provides a quicker and lower cost solution in the short term, there are many circumstances where the persistent use of flexibility will result in a more costly or restrictive solution for electricity customers over the longer term. Additionally, careful design is needed to avoid creating perverse incentives for artificial demand. This would result in unnecessary additional costs to consumers, and while technically this may result in a higher % of renewable energy consumed, it would not result in emissions reduction. Notwithstanding these considerations, we note that all of the proposals received in response to this consultation for "demand up" (or demand shifting) solutions represent useful and constructive uses of electricity generated which would contribute to emissions reduction, and in certain circumstances, also cost reduction.
	A representative body proposes payment based on both availability and utilisation while highlighting that the availability requirement is an additional cost barrier.	We can confirm that the inclusion of appropriate mechanisms to incentivise longer term availability is an area of focus in the Flexibility Market Plan, noting that both participants and the DSO will need a reasonable degree of certainty. Noting the feedback provided, in particular in cases where there is a lower certainty of utilisation, availability payments may prove an effective mechanism in achieving a viable and efficient solution.
	A representative body notes the importance of coordination in the Joint System Operator Programme to successfully deliver developments in demand side participation.	We can confirm that we recognise the importance of TSO-DSO coordination and are working in partnership with the TSO, including sharing our respective analyses and developing joint strategies through the Joint System Operators Work Programme. The pilots in relation to Future Arrangements and DSU instruction sets are key components of the programme.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market / product design considerations	On the interactions with DS3 System Services, a large utility requests clarity on whether provision of services in one of the markets would prevent provision in another market. Several stakeholders note the importance of consistency and coordination with other markets and the System Services Future Arrangements. Several stakeholders note the importance of close collaboration with the TSO and understanding key dependencies.	We can confirm that we recognise the importance of TSO-DSO coordination and are working in partnership with the TSO, including sharing our respective analyses and developing joint strategies through the Joint System Operators Work Programme. The pilots in relation to Future Arrangements and DSU instruction sets are key components of the programme. From ESB Networks' perspective, where it is technical feasible to meet its independent technical obligations in multiple (e.g. TSO and DSO) markets on a consistent basis, our intention is that a service provider should be able to provide services in multiple markets. Naturally there will be certain circumstances where a given asset may not be able to achieve this (for example, if the asset is subject to internal limitations on how frequently or for what duration it could increase/decrease its import/export). We are working closely with the TSO to define these conditions, providing greater clarity to the market on where they arise, and the options available where this is the case. There will also be many instances where the provision of services to support local system operations will also support transmission or SEM operations. We are working closely with the TSO to build coordination which cultivates and maximises the benefit of these opportunities, for all system users.
	A large utility proposes the use of an independent third-party market platform for both system operators (TSO and DSO). A vendor proposes an open-API structure that enables third party platforms to provide added value services.	In our role as DSO (independent of TSO), we can confirm that a range of solutions for market management are under consideration, including software, software as a service, and platform as a service offerings. Key considerations in this regard include cost effectiveness (upfront costs and ongoing support and maintenance), adaptation/ change management, hosting and cyber security, ability to support local technical conditions, market risks, lock in, costs for participants, transparency and repeatability. We are jointly exploring options for the exchange of operational and market data with the TSO. Noting the potential for significant cost and disruption for existing market participants, it will be important to develop an option which meets TSO, DSO and customer requirements in a proportionate and efficient manner. Finally, at this point in time, we are concerned that APIs (application programming interfaces) for DER communication may not offer a sufficiently secure channel for direct communication links interfaced to operational systems. However, APIs may have applications for non-critical functions of market systems.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market / product design considerations	A large utility suggests that the possibility of ESB Networks being scheduled last in the market and being a firmness price taker be considered.	We would like to clarify the role of the DSO, including with respect to flexibility services on the Irish distribution system. ESB Networks has statutory and license obligations require to develop and manage the network in a secure and efficient manner, and as a public good for all society. As such, ESB Networks' costs and pricing are fully regulated by the CRU, with return strictly regulated and capped, ensuring that solutions delivered by ESB Networks are limited to those which represent the least cost technically viable ones that meet all customers' needs. All Irish electricity customers have contributed to the development of an electricity distribution system, which new and existing customers frequently benefit from. As such, ESB Networks' role is neither as a price taker nor maker – ESB Networks role, as set out in statute and licences, is manage the network (and the firm or non-firm capacity available on it) in an efficient and secure manner that reflects the interests of all customers, as approved by the CRU. ESB Networks is not seeking to operate beyond this, nor is ESB Networks seeking any competitive role in flexibility markets. We want to support the development of an effective and liquid market for aggregation and energy management which supports customers' participation in flexibility on the distribution system. Article 32 of the Electricity Market Directive sets out that as distribution system operator and subject to approval of the CRU, we are responsible for establishing the specifications for the flexibility services procured and standardised market products for such services at least at national level, in a transparent and participatory process that includes all relevant system users and transmission system operators. This is what we are endeavouring to do at this time.
	A large utility suggests that flexibility service providers need to be able to stack revenues across multiple markets in order to economically justify investment.	We can confirm that care is being taken to design local flexibility markets (a new market opportunity) in a manner that is operationally compatible with other market arrangements, including existing market structures. Local flexibility requirements inherently differ from any other products or structures currently available in the Irish and all island markets. However, where possible we will seek to design an appropriate degree of alignment and compatibility to enable participants "stack" or earn revenue in multiple markets. As part of our Joint System Operators Workplan, we are working in partnership with the TSO to identify where stacking could be enabled and provide clarity to service providers accordingly.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market / product design considerations	A vendor proposes that ESB Networks could utilise market platforms to encourage secondary trading	We can confirm that this comment will be considered further in the definition phase of pilots within the piloting programme. However in the first instance, it is important to establish the necessary primary arrangements and obligations.
	A state body proposes attention to be paid to mitigating market power abuse in local flexibility zones given the programme's pay-as-bid proposal.	We welcome this feedback. Measures to protect against abuses of market power will be a key consideration and point for consultation in the next phase of development.
	A state body seeks clarity on the nature of services being provisioned and time varying economic signals.	As set out in the Phased Flexibility Market Plan, for the preliminary set of services introduced, scheduling will vary by product, from months ahead (Sustain), and days ahead (Secure) to minutes (Dynamic, Restore). The duration of response required will vary, but typically will be of the order of hours, and may be required a number of days in a row (pending weather or other conditions). The resolution for settlement purposes proposed is 15 minutes. Furthermore, the document sets out the proposed economic signal (i.e. rewarding availability or actual changes in demand) depending on the product in question. The Phased Flexibility Market Plan does not set out specific proposals in terms of time resolution. This will be a focus of future design and consultation activity. However it is likely that technological developments, customer behaviour and attitudes, and system needs will tend to favour a move towards higher resolution where appropriate.
	A large utility notes various market design considerations firstly around the allocation of balance responsibility.	We welcome this feedback and can confirm that these considerations will be the subject of growing focus and consultation in the next stage of design.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market signalling/ investor confidence	A vendor recommends sending clear signals and providing as much information to the market as possible. They believe this is key to getting flexibility markets started and can mitigate FSP concerns about participating in pilots. More specifically, a large utility proposes that the suite of flexibility products in terms of volumes, locations, scope, expected provider types and likely requirements in 2022 be shared with stakeholders. An SME (Energy) notes that price signals, particularly tariffs are needed to enable market to price flexibility.	We can confirm that insights from the UK, Northern Ireland, New York and New Zealand are being taken into account when considering how best to provide industry with a clear line of sight of the nature, volumes and timing of services needed. This will be the subject of increased consultation in the next phase of the programme. A key objective in publishing the 2030 Power System Requirements is to provide the market with a clear signal of the need for flexibility, by location and point in time, over the coming years. In early 2022 the full 2030 Power System Requirements document will be published and care will be taken to account for this feedback in the final publication. In terms of volumes, this document sets out the aggregate volume in MW required on a locational basis and year-on-year basis, and the volume of sub-locations where flexibility will be required. Details including projected volumes in terms of MWh or more granular kW/MW volumes required will be provided on a pilot-location basis throughout Releases 1 and 2 of the programme, both through the associated procurement processes and with the introduction of an annual flexibility statement to support the development of localised flexibility markets in locations where procurement is planned.
	A representative body asks to what level will details on the specific reinforcement costs be shared and whether ESB Networks would put a zone-specific price cap in place or publish a zone-by-zone budget.	In the PR5 determination and associated documentation available at Price Review 5 Electricity Networks - Commission for Regulation of Utilities (cru.ie) the CRU sets out: - The initial mechanism for funding flexibility through avoided reinforcement, based on the net present value of deferring investment beyond the horizon of the price review period. - The DSO's benchmarked unit costs which are used as the basis of costing each reinforcement project undertaken by the DSO. We are concerned that it would unduly impact price discovery and result in higher costs for electricity customers is specific budgeting costs were published on a scheme-by-scheme basis. However, we can confirm that the approach and costs used for piloting purposes is as set out by the CRU in the PR5 determination. Finally, we note that capital investment and flexibility are rarely fully directly comparable without analysis of other factors.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Market signalling/ investor confidence	A large utility is of the view that there is insufficient visibility of the cost of implementation and asks if the programme's costs can be captured within PR5.	The costs of the programme are as set out in the PR5 determination and potential future submissions within the agile investment framework, also as set out in the PR5 determination.
	A representative body and a large utility express concern on the two-year contract and pay as bid structure. A large utility proposes that consideration be made to long term contracts.	We welcome this feedback and can confirm that these concerns will be given due regard in the next phase of design and consultation. We note that the specific proposal for two-year contract durations relates to piloting only. As set out in the Phased Flexibility Market Plan (as relates to "long term market framework") we can confirm that we expect mechanisms to incentivise longer term availability of services will play an important role in providing greater certainty to the market, and to the electricity customer and DSO. The proposal for pay-as-bid is based on the PR5 mechanism for funding flexibility services from the net present value of deferred reinforcement so that the DUoS customer can share in the benefit of cost reduction over time. However it is proposed that price information will be published following procurement processes, in line with practice in the UK, to facilitate market based price discovery over time.
	A large utility proposes that flexibility products should have standard product descriptions.	We welcome this feedback and can confirm that the products proposed initially have been adopted based on the standard product descriptions developed in the UK through the ENA Open Networks Project. As products are developed further, and the market framework moves towards closer to real time procurement (where appropriate), we will seek to maintain an appropriate degree of standardisation of descriptions, to provide consistent and useful information about the parameters required in different locations and over time.
Network tariff reform	An SME (Energy) recommends that the market design aligns with the "Electricity Network Tariff Structure Review" which is currently underway.	The primary mechanism for the allocation of socialised costs is tariff design. Although tariff design is beyond the scope of this programme, we can confirm that we are working within ESB Networks to ensure alignment and complementarity where appropriate. We note that tariffs are applied across the customer base and typically drive collective and uniform behaviours everywhere. In contrast, flexibility services will seek to drive location specific behaviours, which may vary significantly from one location to the next. As such, it is not proposed to embed a uniform incentive for flexibility services in network tariffs, but rather to identify how to achieve aligned and complementary incentives in network tariffs and flexibility payments.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Non firm access	Several stakeholders address non firm access in their responses. Two representative bodies request that earlier pilots address non firm access. They note that these require no changes to existing markets and processes.	As set out above, in response to strong stakeholder feedback relating to piloting a wider range of non-firm access options, we propose the definition of a second non-firm access pilot in the scope of the programme, with a particular focus on supporting RESS-2 community projects. Notwithstanding this, we note that in itself distribution non-firm access will inevitably require systems changes, to ensure continued secure and efficient scheduling and dispatch processes, on the part of the DSO, TSO and SEMO.
	A large utility calls for the DSO to prioritise procuring flexibility services to make all participants firm over offering non firm access rather than reallocating savings associated with non firm access.	We can confirm that this was the original intent of the proposed market based arrangements in the RESS 1 Early Access pilot. However, based on the balance of feedback received, there was a significantly stronger mandate for simple bilateral arrangements for non-firm access, enabling lower cost and quicker connections for the generators involved. Notwithstanding this, the introduction of remunerated flexibility services to increase the firmness of non-firm generators remains an option available for inclusion in the consultative definition phase of all subsequent pilots.
	A large utility notes that the treatment of priority dispatch / re-dispatch is not decided by the regulatory authorities and could have an impact on the programme.	We can confirm that we are working closely with the regulatory authorities to ensure that the relevant legal and regulatory requirements are appropriately accounted for as they are developed.
Observable and measurable products	A representative body notes the challenge for demand response in baselining usage to calculate response provided and that the ENA Open Networks Project has done useful work in this regard.	We welcome this feedback and can confirm that as a member of the ENA and increasingly active participants Open Networks working groups, that the learnings and best practices developed are being accounated for in programme design. In the updated Phased Flexibility Market plan, additional detail regarding baselining based on international practice is provided. Additionally, the development and testing of baselining approaches will be accounted for in the consultative definition phase of the relevant pilots in the piloting programme, and we would welcome further specific proposals or insights which industry can provide in this regard.

PHASED FLEXIBILITY MARKET DEVELOPMENT PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Piloting - community participation	An SME (Energy) is of the view that the piloting roadmap should include structures for community/peer to peer sharing of self-generation.	We can confirm that the programme will seek to introduce solutions for localised coordination and trading, where all customers (including within and between communities) can participate, to enable increased renewable production and consumption at a more local level. We note that there are a breadth of peer-to-peer models and interpretations of the term. However, we can confirm that the objectives of peer-to-peer models with respect to facilitating localised and community based energy coordination and "sharing" will be a core focus within the programme.

FLEXIBILITY MULTI-YEAR PLAN		
THEME	**FEEDBACK RECEIVED**	**ESB NETWORKS' RESPONSE**
Pace & scale	A representative body welcomes the proposed timeline for the Flexibility Multiyear Plan and notes that industry support is likely to be dependent on the successful delivery of the Flexibility Milestone Plan, according to the proposed timeline.	We welcome this feedback which is reflected in the formal proposal set out to the CRU in the core paper to which this document is appended.
	A representative body encourages ESB Networks to explore the possibility of a more rapid roll-out of initiatives, to support accelerating the energy transition.	We welcome this feedback which is reflected in the formal proposal submitted to the CRU to take a adaptive approach to the programme, to deliver the right pace while maintaining the ability adjust course over the life of the programme. As each major pilot or initiative is mobilised, its consultative definition phase can consider the speed of rollout (and stakeholders' appetite for the associated trade offs) on an initiative-specific basis throughout the life of the programme.
Programme procurement & funding	A large utility asks whether it is to be assumed that the value of establishing the initial framework would come within €16.9m opex or that additional funding will also be required.	In the PR5 determination and associated documentation available at Price Review 5 Electricity Networks - Commission for Regulation of Utilities (cru.ie) the CRU sets out that: - €16.9m of operational expenditure is available with respect to the deferral of €60m of capital investment project through the use of flexibility services; - a mechanism for funding further flexibility schemes in excess of this based on the net present value of the associated investment deferral. As such, additional funding beyond the €16.9m is available to the extent that flexibility services which can effectively enable the avoidance or deferral of reinforcement projects in excess of €60m of reinforcement within the PR5 period.
Scorecard Impact Assessment	An SME (Energy) agrees that education and awareness should be counted in scorecard impact assessment.	We welcome this feedback and can confirm that it is consistent with our proposal for how the impact of the programme is measured within the balanced scorecard approach.