NATIONAL NETWORK LOCAL CONNECTIONS

FLEXIBILITY MARKET DESIGN STRATEGY

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ESB NETWORKS

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 through a combination of system operator mechanisms, such as implicit and explicit flexibility, 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
An 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 - including identifying opportunities for customers to provide flexible services - to support growing customer demand and increasingly distributed generation including 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	We want to encourage all energy consumers to become active energy citizens by promoting thoughtful electricity usage. By understanding demand side flexibility, personal energy patterns, and the origins and impacts of energy use, customers can take control to positively influence the grid, environment, and their finances	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

FLEXIBILITY · MARKET · DESIGN · OVERVIEW

OBJECTIVE

This document **builds on the Phased Flexibility Market Development Plan** that the National Network, Local Connections Programme consulted on in 2021. The objective of flexibility market development is to:

- Introduce **market-based products** that incentivise and drive participation in flexible demand;
- Facilitate distribution-connected customers' **participation in all relevant markets**.

These solutions need to **facilitate the range of different customer and market participants needs and capabilities**; for example, providing the right balance of long- and short-term trading horizons, reliability and durations of response etc. They must be designed in a manner that **complements existing, established electricity markets** (i.e. wholesale, retail and ancillary services) and enables customers' participation in these multiple markets. To achieve this, our flexibility market design will need to address these issues, as well as:

- Building **transparency in market operations** and decision making;
- Pursuing **price discovery** while also **providing certainty** to early market participants and small customers;
- Putting in place the processes and capabilities supporting **market structures and operations**.

It is important to note that **flexibility market arrangements** – and the associated registration, procurement or auction arrangements, market rules, contractual arrangements, products and services – **will evolve over time**.

STRATEGIC PROPOSALS

1 PRODUCT CHARACTERISTICS
Identify the parameters (frequency and duration of response) needed for flexibility products

2 NATIONAL AND LOCAL AUCTIONS
Grow local flexibility markets through a series of national and local auctions that address flexibility requirements

3 NEAR REAL-TIME FLEX PROCESS
Review procurement process and identify pathways to running auctions closer to real time (day ahead and intraday)

4 SYSTEMISE INTERACTION
Systemise market interaction through the deployment of a Flexibility Auction Platform

5 DIRECT & AGGREGATED PARTICIPATION
Design and introduce different models of market participation, including direct bidding and through aggregators

6 STANDING REVENUE STREAMS
Implement future DSO-TSO operating model to enable distribution-connected resources' stacking of services

STRATEGIC PARAMETERS

ARENAS
Where will we be active?

We want to create and enter into market-based contracts for:

- **Long-term** flexibility products
- **Short-term** flexibility competitions within day
- **Day-ahead** and intraday flexibility auctions
- **Carbon abatement** flexibility products
- **Peer-to-peer trading** and non-firm flexible connections
- Local oversupply-matching contracts
- **Local peak demand** flexibility products

VEHICLES
How will we get there?

- **Long-term contracts** to stimulate forms of flexibility that have high up-front costs and value certainty
- **Market-based pricing** for capital-intensive forms of flexibility
- Simple **fixed price offerings** to stimulate participation initially
- **Rollouts of new products or arrangements** – as required – to achieve targets for flexible system demand, addressing specific needs to stimulate different segments of the market
- **Innovation and streamlining** in the running of flexibility auctions

DIFFERENTIATORS
How will we stimulate the marketplace?

- Simple recruitment or tender processes
- Simple pricing mechanisms
- **Simple market rules**
- Industry at the heart of designing market rules
- Working to ensure market participants can **stack services** across multiple markets
- Trust, fairness and **transparency**
- **Lower barriers to entry**, underpinned by **non-discriminatory rules** (leaving nobody behind)

ECONOMIC LOGIC
How will this provide consumer value?

- Price caps calculated based on the **true value of flexibility** versus a relevant counterfactual
- Engaging with the CRU to **consider long-term funding mechanisms for flexibility** (including use of system charges, supplier or generation charges etc.)
- **Additional sources of value considered** including avoided carbon costs, avoided or deferred infrastructure costs, impact on energy and balancing costs etc.

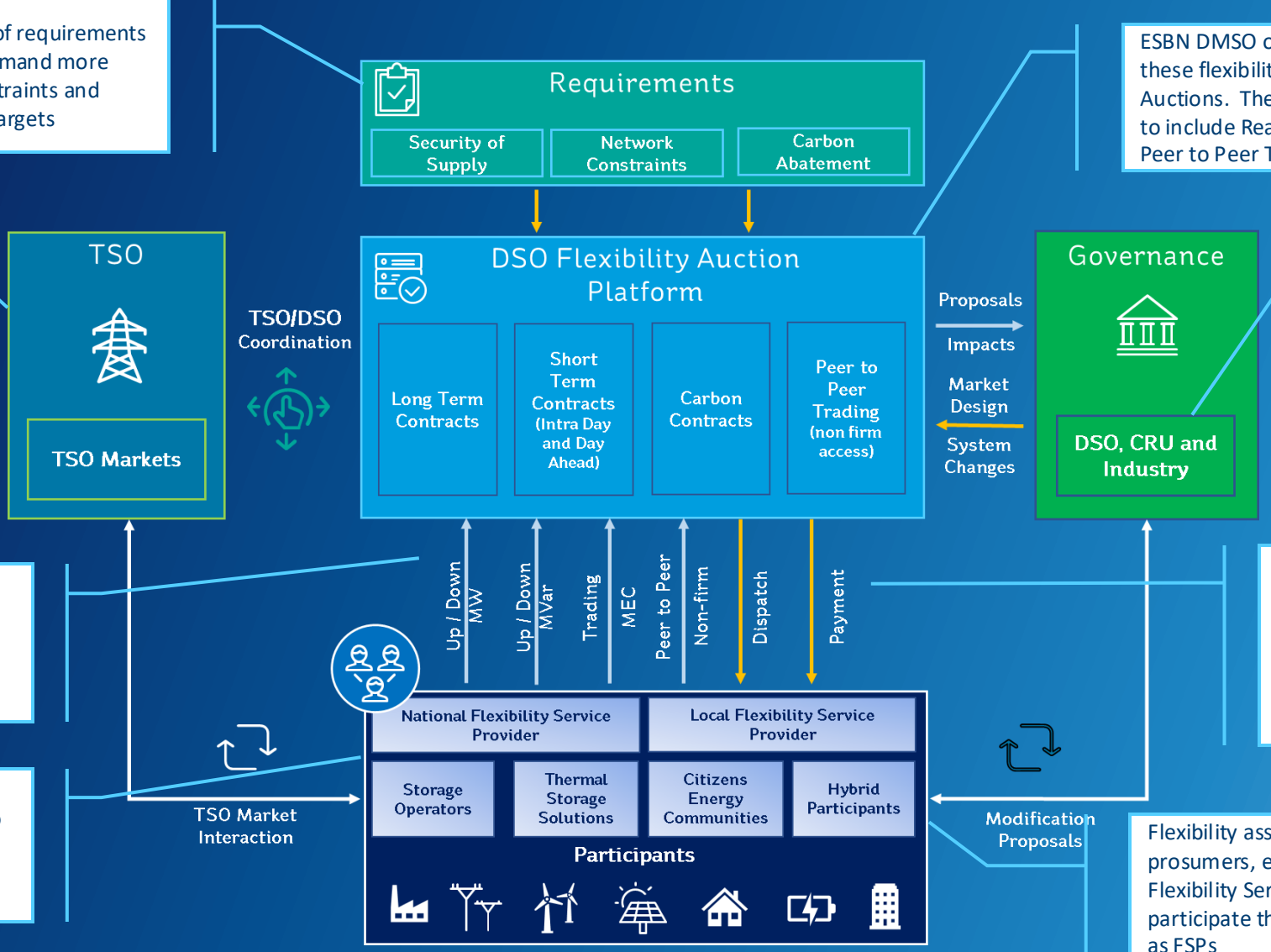
FLEXIBILITY · MARKET · DESIGN · VISION

ESB Networks DSO identifies a series of requirements for flexibility, balancing supply and demand more locally, addressing local network constraints and helping to realise carbon abatement targets

TSO/DSO Co-ordination established to allow customer to participate in both TSO and DSO markets and enable value stacking

Market interaction and settlement is managed through the use of established rules and integration protocols

Market rules are adapted over time to maximise customer and technology participation



ESBN DMSO operates the Flexibility Market to address these flexibility requirements through a series of Auctions. These build on existing Flexibility concepts to include Reactive Power, Carbon abatement and Peer to Peer Trading

Market rules developed by the DSO in partnership with industry, and approved by the CRU

Participants are motivated to offer their Flexibility in return for financial incentive, green credentials or simply to play their part in doing the right thing for Ireland.

Flexibility asset holders (e.g. generators, consumers, prosumers, etc) can bid in directly into the market as Flexibility Service Providers or, more commonly, they participate through overarching “Aggregators” acting as FSPs

STAGING · PLAN TO 2030

2025

- Launch procurement process for Demand Flexibility Product
- Tender for locational summer flexibility to assist with outage management
- Explore demand up flexibility products
- Route to market for community-based flexibility participation

2026

- Market liquidity means solving of real-time network constraints
- Introduce new Flex Market platform to support flexibility services
- Analysis of implications of Celtic Interconnector

2027

- Engage with Flex Market Participants in learnings review of Market Platform system experiences
- Demand Flexibility product go live for 15 year contracts

2028 – 2030

- DSO Flexibility Auction Platform for day-ahead, intraday and peer-to-peer trading
- Submission of enduring market rules to the CRU

EV research study

Ongoing refinement & adaptation of market rules

Development of new flexibility products and associated characteristics and test with industry

Ongoing operation of the Flexibility market and market governance

Legend: Suite of initiatives ★ Milestone

Work in progress in 2024 and expected to be completed in 2025

- Developing Demand Flexibility product at present
- Ongoing refinement and adaptation of market rules
- Develop route to market for community based flexibility participation
- Ongoing operation of flexibility market
- Flexcharging research study currently live
- Publication of draft flexibility contracts and market rules on the ESBN website to provide transparency

New Tasks added since 2023 Call for Input

- Established a requirement for a demand flexibility product to help manage local constraints. This will be our first attempt at a large-scale congestion management flexibility product. Note this product was previously referred to as 'medium duration flexibility'.

- As a result of the Free Electron's innovation program, a company called Flexcharging were chosen to help us trial a small-scale Electric Vehicle research study

- Continuing research and analysis of existing flexibility market platforms and systems with a target implementation of similar in 2026