FLEXIBILITY NEEDS ASSESSMENT

Information Paper
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Utility Regulator

About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Millennium House in the centre of Belfast. The Chief Executive and two Executive Directors lead teams in each of the main functional areas in the organisation: CEO Office; Price Controls; Networks and Energy Futures; and Markets and Consumer Protection and Enforcement. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

ABSTRACT

In protecting the short and long-term interests of electricity and gas consumers in Northern Ireland, this information paper by the Utility Regulator (UR) allows for dissemination of information related to Northern Ireland's first national Flexibility Needs Assessment. It summarises the background to the assessment, progress made to date and the planned next steps toward publication of the final report, scheduled for July 2026.

AUDIENCE

This paper will be of interest to energy market participants, government departments and consumer organisations.

CONSUMER IMPACT

The Flexibility Needs Assessment is a key piece of work that will help identify opportunities to increase flexibility in the electricity network across Northern Ireland and deliver benefits to consumers.

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Glossary

Abbreviation/Term	Definition/Meaning
ACER	Agency for Cooperation of Energy Regulators
CRU	Commission for Regulation of Utilities
DSO	Distribution System Operator
EMDR	Electricity Market Design Reform
Energy Strategy- Path to Net Zero	Department for Economy's pathway to works towards the vision of net-zero by 2050
EU	European Union
FNA	Flexibility Needs Assessment
Member State	A country that has agreed to share certain aspects of its sovereignty under the EU's founding treaties
NIE Networks	Northern Ireland Electricity Networks
SONI	System Operator for Northern Ireland
TSO	Transmission System Operator
UR	Utility Regulator

1. Introduction

1.1 Background

Flexibility is a critical enabler of the transition to a low-carbon electricity system. A more flexible system is better able to balance supply and demand, enabling demand to increase when renewable generation is high (such as during periods of strong wind or solar output) and decrease when renewable output is low. This allows greater use of available renewable energy, reduces reliance on thermal generation and supports the achievement of Northern Ireland's climate targets. Increased flexibility can also place downward pressure on electricity prices.

In addition, shifting demand from peak to off-peak periods can improve security of supply. Delivering greater flexibility will require a broad range of changes to electricity markets and system operation, alongside the deployment of new technologies and changes in consumer behaviour. The Flexibility Needs Assessment (FNA) will be a key tool for regulators and policymakers across Europe, helping to identify where flexibility can deliver the greatest benefits for the power system and for consumers.

1.2 Purpose

This information paper provides an update on Northern Ireland's first national FNA. It summarises the background to the assessment, progress achieved to date and the planned next steps toward publication of the final report, scheduled for July 2026.

The paper outlines the legislative and policy context, the agreed scope of the FNA and the respective roles of the UR, Department for the Economy (DfE), SONI (System Operator for Northern Ireland) and NIE Networks (Northern Ireland Electricity Networks) in delivering the required system and network-level analysis. It also highlights how the FNA will inform national flexibility planning, support the delivery of the DfE's Energy Strategy and contribute to EU-level assessments.

As the FNA methodology has been approved by ACER (Agency for Cooperation of Energy Regulators) and is not subject to change, the UR is not consulting on the methodology; however, as set out in section 2.7, stakeholder views are welcomed in relation to the market and regulatory barriers to non-fossil flexibility, outlined in the Annex.

1.3 Related Documents

- Regulation (EU) 2019/942 establishing the EU Agency for the Cooperation of Energy Regulators
- Regulation (EU) 2019/943 establishing the framework for the EU Internal Electricity Market
- Directive (EU) 2019/944 establishing the common rules for the EU Internal Electricity Market
- Regulation (EU) 2024/1747 improving the EU's Electricity Market Design
- ACER Decision 05/2025 on the type and format of data and the methodology for TSOs and DSOs Flexibility Needs Analysis
- All-Island Resource Adequacy Assessment 2025
- ACER Recommendation No 01/2026 on NRAs' reporting on barriers for Non-Fossil Flexibility (Annex)

Information on the Utility Regulator's (UR) role and relevant legislation can be found on the UR's website at https://www.uregni.gov.uk/

2. Report Scope and Progress

2.1 Introduction

The UR has commenced work on Northern Ireland's first FNA. The FNA forms part of a new EU-wide requirement for all Member States to assess the level of electricity system flexibility needed over the next decade, at both system and network-levels, to support the transition to a decarbonised electricity system.

This requirement is set out in Regulation (EU) 2019/943 and reinforced by the 2024 Electricity Market Design Reform (EMDR), which places greater emphasis on forward-looking system planning to maintain security of supply as renewable generation increases. The resulting FNA report will support the development of indicative national objectives for non-fossil flexibility and must be based on data and analysis provided by the Transmission System Operator (TSO) and Distribution System Operator (DSO).

To ensure consistency across Member States, the assessment must be undertaken in line with the FNA Methodology, approved by the Agency for the Cooperation of Energy Regulators (ACER) in July 2025. This methodology provides a common framework for TSOs and DSOs to identify, model and report future flexibility needs.

2.2 Implications for Northern Ireland

The FNA will be a key strategic tool in guiding Northern Ireland's transition to a secure, flexible and low-carbon electricity system. The assessment will:

- Inform the development of DfE's indicative national objectives for non-fossil flexibility in Northern Ireland and support alignment with wider decarbonisation goals
- Enable more strategic and efficient planning for renewable integration, helping to shape future flexibility market design and procurement frameworks
- Signal priority areas for investment by identifying where flexibility services, technologies and consumer participation can deliver the greatest system value
- Strengthen long-term security of supply by supporting proactive, forward-looking system planning amid increasing renewable penetration

2.3 Involved Parties

Article 19e of Regulation (EU) 2019/943, amended by Regulation (EU) 2024/1747 (EMDR), states "*the regulatory authority or another authority or entity designated by a Member State, shall adopt a report on the estimated flexibility needs*". As DfE did not designate a separate body, the role of Designated Entity defaults to the regulatory authority. The UR is therefore the party responsible for the preparing and publishing Northern Ireland's FNA Report, supported by data and analysis from key stakeholders, including SONI and NIE Networks who will provide:

- SONI- Transmission and system-level data and analysis
- NIE Networks- Distribution-level data and analysis

Both organisations are working closely with the UR to apply the ACER-approved methodology consistently and deliver a robust assessment.

The UR also recognises the strong interdependencies with Ireland's electricity system. As Ireland undertakes its own FNA, the UR has engaged with the Commission for Regulation of Utilities (CRU) and will continue to do so to support alignment, coordination and a shared understanding of flexibility needs across the all-island electricity system.

2.4 Scope of the Flexibility Needs Assessment Report

The FNA will assess Northern Ireland's future electricity system and networks to determine where, when and how much flexibility will be required in the years ahead. The assessment will consider both system-level and network-level needs to provide a holistic view of future flexibility requirements.

Specifically, the assessment and final report will examine:

- System-level flexibility needs, including balancing requirements, ramping needs and the management of variability from renewable generation.
- Network-level flexibility needs, such as addressing local congestion and voltage management challenges.
- Existing and forecast constraints on the transmission and distribution networks and where flexibility could provide an efficient solution.
- The scale, location and timing of anticipated flexibility requirements.
- Existing and potential flexibility solutions capable of meeting these needs.

- Barriers to the deployment and utilisation of flexibility, including market design issues and the potential role of digitalisation.

2.5 Timeline

The development of Northern Ireland's FNA follows the legally binding milestones set out in Article 4 of the ACER-approved FNA Methodology.

- **November 2025: Agreement on Scope**

The UR, SONI and NIE Networks agreed on relative roles and responsibilities, target years, timelines for data exchange, and the full scope of data and analysis to be provided, fulfilling the statutory requirement under Article 4(1).

(Legal Deadline: 25 November 2025- Completed)

- **November 2025 - May 2026: Analysis, modelling and submission of data and analysis**

Since agreement in November 2025, the system operators have been undertaking the required analysis and modelling work. This work will conclude with the legally mandated submission of all data and analysis to the UR by 25 May 2026.

(Legal Deadline: 25 May 2026)

- **Q3 2026: Completion of the first national FNA report**

Following receipt of the system operator submissions, the UR will finalise and publish Northern Ireland's first National FNA report.

(Legal Deadline: 25 July 2026)

2.6 Next Steps

- **Continued collaboration with the System Operators:**

The preparation of the FNA is underpinned by close and ongoing collaboration between the UR and the System Operators, SONI and NIE Networks. Substantial progress has been made to date and the UR will continue to work closely with both organisations over the coming months as the modelling is completed and the resulting analysis is finalised and incorporated into the FNA report.

- **Publication of Northern Ireland's first National FNA:**

The UR intends to publish Northern Ireland's first National FNA in Q3 2026. Following publication, the findings will inform national flexibility planning, support delivery of net-zero objectives and guide the development of future policy and regulatory frameworks for flexibility, in line with Northern Ireland's Energy Strategy.

- **Contribution to EU level work:**

The findings of the National FNA will also contribute to a wider EU-level assessment of future flexibility requirements. This will help ensure that Northern Ireland's electricity system development remains aligned with European objectives and supports effective cross-border coordination.

- **Future iterations of the FNA:**

Following completion of the first FNA, the assessment and production of the report will be repeated every two years. The next assessment cycle is expected to commence in July 2027, with publication of the subsequent National FNA report planned for summer 2028. Lessons learned from this first iteration, together with evolving system needs, will inform the approach and scope of future assessments.

2.7 Stakeholder Views

As noted above, the FNA must be undertaken in accordance with the methodology approved by the ACER. Accordingly, the methodology itself and the scope of data and analysis to be provided by the System Operators, are not subject to change. The UR is therefore not consulting on the FNA methodology.

The UR welcomes stakeholders' views on the applicability of the market barriers (detailed in the Annex) to non-fossil flexibility in Northern Ireland, as well as on the potential role of digitalisation in addressing these barriers.

The UR will take into consideration views received at the email addresses below by **3 June 2026** when finalising the FNA and its conclusions.

For queries, contact the UR System Services and Flexibility Team:

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Annex

ACER Recommendation on Market Design Barriers

In parallel with the modelling analysis and results, a structured assessment of regulatory/market barriers to non-fossil flexibility resources and the role of digitalisation will be undertaken in line with the ACER FNA methodology. This assessment will be carried out jointly by the UR, SONI and NIE Networks across each of the categories defined in the ACER framework.

The UR is also engaging with the CRU as part of this process.

The analysis will present evidence on where barriers exist, where they have already been addressed and where actions are planned. Inputs will be gathered from subject-matter experts across the UR, SONI and NIE Networks, drawing on their insights into the nature and materiality of any identified barriers. In addition, inputs will also be collated in a structured format aligned with ACER's prescribed barriers, indicators and associated questions, as provided to the UR.

ACER have published detailed guidance on market barriers (link). An overview of the aspects to consider for the evaluation of regulatory barriers to the entry of non-fossil flexibility and associated indicators is set out below:

Barrier 1: Lack of proper legal framework for market access to new entrants and small actors.

Indicator 1.1: Main roles and responsibilities of new actors not defined.

- Active customers
- Energy Communities
- Energy storage behind-the-meter
- Aggregation models

Indicator 1.2: Market access restricted due to lack of legal eligibility.

- Aggregation
- Direct participation

Indicator 1.3: Unclear framework for access to final customer data

Indicator 1.4: Ownership restrictions for energy storage and electro-mobility

Indicator 1.5: Restrictions on trade in day-ahead and intraday markets

Barrier 2: Lack of enablers and incentives to provide flexibility

Indicator 2.1: Lack of adequate metering systems

- Adequate metering systems to measure individual actual consumption of final customers and to also provide information about time of use are a prerequisite to enable consumers to conclude retail electricity contracts with some kind of time differentiation, including dynamic electricity price contracts, and provide demand response by reacting to market price signals. Where smart metering systems are not installed or do not provide sufficient data granularity for observability and settlement of ancillary services and congestion management provided by resources such as demand response and energy storage, the use of data from dedicated measurement devices should be enabled

- The Electricity Directive sets out a list of minimum functionalities that Member States should enable for smart meters rolled out in their territory, to enable consumers to benefit from the full potential of these devices. Aside from these minimum functionalities, other functionalities can also be considered, to allow consumers to better understand, control and reduce their energy consumption and to effectively manage their resources to reduce their electricity bill or use them to provide services

- Low roll-out of smart meters- Lack of sub-meters and dedicated measurement devices

- Lack of smart meters with minimum functionalities

- Other functionalities and services enabling flexibility and demand response

Indicator 2.2: Absence of price signals

- Time-differentiated retail electricity contracts and dynamic price electricity contracts can provide price signals to final customers, enabling them to react to fluctuations in electricity costs and market prices, reaping benefits for themselves and contributing to a more efficient electricity market

- The Electricity Directive requires Member States to ensure that all final customers equipped with a smart meter can request to conclude a dynamic electricity price contract with at least one supplier and with every supplier that has more than 200,000 final customers

- Time-differentiated network tariffs can also be a useful tool for reducing network peak load, which is the main driver for network investments, thereby promoting network efficiency. If adequately designed, time-of-use elements facilitate cost reflectivity of network tariffs and promote demand response to help reduce network congestion and mitigate the need for network investment. While, today, not all users are likely to react to such signals to the same extent, with further penetration of distributed

generation and flexible resources (e.g. batteries, electric heating and EVs) and roll-out of smart metering systems, it is expected that network users' ability to respond to time signals will increase and time-of-use network tariffs will gain a higher importance

- The Electricity Regulation encourages Member States that deploy smart metering systems to consider and, where appropriate, introduce time-differentiated network tariffs to reflect the use of the network, in a transparent, cost efficient and foreseeable way for the final customer

- Limited availability/uptake of retail electricity contracts with time differentiation and dynamic electricity price contracts

- Lack of consideration of network tariffs with time differentiation

Barrier 3: Restrictive requirements to provide balancing services

- Non-market-based procedures

Indicator 3.1: Non-market based balancing products

- The indicator assesses if the procurement of FCR, aFRR and mFRR capacity as well as the activation of aFRR and mFRR energy is done using a market-based mechanism. For aFRR and mFRR, the indicator refers to the use of local balancing products, before starting using standard balancing products

- Prequalification

- For prequalification, the questions refer to all types of products that may be used in a Member State (i.e. local or standard and specific balancing products). The aim is to gather information on the prequalification processes and requirements that currently apply in Member States for all types of products, given that pre-qualification for balancing reserves is not harmonised across the EU even when this concerns standard balancing products

Indicator 3.2: Restrictions in the prequalification of reserve providing groups (RPGs)

- The indicator assesses if TSOs allow prequalification of reserve providing groups aggregating generation, demand, and energy storage units under the same group and whether any specific restrictions apply to such combinations. It also assesses if reserve providing units or groups are required to prequalify separately to provide balancing capacity and balancing energy for the same reserve

Indicator 3.3: Large minimum eligible capacity

- The indicator assesses the minimum capacity required in the prequalification process for FCR, aFRR and mFRR, based on the

requirements for the minimum quantity of the respective standard energy product bids

- When the minimum eligible capacity is too large and aggregation of units is not allowed, balancing markets are not accessible by the smaller distributed energy resources

Indicator 3.4: Unregulated duration or long prequalification process

- The indicator assesses if the maximum duration of the intermediate steps of the prequalification process to provide balancing reserves is regulated, in line with the requirements defined in the System Operation Regulation, as regards first time prequalification

- When the duration of the prequalification process is not regulated, it may create legal uncertainty for balancing service providers and may also impact their business case if eventually the process becomes much longer than estimated

- The System Operation Regulation does not specify whether the maximum durations are also applicable when TSOs require to pass a re-prequalification process after changes in the prequalified reserve providing groups (RPGs). In a context where changes in groups happen with increasing frequency (e.g. aggregator-BSPs may often need to switch consumers between different portfolios or add new units into their RPGs), a short re-prequalification process, if needed, helps distributed energy resources effectively enter balancing markets

- First time prequalification

- Re-prequalification

- Product design

- Indicators in this section aim at assessing if certain design features of balancing products used at national level, that may hinder participation of distributed energy resources, diverge from the European target model. As such, questions on product design refer to local balancing products used before starting using standard products, as well as to any specific products that may be used in parallel with standard products. As regards specific balancing products, the aim is to gather some basic information on the use of specific balancing products across Member States and any differences from standard products with respect to certain characteristics that are considered relevant as potential barriers to the participation of resources such as demand response and other small, distributed energy resources

- Questions related to indicator 8 refer also to standard balancing products, given that the characteristics assessed through this indicator are not

defined for standard products in the implementation frameworks for the European platforms for the exchange of balancing energy

Indicator 3.5: Large minimum bid size

- The indicator assesses the minimum bid size for all balancing capacity and balancing energy reserves, against the requirements for the minimum quantity of standard balancing product bids

Indicator 3.6: Long validity period of balancing energy bids

- The indicator assesses the validity period of the balancing energy bids for aFRR and mFRR, against the respective requirements for standard energy product bids
- Overlong balancing energy products can hinder participation of demand response and storage

Indicator 3.7: Symmetric balancing capacity products

- The indicator assesses whether the procurement of upward and downward balancing capacity is performed separately, as required by the Electricity Regulation
- Symmetric balancing capacity products hinder the participation of variable renewable energy resources, demand response and energy storage since it is easier for renewables to offer downward regulation (i.e., negative balancing energy) curtailing their production and for demand response to offer upward regulation (i.e. positive balancing energy) consuming less energy, while energy storage can have technical constraints to provide symmetrical load variations. In addition, symmetric products can decrease the portfolio of aggregators since some consumers may be able or willing to offer flexibility only in one direction

Indicator 3.8: Too short predefined minimum duration between consecutive activations

- The indicator aims to gather information on requirements defined at national level, regarding the minimum duration between the end of deactivation period and the following activation for aFRR or mFRR balancing energy products
- Lack of products allowing BSPs to specify longer periods between consecutive activations may restrict participation of resources like demand response and energy storage
- Market architecture

Indicator 3.9: Long procurement lead time and long duration of balancing capacity contracts

- The indicator assesses the lead time for procurement of balancing capacity and length of the balancing capacity contracts for all balancing reserves, against the respective requirements set out in the Electricity Regulation
- Longer procurement lead times and balancing capacity contracts may restrict the participation of distributed energy resources in balancing capacity markets, since they have more difficulties than large conventional power plants to commit long time ahead of delivery and for long delivery periods

Indicator 3.10: Restrictions in the price settlement rule of balancing energy

- The indicator assesses whether marginal-pricing (pay-as cleared) is applied for the settlement of balancing energy, in accordance with the requirements set out in the Electricity Regulation
- Marginal pricing makes it easier for new entrants to offer balancing energy bids since they do not have to guess the 'right' bid to offer and they are only concerned about their own marginal (including opportunity) cost

Indicator 3.11: Non-contracted balancing energy bids not allowed

- The indicator assesses the possibility to offer non-contracted balancing energy bids for aFRR and mFRR in line with the Electricity Balancing Regulation. • The possibility of offering balancing energy bids on a voluntary basis, without the need for a previous contract for balancing capacity, promotes competition and participation of new entrants in the balancing energy markets

Barrier 4: Restrictive requirements to provide congestion management

Indicator 4.1: TSO congestion management

- The indicator examines:
    - The types of congestion management measures implemented by TSOs.
- Where TSOs use non-market-based redispatching for congestion management, the reasons for not using market-based redispatching in line with Article 13(3) of the Electricity Regulation
- Whether use of non-market based redispatching applies to the entire grid or to certain areas, conditions or situations

- The assessment process to set non-market based redispatching and whether an iterative reassessment is envisaged
- Whether TSOs are enabled by national laws and regulations to use market-based redispatching

Indicator 4.2: DSO congestion management

- The indicator examines:
    - The types of congestion management measures implemented by DSOs
    - Where DSOs use non-market-based congestion management, the reasons for not using market-based congestion management in line with Article 32(1) of the Electricity Directive
- Whether use of non-market-based congestion management applies to the entire grid or to certain areas, conditions or situations
    - The assessment process to set non-market-based congestion management and whether an iterative reassessment is envisaged
    - Whether DSOs are enabled by national laws and regulations to use market-based congestion management

Indicator 4.3: Constraints in local markets for TSO/DSO congestion management

- Where local markets for TSO and/or DSO congestion management are in operation, the indicator aims to assess whether undue restrictions to the participation of non-fossil flexibility resources and new entrants, such as flexible renewable generation, demand response, energy storage and aggregation have been identified

Barrier 5: Complex, lengthy, and discriminatory administrative requirements

Indicator 5.1: Grid connection procedures

Indicator 5.2: Procedures and requirements for market access

Barrier 6: Lack of regulatory incentives to system operators to consider non-wire alternatives

Indicator 6.1: Lack of requirements and incentives for SOs to consider non-wire alternatives