DSO/TSO Multi-Year Plan 2023 – 2027

Joint System Operator Programme

Summary of Responses Received to Consultation

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EirGrid ESB NETWORKS

Contents

1. Executive Summary

In February 2023, ESB Networks and EirGrid published a joint programme of work[1] for public consultation. The published document was prepared by the System Operators (SOs) for consideration by stakeholders to align with the requirements in CRU/20/154 (PR5 Regulatory Framework Incentives and Reporting).

Contained in the document was a multi-year plan to be delivered in partnership, to further develop the electricity system and its secure and reliable operation. The proposals included a detailed 3-year plan for 2023-2025 and a high-level plan for 2026-2027. The proposed joint programme of work was underpinned by the need to enhance current and future TSO-DSO working arrangements, collaboratively supporting, and enabling, the transition to Ireland's ambitious targets for renewable electricity and electrification of heat and transport.

Following closure of the public consultation on 10 March 2023, and in response to the feedback received, ESB Networks and EirGrid are now jointly publishing this detailed consultation response, acknowledging, and reflecting on, the full range of respondents' feedback. A revised multi-year plan was submitted to the CRU in May 2023. The below response outlines the System Operators' proposed next steps to address the immediate, actionable feedback that was within the scope of Multi-Year Work Plan in response to the feedback received. In addition, the system operators have acknowledged less immediate feedback contained in the responses received and addressed these in this document. Some comments received are outside the scope of the consultation. As a result, these comments have not been addressed in this response document.

The full range of respondents' feedback has been grouped, themed and summarised in subsequent sections, structured as follows:

- Feedback Received on Stakeholder Engagement
- Feedback Received on Whole-of-System Approach
- Feedback Received on Facilitating New Technology
- Feedback Received on Reducing Dispatch Down of Renewable Generation
- Feedback Received on Improving a Secure Future Power System

[1] https://www.eirgridgroup.com/site-files/library/EirGrid/Multi-year_DSO-TSO_WorkPlanCovering2023-2027.pdf

https://www.esbnetworks.ie/docs/default-source/publications/esb-eirgrid_multi-year_dsotsoworkplancovering2023-2027_jan2023_v5.pdf?sfvrsn=4d9e00da_11

- Feedback Received on Additional Activities
- Feedback Received on Balanced Scorecard Proposal

We would like to take this opportunity to thank – and acknowledge the participation and inputs from stakeholders at the joint round table discussion held on the 2nd March 2023. We would also like to acknowledge and thank the written input and constructive feedback received from the three consultation respondents as follows: (i) Bord Gáis Energy, (ii) SSE, and (iii) FuturEnergy Ireland. We welcome the positive feedback and engagement contained in the responses and note the specific points to be addressed.

Joint System Operator Programme Overview

The Joint System Operator Programme was established by the TSO and DSO in 2021 to ensure that the system operators are working together in a collaborative and effective manner to jointly address electricity system needs and deliver whole of system solutions.

The programme objectives are:

1. Support societal and economic growth in a sustainable and secure manner, consistent with our license obligations, through further development of the transmission and distribution systems;
2. Support the delivery of Ireland's 2030 and longer-term climate and energy policy objectives through collaboration between the TSO and DSO;
3. Address the Commission for Regulation of Utilities' (CRU) objectives for TSO/DSO coordination as set out below:
    - The management of dispatch down and curtailment.
    - Addressing security of supply and constraint management especially in the Dublin region.
    - A whole of system approach to the optimisation and meeting of system and customer needs.
    - Jointly developing effective processes for the deployment of new technology on the grid and in operations.

To meet the ambition of the Climate Action Plan – and any future increased ambition – the TSO and DSO will need to work in collaboration with market participants, overcome various challenges and develop new sources of system services on the transmission and distribution systems; this will help to ensure an efficient use of the network by maximising its utilisation while improving its resilience and robustness. To solve the challenges that will present themselves and secure the necessary services, both the TSO and DSO are committed to working in partnership to ensure that the end customer will continue to receive a high quality, and reliable, supply of electricity.

This joint programme of work addresses the points where both organisations have identified that a whole-of-system, or joint, approach is needed to further enable the development of the electricity system through our respective work programmes, in our respective roles. The plan reflects areas where the TSO and DSO must work in partnership to enable new technologies (on the transmission and distribution systems) participate in new solutions, apply whole-of-system approaches to resolving

system needs, and work collaboratively to reduce dispatch down of renewable generation and improve security of supply.

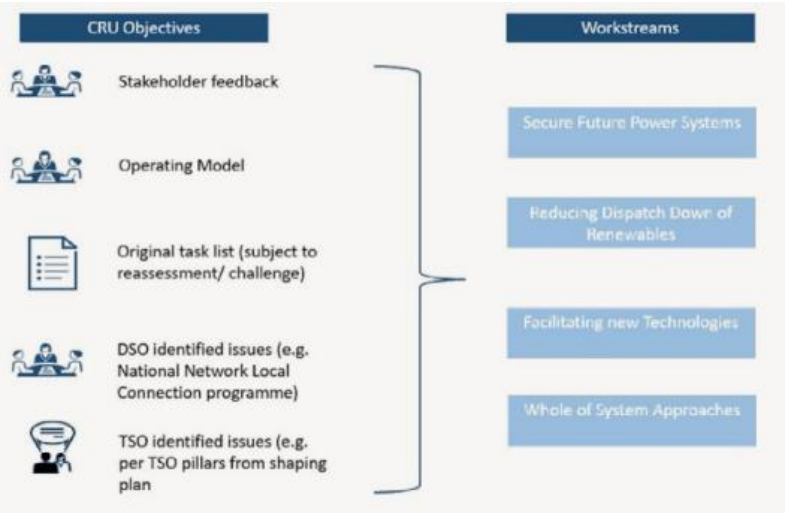

Figure 1: Components fed into the development of the DSO/TSO Multi-Year Plan

A variety of components fed into the development of the multi-year DSO/TSO work plan 2023-2027, including the (i) Climate Action Plan 2019, (ii) regulatory framework as set out under PR5, (iii) legal and policy framework at an EU and Irish level, and (iv) regular engagement with our stakeholders. Based on initial feedback, we consolidated objectives set out by the CRU for TSO/DSO coordination into four workstreams, focused on four core outcomes.

The proposed approach within the plan is an iterative one, allowing us to learn what works and what needs to be adapted. We will endeavour to pilot activities with our customers and communities early and often in the programme. We will adapt the multi-year plan in response to changing customer needs, changes in technology maturity, stakeholder input and pilot learnings.

Customer participation and engagement will be a critical component to ensure that pilots and activities deliver enduring outcomes. We will engage actively with our customers, industry and community stakeholders to ensure that we address barriers to entry and shape incentives to maximise participation within the limits of our funding.

The DSO/TSO Multi-Year Plan focuses specifically on the interaction between both system operators. Additionally, both EirGrid and ESB Networks are working independently to deliver on major capital projects and the remediation of system constraints.

The initiatives contained within each workstream focus on the points where TSO-DSO coordination is vital. Each organisation will have its own unique initiatives under the different licence obligations, which will progress in parallel with this programme and, in many instances, interact with it.

2. Feedback Received on Stakeholder Engagement

Many respondents have requested additional stakeholder engagement, and the system operators recognise this need to engage with stakeholders, and communicate to industry, on a regular basis. Below, we have summarised the feedback received and set out how we propose to address the key points raised.

Feedback Received	System Operators' Response
We ask also that a clear plan on collaboration and interaction between the TSO and DSO is included to deliver an efficient system services market.	Both EirGrid and ESB Networks are engaging regularly to progress the activities outlined in the work plan. The system operators are working together to design a high-level operating model that will demonstrate the plan of interaction between the two system operators including for system services. EirGrid and ESB Networks will communicate the details of the future operating model once it is finalised.
We ask that the Plan provides precision for aggregation service providers (who participate on behalf of consumers) as to the engagement routes and mechanisms available, and clarity that the competitive procurement boundary to consumers (via suppliers, aggregators, and intermediaries) will be maintained. (...) Direct procurement from consumers by the System Operators should not be permitted or enabled given the competition concerns this would raise.	The current workplan requires a review of the alignment of aggregation structures for both transmission and distribution services. Recognising that future services require new forms of aggregation, the aggregation reviews consider suitable aggregation structures for participants. The finalisation of the aggregation structure paper is dependent on the completion of the high-level operating model. This has been updated in the revised TSO-DSO Consultation Response document to highlight the key dependency.
The upcoming planned pilots must also endeavour to resolve any issues found promptly and include engagement with the industry on potential routes to overcome barriers and provide stakeholder feedback.	The System Operators will provide updates to stakeholders at industry round table sessions. The system operators remain committed to regular engagement with participants. The TSO/DSO coordination on the pilots is dependent on the operating model.
We would recommend that once the Pilots indicated (1, 2, 3a,3b etc) are live that high-level updates on participation and progress are provided through industry engagement to show progress and build knowledge of emerging learning. The final outcomes and learnings from these pilots should be individually published for the sake of transparency.	

It is also noted that there is very little engagement planned from the TSO-DSO work plan on reducing dispatch down, the only consultation being in pilot 4 on RESS 1 Early Access.	Reducing Dispatch Down (RDD) is a long-term initiative from of which the benefits will take several years to be realised.
We support this stream, and we encourage the TSO and DSO to continue working together but would advocate for strong engagement with the industry on the assessment of risks and opportunities posed to secure system operation from new technologies and behind-the-meter customer assets (...) help to drive investment to ensure a robust and efficient technology mix is in place for the 2030 power system.	We recognise the need to engage with stakeholders, and communicate to industry, on a regular basis. In this regard, we have proposed to the CRU that we will coordinate a to-be-agreed cadence of stakeholder checkpoints. Where possible, we will leverage existing forums – for example, the National Network, Location Connections Consultative Stakeholder Group and the Shaping Our Electricity Future Advisory Council. In addition, as required, we will organise standalone events (jointly hosted by the system operators) dedicated to Joint System Operator Programme stakeholder engagement. Section 2.4 of the Multi-Year Plan outlines a number of engagement checkpoints for 2023.
We believe that this workstream [SFPS] could be improved by a considered and consistent engagement with stakeholders, participants, and investors on the projected changes to the power system.	

3. Feedback Received on Whole-of-System Approach

As part of the Joint System Operator Programme work plan, one of the key objectives is the development of a whole-of-system approach to system operation between the TSO and DSO.

This Joint System Operator workstream focuses on optimising the system as a whole rather than focusing on the transmission and distribution systems in isolation. Improved co-ordination between the DSO and TSO is important to deliver more efficient markets and a more resilient system.

Key areas identified for co-ordination in this workstream include operational visibility and monitoring of respective network conditions, co-operation on forecasting of generation and demand, and operational compatibility of respective system and local services in terms of planning, scheduling, dispatch and re-dispatch.

Stakeholders' input is important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to the development of a whole-of-system approach to system operation, we asked:

What are stakeholders' views on the proposed joint activities within the proposed work programme for whole-of-system approach?

Theme	Feedback Received	System Operators' Response
Future Operating Model	We welcome the timelines provided and note with interest the milestone of achieving the Vision /Principles of the Whole of System (WOS) High-level design at the start of this year. It would be good to share more detail on this with the industry and updates to this as outlined at the start of H2 2023. (...) This must be continuously treated as a high-priority task.	The development of the future operating model is treated as a high priority task and is a key focus for the system operators. As noted in section 2.4 of the TSO-DSO Multi-Year Plan, both system operators are planning to conduct a standalone targeted joint stakeholder engagement exercise (workshop, roundtable or information session, as appropriate) with a focus on progress in the development, and shaping, of the future DSO-TSO operating model.
	The interdependencies of WOS2/4 on WOS1 need to be more clearly visible in future communications.	The system operators agree on the interdependencies between those tasks. The interdependencies have been listed in section 3 of the revised plan.
Market/ Operations Framework	Clarity could be given in terms of how these (new protocols to be adhered to by market participants)	The TSO-DSO Operating Model High Level Design is currently being agreed between Systems Operators.

development, co-ordination of constraints & review alignment of aggregation structures for transmission & distribution services	can be followed through workshops and continuous consultations. High administrative costs associated with implementing this can be avoided by simplifying the regulatory processes.	Once this is completed, the TSO and DSO commit to engaging with industry stakeholders.
	We would like to better understand what tests would be applied in WOS4 to ensure "equitable" application. We understand that this would be dependent on the appropriate regulatory decisions and the CRU.	Ancillary services can be provided for the DSO or TSO to ensure that the grid is operated in a reliable and secure way. In order to create value to all parties involved, system operators need to have a coordination mechanism in place. Those mechanisms are to be tested and approved by the regulator. WOS4 is also dependent on the TSO-DSO Operating Model. The Multi-Year Plan has been updated to highlight this dependency.
	We ask that the implementation of WOS4 is given the highest emphasis for the earliest possible delivery as it can impact both the TSO's 6-step grid development process and the DSO's National Networks Local Connections pilot's programme.	We acknowledge that developing the future operating model (WOS1 task) is the primary priority for systems operators. WOS4 task is a key dependency of this task. We do not envisage explicit links between WOS4 completion and the TSO's 6-step grid development.
Data Exchange & System Configuration	Greater clarity to be provided to the industry as to whether these data exchange developments could also include increased data exchange requirements for distributed energy resource operators and market participants.	TSO and DSO will consider which data exchanges are relevant to the future TSO-DSO operating model.
Future Arrangements – Distribution connected customer	The timeline outlined for Future Arrangements - Distribution Connected customers is very high level, no milestones are identified between 2023-2027. Enabling demand side participation in system service provision and ensuring that system service procurement for both types of frequency risk (over frequency and under frequency) is enabled for distribution connected customers earlier than 2027 will be critical to mitigating high redispatch and imperfections costs. We would ask that much greater clarity on this aspect is provided.	We acknowledge that more clarity is requested, and it will be considered as part of the workstream execution. The details of the tasks are dependent on regulatory decisions and will be refined once made available. The system operators have voluntarily chosen a long-term approach in the meantime.

	It is not clear whether some of the work outlined on WOS4 relating to providing the ability to offer services to DSO and TSO by 2024 overlaps or conflicts with WOS5. There also appears to be an overlap with FNT6 DSO Pilot Future arrangements, perhaps an amalgamation of these workstreams is warranted or at least a reference to interactivity between these.	We acknowledge the overlap between FNT6 and WOS5. In future years, we will consider streamlining these tasks.
	The Plan needs to demonstrate the aim and/ or impact of more joint SO actions against specific situations and not just against the set of coordinating activities in the current draft - the impact of significant capital infrastructure projects against the congested and constrained nature of the grid (A prime example of this is the connection of the Greenlink and Celtic interconnectors) the Plan should clarify the actions being taken to ensure the arrival of the extra power in the region does not negatively impact grid users in this region	In its SOEF and Operational Policy Roadmap, the TSO has outlined a set of measures to address the impact of these significant infrastructure projects. A more coordinated effort between DSO and TSO might be considered/emphasised in these plans, where appropriate. Quarterly policy updates, as outlined in section 3 of the TSO-DSO Multi-Year Plan provide an opportunity for both system operators to explore the technical impact of proposed changes to operational policy and consider the respective impacts on customers and system operations in each other's organisation

4. Feedback Received on Facilitating New Technology

The widespread adoption of low-carbon technologies in the period to 2030 offers the potential for customers to become more engaged with the electricity system and highlights the importance of these new technologies in meeting these targets. These technologies could play a role in providing the demand side flexibility needed to manage the distribution and transmission systems in a secure, reliable, and cost-effective manner into the future. Additionally, coordination between different technologies, for example battery, wind, and solar generation, in hybrid arrangements has the potential to derive greater value from existing network infrastructure.

To realise this potential, processes, and systems to support the co-ordination of transmission and distribution operations and markets are needed. The TSO-DSO Joint System Operator Programme will build and develop these processes and systems, actively progressing cooperative solutions through the pilot programmes being led by the DSO or the TSO over the life of this programme.

Both System Operators are looking to pilot new technologies and processes and facilitate the integration of new technologies. Both System Operators will work together to enable hybrid connections and support arrangements to optimise the use of existing infrastructure.

Stakeholders' input is important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to facilitating the adoption of new technology, we asked:

What are stakeholders' views on the proposed joint activities within the proposed work programme for facilitating new technology?

Theme	Feedback Received	System Operators' Response
Qualification Trial Process	Under FNT1 greater visibility of the previous Qualification trial process (QTP) learnings and outcomes should be made visible on the EirGrid website, and clarity should be provided on where the learnings from these trials have driven or will drive change (with associated timescales) in TSO processes, as this is currently lacking.	At the end of each trial EirGrid publishes a learning and outcomes report, which outlines key outcomes of the trial and recommendations for the next stages of the trial. These reports have been published on the EU SysFlex website here https://eu-sysflex.com/documents/ Please see WP4.
	In advance of decision-making on the focus areas for forthcoming QTP rounds industry input should be sought and learnings from other	At the end of the previous QTP, there was a "Call for information" that was sent out to industry. Feedback received from industry has

	network operators investigating similar challenges should be examined and built upon.	been incorporated into the planning process for this year's QTP.
Hybrid Technology	The respondent welcomes the annual call for potential projects, especially hybrid projects (...) These should be supported through swift decisions made in the tasks FNT7, FNT8, and FNT9 on Multiple Legal Entity (MLE), over-install, and Dynamic sharing of Maximum Export Capacity (MEC) respectively. We understand that recommendations have been sent by the DSO and/or TSO to the CRU on these topics. Sluggish decision-making on this can have an impact on future investment in this area as other countries in the region have already made progress here. There has been little indication of an actual "go-live" date on policies on Hybrids. In particular, we are interested in a speedy decision on the over-install and the MEC policies. Where possible, there should be an endeavour to bring timelines forward on the delivery of policy decisions.	CRU is consulting on this matter in 2023. In 2022 the TSO and DSO jointly developed and submitted an Over Install Recommendations paper and Multiple Legal Entities Proposed Contractual Approach paper to the CRU. The SOs also jointly developed a Technical Assessment of Options for Sharing MEC behind a Single Connection Point which was submitted to CRU in January 2023. The SOs have had engagement with CRU since the submission of these documents and are now waiting on regulatory feedback/decisions. In advance of this, the TSO is currently planning next steps on how it can progress these workstreams forward in a timely manner. Both system operators are committed to investing in hybrids in 2023. A balanced scorecard task has been added to the TSO-DSO Multi-Year Plan, the details of which are to be developed following the CRU decision on hybrids, which is expected to be published in 2023.
	One area that needs more focus is that of here is that of dynamic MIC for battery storage. It should be possible to charge an energy storage facility with an MIC that is 100% of its MEC. We understand that TSO and DSO may need to carry out further system analysis to allow this, but we believe allowing some form of dynamic MIC should be achievable in the short term, particularly when there is high wind or high network constraints in an area with a battery along with average to low load scenarios.	The SO's are currently investigating a number of questions and areas regarding batteries. The SOs will provide further clarity once positions on this technology are fully understood. Batteries are being progressed through the normal connection process with holding positions for some matters such as MIC and MEC as these matters depend on system conditions. Offers have until now been issued with limited MIC on most batteries as we were concerned of the operational impact of the charging on the wider system, and this will continue until the SOs have reached a position. As Operational Policy develops along

		with an understanding of how batteries operate on the system, access to larger MIC's will become possible. It should also be understood that this technology is a complement to the other technologies that we need to meet the CAP 23 targets and as such its implementation needs careful considerations.

5. Feedback Received on Reducing Dispatch Down

Renewable generation may be dispatched down at times to manage local transmission or distribution system constraints and/or curtailed at times to manage system-wide limits. Over the coming years, there will be a growing risk of localised or system-wide over supply of renewable generation, which will lead to a growing need to dispatch down. Minimising this dispatch down of renewable generation is critical to ensuring the efficient use of renewable generation and achieving renewable energy targets in an economic manner.

Ensuring the appropriate transmission and distribution infrastructure build-out to minimise constraints is a key planning activity for both the TSO and DSO. Evolving operational policies in areas such as the System Non-Synchronous Penetration (SNSP) limit and Rate of Change of Frequency (RoCoF) limit to reduce curtailment are a focus for the TSO. These are ongoing activities for the TSO and DSO in seeking to reduce the dispatch down of renewable generation.

In terms of this joint TSO-DSO work plan, there are initiatives across workstreams that will contribute to reducing dispatch down of renewables. For example, in the Whole-of-System Approach workstream, the TSO and DSO will examine processes, interfaces and data exchange to enhance the communication between both control centres and thus reduce the overall need to dispatch down. Another example is in the work to enable hybrids and trial other generation sources as part of the Facilitating New Technology and System Services workstream, which should also facilitate reducing dispatch down of renewables.

Stakeholders' input is important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to reducing dispatch down of renewable generation, we asked:

What are stakeholders' views on the proposed joint activities within the proposed work programme for reducing dispatch down of renewable generation?

Theme	Feedback Received	System Operators' Response
Developing DER visibility, forecasting and modelling Improved forecasting for wind and solar	Integrating learning from other jurisdictions in their implementation of dispatchable demand could help the development of faster adoption and adaptation of such initiatives. However, the timescales on these tasks seem to be slow, with gaps only being identified in 2023, and tests only being run in 2025. While it is advantageous to see the promise of enhanced forecasting it would be beneficial for the industry to see greater visibility of individual milestones in this regard. (...) Additional resources should be pooled into this task to speed up the process.	During the year of 2023 an operational due diligence exercise is to be executed to identify not only gaps but also new capabilities for DER visibility, forecasting and modelling. A benchmark exercise is to be performed, aiming to address what are the current industry practices for DER visibility, forecasting and modelling and which aspects the system operators should focus on. The task's workstream is actively engaging with international research to learn from the experiences in other jurisdictions and to ensure this is considered. This task has a high dependency on the TSO-DSO operating model; however, the TSO and DSO will work together to speed up the enhancements of forecasting capabilities.
	Utilising learning developed by TSOs in other jurisdictions should be incorporated into these areas of the work programme.	
	Increased ability to forecast demand should also become a priority alongside the development of dispatchable demand. It will be critical to have a coordinated TSO and DSO focus on the enablement of accurate forecasting of this increased load. (...)we also are advocating the clear societal and public awareness benefits of enabling demand-side flexibility to maximise the use of our indigenous renewable resources.	Demand and generation forecasts are already included in this scope of work through the consideration of flexible demand (EVs, heat pumps and embedded generation) as part of the DERs. One of the outputs of this task (RDD1&2) is to explore the existing status on the network monitoring and planning tools to improve the accuracy of forecasting for all parties involved (DSO, TSO, suppliers).
Development of reactive power management HLD in line with Operating Model	We welcome the development of a Reactive power management High-level Design that can help reduce the dispatch down of renewables, a faster implementation of this could help alleviate some short-term pressures.	The system operators appreciate the feedback. Timeframes in the plan have been established to account for existing priorities.

Pilot 4 – RESS 1 Early Access	Could you please provide more information on the expected outcomes for RDD6 DSO Pilot 4 (Renewables Flexible Access). It is also named Pilot 4 - RESS 1 Early Access. Will it provide flexible access to all generators or just RESS 1 generators? What will flexible access look like?	*P*ilot 4 (or Pilot 4A/4B) is intended to avoid the need for deep connection work or significant shallow work on the distribution system to allow RESS-1 and RESS-2 projects to connect (whenever possible) through flexible connection offers using non-Firm access. The activation of this managed flexible connection on the distribution system is to be used during periods of transformer outages on the network and this will allow facilitation of faster renewables connections. RDD6 aim is to manage these types of connections while considering the impacts it would have on the TSO, as the grid needs to be managed from both ends. To achieve this, we will need communication systems to ensure data exchange between the two systems operators. Pilot 4 is expected to scale if first outcomes are positive. In this situation, customers would be able to choose between a firm or a managed connection of their generation to the distribution system – it is expected that RDD 6 will cover everything that the DSO has the capability to manage.”
	The respondent expects that dispatch down will increase in the coming years, and the programmes mentioned here will go some way to preventing this, but more needs to be done more quickly, to reduce constraints and curtailments arising from oversupply.	The system operators appreciate the feedback. Timeframes in the plan have been established to account for existing priorities. The DSO/TSO Multi-Year Plan focuses specifically on the interaction between both system operators over the next five years. Additionally, both EirGrid and ESB Networks are working independently to deliver on major capital projects and the remediation of system constraints. The TSO is also working to reduce curtailment through its

		Shaping Our Electricity Future programme.
	As all of the tasks in this work plan will only have an impact from 2025 onwards, there is nothing that helps alleviate the pressure on dispatch down in the short run. We would like to see a greater level of detail and milestones outlined in this section of the TSO/DSO work programme to enable the most efficient use of renewable energy and mitigate security of supply concerns as well as reduce barriers to the decarbonisation of other sectors.	The system operators appreciate the feedback. Timeframes in the plan have been established to account for existing priorities. The level of detail provided is consistent with other areas of the plan.

6. Feedback Received on Improving a Secure Future Power System

This workstream's objective is to address the long-term challenges and leverage the opportunities created by high renewables penetrations; high volumes of distributed energy resources (DER) and; widespread demand side flexibility.

This plan addresses the medium to longer term issues associated with secure future power system operations for the five-year period of PR5. This Multi-Year Plan reflects that both EirGrid and ESB Networks will continue to work together to manage more acute and shorter terms security of supply needs.

As required in the balanced scorecard for 2022, we believe this approach best demonstrates the TSO and DSO collaborating with each other. The TSO and DSO will document the collaborative steps taken to improve the outcome for market participants for long-term and shorter-term security of supply concerns. The focus initially will be to identify the longer-term operational requirements and to prepare to address these in order to maintain security of supply in the context of changing characteristics of the transmission-distribution interface and the demand supplied by the power system.

To ensure that we have the capability to securely manage this transition, we need to fully understand the characteristic of how these technologies will interact with system operation, including consideration of their protection, their dynamic response, and how they are embedded across the system. We also need to ensure that our mechanisms to manage and recover from security of supply events are adapted to these new demand characteristics and capabilities.

In the short to medium term, the system adequacy position in Ireland will be challenging. The system operators are working with CRU and Department of the Environment, Climate and Communications (DECC) on a wider security of supply programme across a range of areas to manage this nearer term challenge, whereas this Secure Future Power System work programme is focused on long term coordination for a secure system. It is focusing on ensuring a secure transition and on managing security of supply events. Stakeholders' input is important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to maintaining and managing the security of supply, we asked:

What are stakeholders' views on the proposed joint activities within the proposed work programme for improving a secure future power system?

Theme	Feedback Received	System Operators' Response
Secure Future Power System	We ask that the Secure Future Power System workstream include a long-term view on the actions needed to manage the transition of the power system securely and efficiently. This can include future market design, requirements for new technologies (e.g., Low Carbon Inertia Systems, long duration 4hour+ batteries), and the competitive procurement arrangements for capacity and services across the networks.	EirGrid and ESB Networks have updated the title of the "Secure Future Power System" workstream in 2023 to reflect the focus of both system operators on long-term security of the power system and distinguish it from the CRU's Security of Electricity Supply Programme. The plan also reflects that both EirGrid and ESB Networks will continue to work together to manage more acute and shorter terms security of supply needs, as highlighted in FNT10. Both system operators continue to work independently on programmes such as Shaping of Electricity Future (SOEF) and NNLC. These programmes consider the market design, technology requirements and procurement arrangements for the technologies listed by the respondent.

7. Feedback Received on Additional Activities

The Joint System Operator Programme work plan reflects identified areas where the TSO and DSO must work in partnership to enable new technology on the transmission and distribution systems participate in new solutions, apply whole-of-system approaches to resolving system needs, and work collaboratively to reduce dispatch down of renewable generation and improve security of supply.

A variety of components have fed into the development of the TSO-DSO 2023-2027 work plan. This includes the national Climate Action Plan, the regulatory framework including as set out under PR5, the legal and policy framework at an EU and Irish level, and regular engagement with our stakeholders. We recognise, however, that there may be additional activities overlooked that could be brought into scope of the multi-year plan.

Stakeholders' input is important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to identifying additional activities that could be considered for the scope of the multi-year plan, we asked:

Are there other activities that stakeholders believe that the DSO and TSO should be jointly working together on during the term of the multi-year plan, in particular considering the 2026/2027 timeframe?

Feedback Received	System Operators' Response
Need for the speedy delivery of the hybrid policy for Ireland (MEC and over-install), and an increased focus on forecasting accuracy and the enablement of demand-side flexibility at all scales of demand connections.	The system operators jointly developed a Technical Assessment of Options for Sharing MEC behind a Single Connection Point which was submitted to the CRU in early January 2023. The system operators have had engagement with the CRU since the submission of these documents and are now waiting on regulatory feedback/decisions. In advance of this, the TSO is currently planning next steps on how it can progress these workstreams forward in a timely manner. DER forecasting has a high dependency on the TSO-DSO operating model; however, the TSO and DSO will work together to speed up the enhancements of forecasting capabilities. The system operators are working independently to deliver on demand-side flexibility at all scales of demand connections. Furthermore, the system operators are awaiting feedback from CRU on dynamic MEC for hybrids, following public consultation the system

	operators have included a new task in the scorecards titled “Placeholder - follow up milestone on hybrids, dependent on CRU feedback”. This demonstrates the commitment of system operators to hybrids as part of this plan.
The Plan should be clearer as to how the SOs propose to coordinate, or what steps are planned, around mitigating, and preventing market inefficiencies that are largely driven by congestion or constraint issue	Following consultation of the TSO-DSO Multi-Year Plan 2023 - 2027, the system operators have updated section 2.4 on industry participation and engagement to include “The system operators will conduct a standalone targeted joint stakeholder engagement exercise (workshop, roundtable or information session, as appropriate); with a focus on progress in the development, and shaping, of the future DSO-TSO operating model. This will also discuss how the DSO/TSO co-ordination of constraints will be managed via the future DSO/TSO operating model.” Additionally, the TSO and DSO have separate workplans that work towards alleviating constraints. In its SOEF and Operational Policy Roadmap, the TSO have outlined a set of measures to alleviate the network constraints and curtailment. As part of the NNLC Programme, the DSO is running a series of pilots looking at alleviating system constraints with a more coordinated effort between DSO and TSO. The system operators are working towards limiting constraints together, but this has a dependency on the TSO-DSO Operating Model.
Provide precision for aggregation service providers as to the engagement routes and mechanisms available, and clarity that the competitive procurement boundary to consumers will be maintained.	The current workplan requires a review of the alignment of aggregation structures for both transmission and distribution services. Recognising that future services require new forms of aggregation, the aggregation reviews consider suitable aggregation structures for participants. The finalisation of the aggregation structure paper is dependent on the completion of the high-level operating model. This has been updated in the revised TSO-DSO Consultation Response document to highlight the key dependency.

8. Feedback Received on Balanced Scorecard Proposal

As part of the regulatory framework outlined in the CRU's PR5 Regulatory Framework, Incentives and Reporting Decision (CRU/20/154), the CRU has introduced an annual balanced scorecard on Joint TSO/DSO coordination.

The CRU has mandated that the SOs shall submit to the regulator – aligning with their consultation with stakeholders – a detailed multi-year plan covering the three following years (and the two years after at high level). In the multi-year plans, the SOs will set out their planned activities to enable deployment of new technology, which will account for technical scarcities or challenges identified by the DSO and/or TSO. Based on the submission, the CRU will decide, by year-end, on the milestones, deliverable targets, and weightings for the following year. This second multi-year plan covers 2023 to 2025, as well as 2026 and 2027 at high level.

In assessing the outcome of performance, the CRU will consider the following criteria:

- The quality of the plan and actions (20%)
- The quality of implementation (40%)
- The effectiveness of the plan and demonstrable actions (40%)

The assessment will be informed by an independent audit to be procured by TSO/DSO as part of the overall process.

Stakeholders' input is incredibly important to ESB Networks and EirGrid and, thus, we sought your views on the tasks and activities set out in this document. With respect to the balanced scorecard proposal, we asked:

What are the stakeholder's views on the proposed balanced scorecard for calendar year 2023?

Feedback Received	System Operators' Response
Several tasks set out have dependencies on the HLD model being defined and agreed upon, and this should be prioritised.	The High-Level design, task WOS1, is the main priority for both System Operators.
It is not clear if each task has an equal weightage in the balanced scorecard. If this is the case, then there is a possibility that the final score will not adequately represent the actual level of progress, but be based on a checklist-style system,	Each item is not assigned a specific numerical weighting however, some tasks are prerequisite for others. It is the System Operators' intent to put more focus and intention on tasks that are of higher priority.

leading to inefficiencies in the final score.	
More focus should be given to those milestones that seek to address constraint alleviation, increased levels of renewable generation/ decarbonisation, improved market efficiencies, competitive services procurement, and reductions of the cost burden to consumers. We propose that weightings for these milestones are increased.	Each item is not assigned a specific numerical weighting however, some tasks are prerequisite for others. It is the System Operators' intent to put more focus and intention on tasks that are of higher priority. The DSO/TSO Multi-Year Plan focuses specifically on the interaction between both system operators. Additionally, both EirGrid and ESB Networks have separate workplans that work towards alleviating constraints.
The capabilities targets outlined are high level so this may make it difficult to measure performance or make it very subjective and make achieving an upside relatively easy.	An independent audit will be conducted on the self-assessed outcomes of the System Operators' performance against the plan. The audit will inform a further decision by the CRU on the system operators' performance.
We do not agree with the measurement criteria of the quality of the implementation of the plan. We believe that the "financially neutral" point should be increased to 60% of the plan completed and that the 100% upside is set at >95% of plan completed The PR5 incentive is to drive efficiencies.	The PR5 and annual balanced scorecard is published by the CRU outlines and sets the scoring process. Please refer to CRU 20/154 and the subsequent Balanced Scorecard information notes published by CRU.