ESB NETWORKS

NATIONAL NETWORK LOCAL CONNECTIONS PROGRAMME

15-20% Flexible System Demand Strategy

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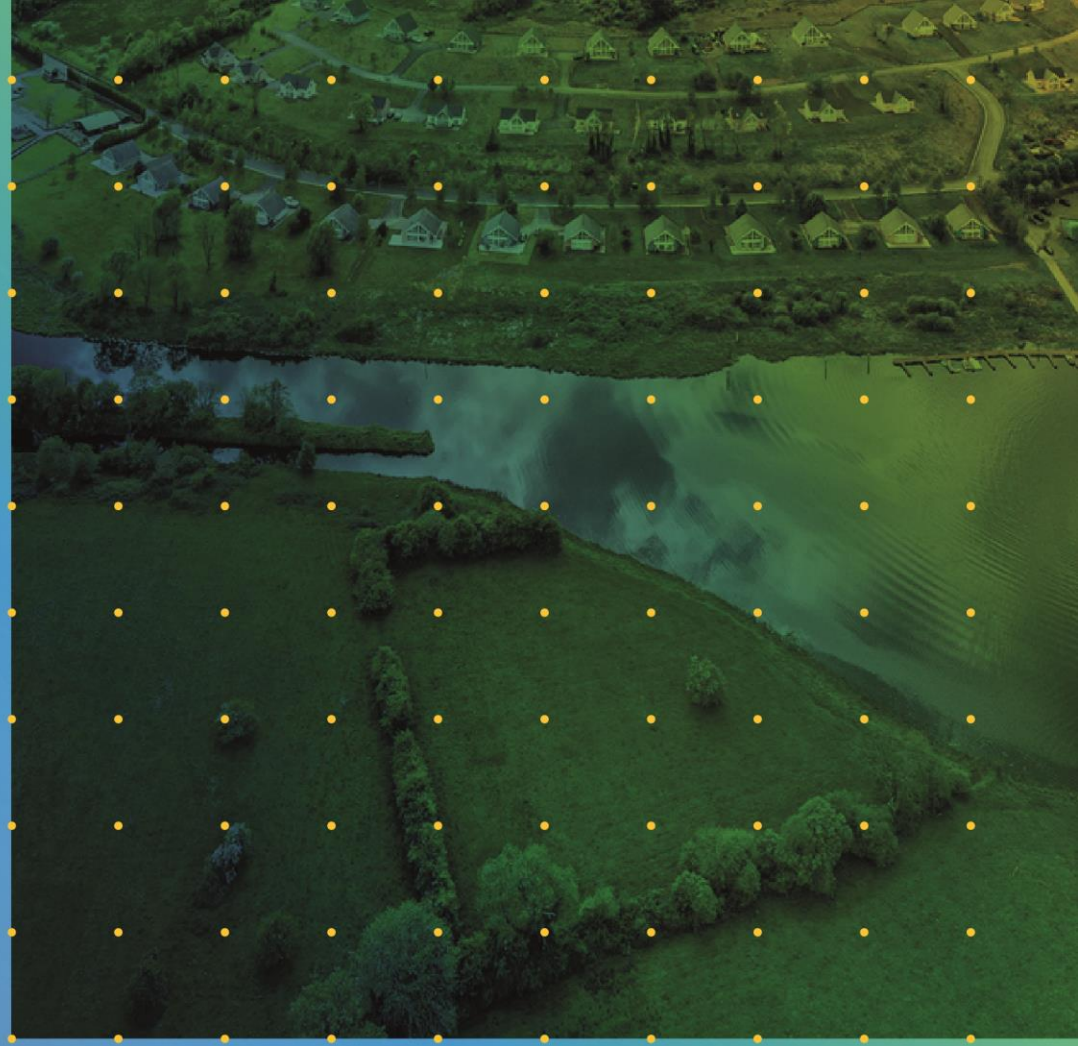


OVERARCHING · VISION · NORTH STAR

Our Vision

Ireland's climate action and net zero targets are met

Our Mission

Our mission is to drive climate action by building the DSO's capability to cultivate customer participation and flexible, whole-of-energy-system solutions

Our Enabler

'Flexible system demand' is demand with the ability to respond to changing states of generation, demand, storage and network conditions. It is characterised by direct system operator actions, coupled with individual/collective customer behaviour

How will we enable our purpose, vision and mission?

Power System Requirements	Flexibility Market Design	Retail Market Design	Customer	Smart Metering	Behind-the-Meter Infrastructure
A deep understanding and foresight of the impacts, characteristics and evolving needs, of a highly distributed, low-carbon electricity system. The technical expertise to develop innovative solutions to support growing customer demand and increasingly distributed generation, and storage	Local and national markets for flexible demand, run by the DSO as a neutral market facilitator, offering a mix of long-term, day-ahead and intraday arrangements that afford all customers with opportunities to participate	Setting the future direction for the smart meter-enabled retail market, with suppliers equipped and incentivised to harness available data to create dynamic, personalised tariffs for their customers. We will work closely with suppliers and the CRU to optimise retail market design, enabling synergies and efficiencies in operating flexibility and retail markets	Creating the conditions for customers to participate in immersive, personalised experiences of flexible demand. Helping to drive education and the national conversation, about how we can all take control of our energy demand, and share in the benefits. Migrating products and services to third parties when appropriate to do so	Setting the future direction for smart meters, including use cases – such as harnessing smart meter data to (i) identify faults, and (ii) baseline, measure and validate flexibility services delivered by customers – the implementation of the next generation meter, and the development of an enduring solution for microgeneration	Behind-the-meter infrastructure, including clear technology requirements and standards for data exchange and communication protocols, to ensure customers' homes, vehicles, solar panels and batteries are flexibility ready

Core Foundations

Regulatory: Mandates, authority, policy, alignment, codes, licences

Legislative and Policy: Climate Action Plan

Stakeholder: Voice of the stakeholder and citizen

15-20% · FLEXIBLE · SYSTEM · DEMAND · OVERVIEW

OBJECTIVE

The National Network, Local Connections (NN,LC) Programme has been established within ESB Networks to work with, and for, customers to enable the fundamental changes required to decarbonise our society, to how energy is generated and consumed. As the CRU stands up its **Energy Demand Strategy Project**, the role of the NN,LC Programme is, increasingly, to **deliver much of the Demand Flexibility & Response area** of this project. With increasing urgency, we are **working towards the CAP23 target of 15-20% demand side flexibility by 2025**, building on the existing target of 20-30% by 2030.

In response to the **accelerated targets in CAP23** – and the commitment made in the Networks for Net Zero Strategy – the NN,LC Programme has **developed a set of evidence-based scenarios (central, no-storage, industry-led and consumer-led)**, each one a possible pathway to achieving 2025 demand side flexibility and carbon abatement targets. Each of these scenarios is **underpinned by different sources of flexibility**. These sources have been identified as the **most likely viable sources of large-scale flexible demand in Ireland in a 2-3-year timeframe** (from the time of writing). They include commercial-scale storage, flexibility-ready transport, large industrial customers investing in demand flexibility, flexibility from domestic, agricultural and community customers with solar PV, and some level of participation from commercial customers in specific sectors or facilities.

We are using these scenarios and industry engagement and consultation on them as the key input to **developing our action plan** to achieve CAP flexible demand targets and implement the **Demand Flexibility & Response area of the Energy Demand Strategy Project**

STRATEGIC PROPOSALS

1 MULTI-YEAR STORAGE CONTRACTS
Multi-year (indicatively 7-10+ years) contracts for the provision of large volumes of commercial-scale, multi-hour-duration flexibility

2 FLEXIBILITY-READY STANDARDS
Technical specifications, communications protocols and standards needed to deliver flexibility-ready EV chargers and charge points

3 LARGE ENERGY USER CO2 ABATEMENT
Carbon abatement products to incentivise large energy users to make operational/investment decisions that reduce carbon emissions

4 SOLAR PV-FOCUSED PRODUCTS
New products and services to support domestic customers and farmers (Solar Capital Investment Scheme) with installed solar PV

5 CONSERVATION VOLTAGE
Marginal adjustments to electricity system voltages applied to select transformers across the network

6 FIXED PRICE PRODUCT OFFERINGS
Simple fixed price product offerings that target specific small- and medium-sized enterprises in the commercial sector

STRATEGIC PARAMETERS

ARENAS
Where will we be active?

- Medium Duration Storage
- Flexibility Ready Transport
- Industrial Sectors Flexible Demand
- Domestic Flexible Demand with PV
- Commercial Sector Flexibility (Agriculture, Industrial Heat)
- Domestic Sector (Social Housing)
- Conservation Voltage Reduction
- Commercial (Other)

VEHICLES
How will we get there?

- **Calls for competition** and **simple fixed price product offerings** from Q4 2023 onwards
- **Co-creation and design in collaboration with** the broader stakeholder and customer ecosystem to create the necessary conditions in the Irish market
- Extensive collaboration with **suppliers and aggregators,** to accelerate the transition to competitive market based flexibility in Ireland

DIFFERENTIATORS
How will we stimulate the marketplace?

- **Simple tender processes**
- **Simple pricing mechanism**
- Products **relevant to 'doing the right thing'** and 'playing your part', i.e. carbon abatement
- Working within **the CRU's Energy Demand Strategy** Project in an open and collaborative manner
- Introducing new services with a high locational value
- **Carbon abatement** flexibility services
- High emphasis on education, awareness, behavioural design and addressing market failures

ECONOMIC LOGIC
How will this provide consumer value?

- Exploring the most **cost-effective behind-the-meter infrastructure solutions** that mitigates potential delays in installing and commissioning
- Understanding the **market pricing and investor certainty needed to stimulate customers' storage developers', suppliers and aggregators' interest** in flexibility market participation

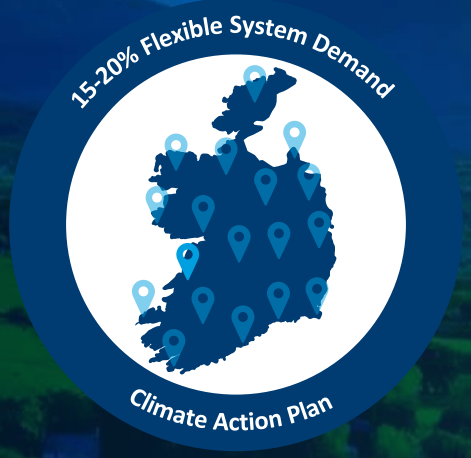
15-20% · FLEXIBLE · SYSTEM · DEMAND · VISION

Storage: ESB Networks proposes to offer multi-year (indicatively 7-10+ years) contracts for the provision of large volumes of commercial-scale, location-specific, multi-hour-duration flexibility to address high demand, renewables oversupply and carbon abatement.

Transport: ESB Networks proposes the introduction of the technical specifications, communications protocols and standards needed to deliver flexibility-ready domestic EV chargers and charge points

Industrial: ESB Networks proposes to design and launch to market a range of (initially bespoke) carbon abatement products, to incentivise large energy users to make operational and investment decisions that reduce location-specific emissions through flexible demand

Domestic (PV): ESB Networks proposes to introduce new local flexibility products and services designed to support the participation of domestic customers with installed solar PV, working in partnership with electricity suppliers

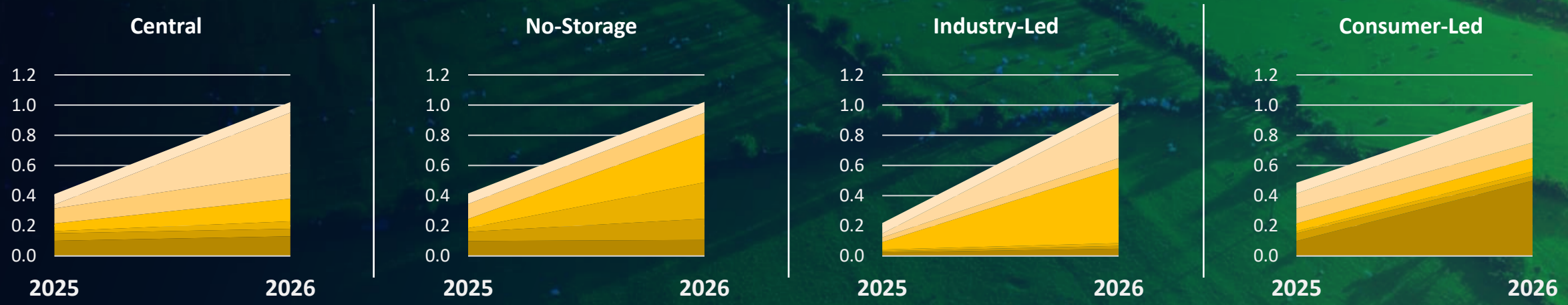


Commercial (Agriculture, Industrial Heat): ESB Networks proposes to work with partners to facilitate farmers' and food, drink, and pharmaceutical participation in local flexibility markets.

Domestic (Social Housing): ESB Networks proposes th introduction of the technical specifications, standards needed to deliver flexibility-ready social housing, ensuring economically vulnerable customers in social housing have immediate and open access to all flexibility offerings

Conservation Voltage Reduction: ESB Networks proposes to introduce a capability where marginal adjustments to electricity system voltages can be applied to select transformers across the network. This capability is utilised to reduce peak load and comes with immediate direct customer savings

Commercial (Other): ESB Networks proposes to introduce local flexibility market arrangements and simple fixed price product offerings that target specific small- and medium-sized enterprises; these market arrangements provide commercial sites with a route to market



ESB Networks has developed a set of evidence-based scenarios exploring possible pathways to achieve Ireland's national target of 15- 20% flexible demand by 2025. The paper outlining the Scenarios for 15-20% Flexible System Demand can be accessed here