ELEXON

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0.0 *Sections 1, 2, 3 and 4 form the legally binding Flexibility Market Rule.*

Defined terms capitalised in this document shall have the meaning given in Section 4.

Guidance

Summary of Carbon Reporting Methodology requirements

This section is provided as guidance to the Flexibility Market Rule. Therefore, it is not legally binding and falls outside of the formal change management process.

Context

DNOs are required to report on the carbon impact of their *flexibility service* provision through their annual Distribution *Flexibility Services* Procurement Report under Licence Condition 31E. This rule defines a common carbon reporting methodology for that carbon reporting requirement. It standardises how direct and consequential carbon impacts are calculated from delivered energy.

This rule comes into force in February 2026 across *DNO sub-markets* and aims to standardise carbon reporting methodologies, so reporting is transparent, repeatable and auditable across all *DNOs*.

Carbon Reporting Methodology Requirements

This rule introduces a standardised methodology for calculating the carbon impact of procured *flexibility services* using delivered energy. *DNOs* must apply the prescribed formulae for generation, storage export, and demand or storage import; include direct and consequential effects with stated *payback*; exclude indirect or embodied emissions. It fixes authoritative sources for fuel factors, efficiencies, and short-run or long-run grid-intensity and sets the minimum reporting content required for *DNO* Licence Condition 31E procurement reports.

We believe the impact of these requirements to be:

Impact on *System Operators*	**Impact on *FSPs***
DNOs must follow this methodology for reporting the carbon impact of *flexibility services* provision within their 31E Licence Condition.	There are no direct impacts on *FSPs*.

***Implementation monitoring* requirements**

The key requirements are laid out below. A view across the rules is available in our deadline tracker.

Category	Requirement	Trigger for data submission	What we will do with it
Implementation tracking	Basic tracking of implementation status and target date	From 14/01/2026. Within 10 days of change	Track whether implementation is on track via our *Implementation tracker*
***Flexibility Market Catalogue* data**	Not used for this rule	-	-
Effectiveness monitoring data	Report on the average Carbon Intensity per unit of dispatch *Flexibility Services*	Publication of SLC 31E Procurement reports (annually by May 1st)	Track the average Carbon Intensity per unit of dispatch via our Effectiveness Monitoring Report.

1 Applicability of this Flexibility Market Rule

1.1 This *Flexibility Market Rules* applies to all *DNO Sub-Markets* within the *Market Facilitator* scope.

Innovation trials are not bound by this requirement.

All *DNOs* shall use the methodology outlined in section 2 when reporting on Carbon impact within their reporting under Standard Licence Condition 31E. This shall start no later than the *Implementation Date*.

All *DNOs* shall also provide the data set out in section 3 no later than the timings in section 3.

Variations to this rule are only permitted with an approved *Derogation* from the *Market Facilitator*.

The core dates for this *Flexibility Market Rule* are laid out below.

Table 1: Flexibility Market Rule dates

Published Date	04/02/2026
Implementation Date	06/02/2026
End Date	31/03/2027

Guidance

Explainer: What is a Sub-Market?

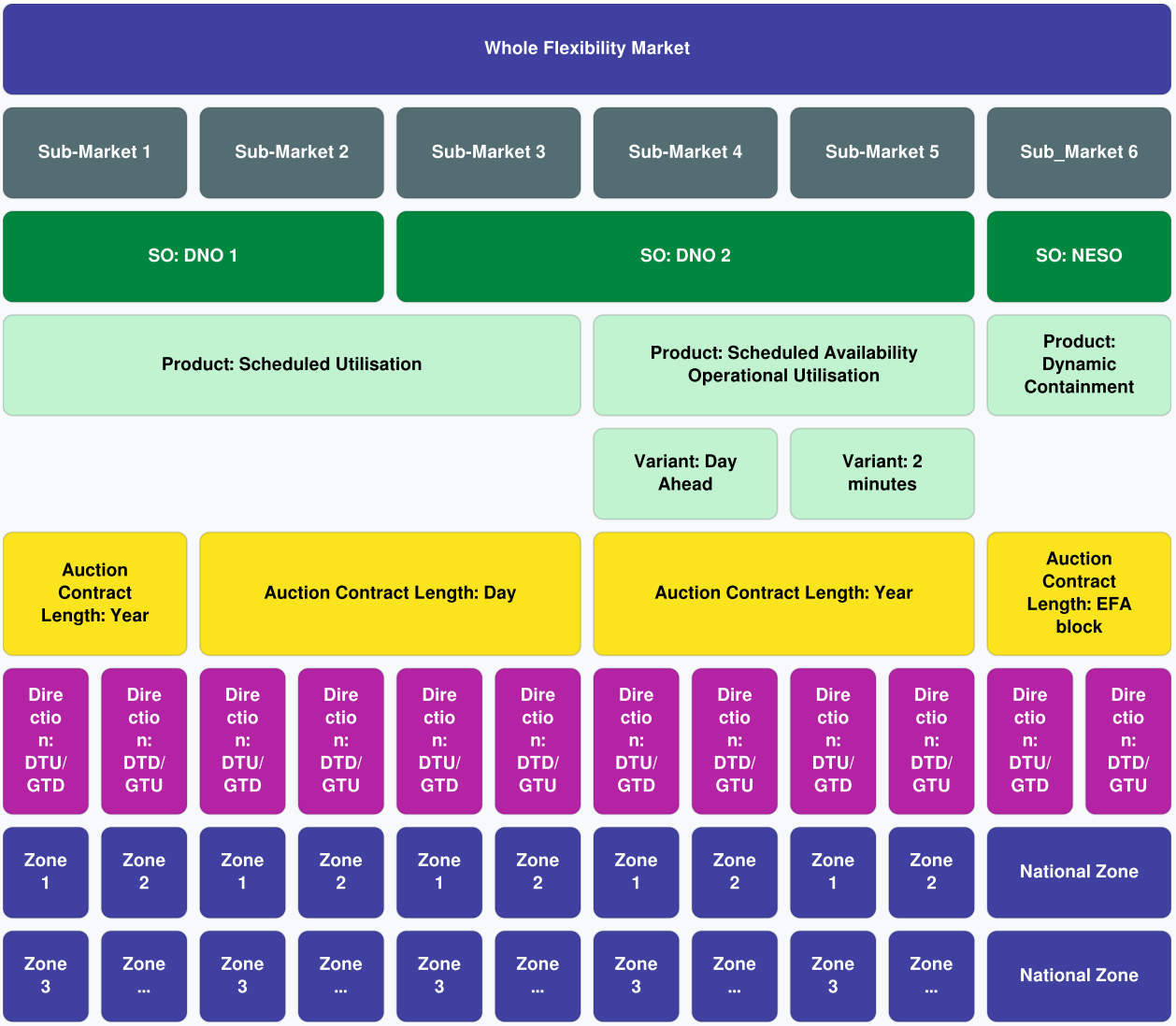
This section is provided as guidance to the Flexibility Market Rule. Therefore, it is not legally binding and falls outside of the formal change management process.

A *Sub-Market* means a specific segment of the overall *Flexibility Market*, distinguished by a specific *System Operator*, procuring a specific Product within a specific time period.

A *Sub-market* may be built of multiple distinct geographic zones, operating in different directions, clearing different volumes at different prices.

The diagram below visualises the definition.

Flexibility Market Structure



DTU means Demand Turn Up, GTD means Generation Turn Down.

DTD means Demand Turn Down, GTU means Generation Turn Up.

2 Carbon Reporting Methodology requirements

2.1 Methodology

DNOs will perform the calculation by technology category without input from providers, except to confirm the technology category where required.

The calculation includes direct (such as fuel combustion) and consequential carbon impacts (such as battery charging) but excludes indirect impacts (such as embedded emissions in the materials).

The general formula varies by generation, storage (export), and demand / storage (imports).

In the formulae:

- **kWh** is the energy delivered (as opposed to requested) measured at the site of the resource;

- **η** is the energy conversion efficiency of the generator *g* or storage *s*;
- **EF** is the fuel emission factor;
- **GI** is the *grid intensity* factor at import *i*, export *e*, or at turndown *td*; and
- ***Payback%*** is the consequential increase in load or generation following a turn-down or turn-up event respectively.

Table 2: Formulae for generation, storage (export), and demand/ storage (imports)

Solution	**Export increase / import decrease**	**Export decrease / import increase**
Generation	Combustion of fuel (direct) = $\frac{+kWh}{\eta_g} \times EF$ displace grid generation (consequential) = $-kWh \times GI$	Reduced combustion of fuel (direct) = $\frac{-kWh}{\eta_g} \times EF$ replaced by more grid generation (consequential) = $+kWh \times GI$
Storage (export)	Input energy (consequential) = $+\frac{kWh}{\eta_s} \times GI_i$ (if from grid), or $\frac{+\left(\frac{kWh}{\eta_s}\right)}{\eta_g} \times EF$ (if from generator) displace grid generation (consequential) = $\frac{-kWh}{GI_e}$	Replaced by more grid generation (consequential) = $+kWh \times GI$ displace grid generation (consequential) = $-kWh \times GI$
Demand or Storage (import)	Reduced grid imports (direct) = $-kWh \times GI_{td}$ increased grid imports (consequential) = $+kWh \times \text{payback\%} \times GI_i$	Increased grid imports (direct) = $+kWh \times GI$ reduced grid imports (consequential) = $+kWh \times \text{payback\%} \times GI$

Notes

Generation

- When a generator is instructed to export it burns more fuel and displaces the marginal grid generation.
- When a generator is instructed to reduce exports, it burns less fuel with the reduction replaced by an increase from the marginal grid generation. For a renewable generator assume a zero EF.
- If the generator is displacing imports, the carbon impact is the same as the equivalent amount exported directly to the grid.

- For bioenergy, report on both inclusive and exclusive of biogenic CO_2 released during burning of biomass and biofuels by using the relevant emission factors.

Storage (export)

- When storage is instructed to increase exports, it displaces the marginal grid generation. The source of that energy and the efficiency of energy conversion is also counted.
- When storage is instructed to reduce exports, the calculation assumes a temporal shifting of that export.
- If storage input energy is physically supplied from a renewable generator assume zero carbon, this does not apply to non-physical supplies of low carbon electricity, which should assume *grid intensity*.
- If storage discharge is displacing imports, the carbon impact is the same as the equivalent amount exported directly to the grid.
- Where *DNOs* are unsure whether storage is providing export increase or import reduction, use the storage calculation. This ensures carbon impacts are not underestimated and incentivises additional information to be provided.

Demand / storage (import)

- When demand or storage is instructed to reduce imports, the avoided energy is met by a reduction in marginal grid generation. There is a consequential rebound in load known as *payback*.
- When demand or storage is instructed to increase imports, the additional energy is supplied by the marginal grid generation. There is a consequential reduction in imports after the event, an equivalent to "*payback*."
- If demand is shifted, such as deferred EV charging, then *payback*% is 100%. This should be the default assumption where classification is uncertain.
- For genuine turn down (reduction) events, 21% is the assumed *payback*%, which should be evidenced. This ensures carbon impacts are not underestimated and incentivises additional information to be provided. For import increase the *payback*% assumption is 100%.
- Where *DNOs* are unsure whether storage is providing export increase or import reduction, use the Demand/storage (Import) calculation. This ensures carbon impacts are not underestimated and incentivises additional information to be provided.

Short-run or Long-run *grid intensity*

- Decide by persistence and pick the grid-intensity factor based on whether the intervention changes the baseline for years (LR) or is a temporary dispatch (SR).

- Use SR for event-based *flexibility* (turn-up/turn-down, battery cycles, short campaigns) where impacts don't persist beyond the event window. If in doubt, default to SR.
- Use LR only where there's evidence of a sustained, multi-year shift in demand or generation (e.g., efficiency measures or enduring scheduled services that alter the baseline).

2.2 Conversion Factors

DNOs should use the conversion factor sources presented in the following table.

The data source used for *grid intensity* is a static value, all *grid intensity* factors is therefore equal (except for short-run and long-run factors). In the case of storage, $GI_i = GI_e$ and in the case of demand, $GI_{td} = GI_i$. The different notations in the formula allows for inclusion of time series *grid intensity* factors in future.

Table 3: Notes on grid intensity factors

Factor type	Source	Notes
Fuel emission factors	BEIS/Defra*[1]*	CO_2e, Gross CV. Updated annually.
Efficiency	BEIS/Defra*[2]*	The DUKES report is updated annually, however the others are one-off reports.
Grid intensity	• BEIS Electricity Generation Costs 2020*[3]* – [A] • Coal – DUKES*[4]* – [B] • BEIS Storage Costs and Assumptions 2018*[5]* – [C]	Short-run: EF of natural gas divided by efficiency of an OCGT e.g. based on 2022 EF, 183gCO_2e/kWh / 35% = 523gCO_2e/kWh. Long-run: Average of consumption long-run marginal factors, use most recently updated value rather than forecasts (2021 at time of writing). Irregularly updated. Note, long-run refers to interventions that results in sustained change in demand/generation over years. Short-run refers to interventions that result in temporary change in demand/generation.

Payback%	For demand-turn-down: Low Carbon London report*[6]* For demand-turn-up: Open Network working group view	Demand-turn-down: From a one-off *innovation trial*. Assume 21% for reduction services, based on the average of trial events. Assume 100% for load shifting solutions. Demand-turn-up: Assume 100%

2.3 Technology categorisation

The technology categorisations are given in the following table, which maps licence condition 31E technology categories by the relevant technology categories required for selecting the appropriate conversion factor. This is advisory rather than prescribed to allow for some *flexibility* where the mapping is incomplete.

Table 4: Licence condition 31E technology categories

Licence Condition 31E Technology Categorisation	**Emissions Factor (and *Grid intensity* factor)**	**Efficiency**	**Demand *payback***
Advanced Fuel (produced via gasification or pyrolysis of biofuel or waste)		Advanced Conversion Technologies [A]	
Biofuel - Biogas from anaerobic digestion (excluding landfill & sewage)		Anaerobic digestion (AD) [A]	
Biofuel - Landfill gas	Biogas - Landfill gas		
Biofuel - Other	Biogas – Biogas	Energy from Waste (EfW) [A]	
Biofuel - Sewage gas	Biogas - Biogas		
Biomass	Biomass - wood logs, wood chips, wood pellets, grass/straw	Biomass – dedicated [A]	
Demand	*Grid intensity*		*Payback* (21%), shifting (100%)
Fossil - Brown coal/lignite	Figures not available		
Fossil - Coal gas			

Fossil - Gas	Gaseous fuels - natural gas	OCGT, CCGT, Recip [A]	
Fossil - Hard coal	Solid fuels - Coal (electricity generation)	Coal [B]	
Fossil - Oil	Liquid fuel - Diesel (average biofuel blend)	Diesel [A]	
Fossil - Oil shale			
Fossil - Other	Other factors available		
Fossil - Peat			
Geothermal			
Hydrogen			
Nuclear			
Solar			
Stored Energy (all stored energy irrespective of the original energy source)	*Grid intensity*	Pumped hydro, CAES, thermal energy storage, Lithium Ion, Zinc, Flow, Sodium Sulphur [C]	
Waste Water (flowing water or head of water)			

Wind			
Other			

2.4 Report Format

DNOs should include the following paragraph in their Distribution *Flexibility Services* Procurement Report to summarise the methodology to readers and references this methodology document.

The carbon impact calculation presented in this report follows the standard methodology laid out by the *market facilitator*. The calculation varies depending on whether the *flexibility* asset is generation, storage (export), or demand / storage (import). The impacts include direct impacts (such as burning fuel) and consequential impacts (such as demand *payback*) but not indirect impacts (such as embodied carbon). The *conversion factors* used are generally industry standard which include grid-intensity, plant efficiencies, fuel emission factors, and *payback* assumptions. Asset specific factors are not used to maintain consistency between *DNO* reports which means that the methodology reports an approximation of carbon impacts. The detailed methodology is available on the *Market Facilitator* Repository.

Table 5 in the following format should be included in the Distribution *Flexibility Services* Procurement Report showing energy (requested and delivered) and carbon impact (broken into direct and consequential). An accompanying narrative should explain what the data shows and use of charts to present the information is encouraged.

Energy delivered can differ to energy requested due to under or over delivery. Over-delivery is capped at 150% (captures over-delivery but excludes scenarios where over delivery may not be a consequence of the dispatch). Delivered energy is used to calculate carbon impacts.

Subject to agreement with Ofgem to update the data template, the carbon impact per dispatch should be added as another column in the template. In addition, technology sub categorisations based on Embedded Capacity Register / G99 should also be added to reflect different solutions within each Licence Condition 31E category, for example if demand is shifted or reduced or the different types of Stored Energy.

For bioenergy, add an additional column to “Direct carbon impact”. In the first of these columns, report on the carbon impact exclusive of biogenic CO2 using the default emission factors, and in the second column report on the biogenic CO2 using the “outside of scope” emission factors, from the BEIS/Defra *conversion factors* (full set). The former calculation nets off the CO2 released at combustion with the CO2 absorbed during the growth phase of the bioenergy, whilst the latter calculation reports the CO2 released at combustion. This is in line with the GHG Protocol guidance for corporate accounting.

Provide the dispatch intensity metric (total carbon impact divided by the total energy delivered).

Table 5: License condition 31E table template.

Licence condition 31E Technology Category	**Requested energy (MWh)**	**Delivered energy (MWh)**	**Direct carbon impact (kgCO2e)**	**Consequential carbon impact (kgCO2e)**
Fossil – Gas				
Demand				
Stored Energy				
…				
Total				

3 Market Information

3.1 Implementation tracking

The *DNOs* must provide the *Market Facilitator* with the data set out in Table 6 for each *Sub-Market* in scope of this rule. The data provided should accurately reflect their implementation of the rule within each of each *Sub-Market*.

The expected values required for compliance are also set out in Table 6.

Initial data shall be sent no later than 20 *working days* after the Published Date of this *Flexibility Market Rule*.

Updates shall be sent as soon as reasonably practical, and no later than 10 *working days* after any changes to the values.

Elexon reserves the right to publish this data within its *Implementation Tracker*.

Table 6: Implementation tracking requirements

	Parameter	Required value (per *Sub-Market*)
FMR-CR	Implementation Status	Dependent on date: • Before *Implementation Date*: Not yet started, Implementing, Paused, Implemented • Between *Implementation Date* and End Date: Implemented • After End Date: Superseded
	Target *Implementation Date*	No later than *Implementation Date*

3.2 Flexibility Market Catalogue data

Not used for this *Flexibility Market Rule*

3.3 Effectiveness monitoring

The following metrics shall be used to assess the effectiveness of the rule.

The *DNOs* must provide the *Market Facilitator* with any Additional Input Data as set out in Table 7 below for each *Sub-Market* in scope of this rule. The data provided should accurately reflect their implementation of the rule of each *Sub-Market*.

The expected values minimum required for compliance, if any, are also set out in Table 7.

Initial Additional Input Data shall be sent no later than 20 *working days* after the *Implementation Date* of this *Flexibility Market Rule*.

Additional Input Data shall be sent in accordance with the Cadence set out in in Table 7.

Updates to Additional Input Data shall be sent as soon as reasonably practical, and no later than 10 *working days* after any changes to the values.

Elexon reserves the right to publish this data within its *Implementation Tracker*.

Table 7: Effectiveness monitoring metrics

Metric 1	**Description**	**Average Carbon Intensity per unit of dispatched *Flexibility Services* per *DNO***
	Why are we tracking this?	To understand the carbon impact of *flexibility service* provision across *DNOs*
	Cadence	Yearly
	Data Source	Existing Data - SLC31E Procurement Report - (Total Direct carbon impact + Total Consequential carbon impact)/(Requested energy) - As set out in section 2.4 of this rule. Additional Input Data - None
	What does good look like?	0
	Minimum Requirement	-

4 Glossary

4.0 The following definitions are specific to this *Flexibility Market Rule*. These are supplemented by the definitions in the *Market Facilitator Glossary*. If there is an inconsistency between definitions, the definition in this document shall prevail.

Glossary

Term	Aliases	Definition
Conversion factors	–	Used in this rule as a general term to describe factors that are used in the calculations which can include fuel emission factors, grid intensity factors, and plant efficiency assumptions.
Grid intensity	–	Refers to the carbon intensity of electricity that is imported from the grid in kgCO2e/kWh taking into account the carbon emissions from grid generation, interconnector imports, and potentially network losses.
Payback	–	Otherwise known as rebound or bounce back, refers to when demand side response load increases after a turn-down event as the site recovers to pre-event conditions. This could also refer to a similar rebound effect following realisation of economic benefits as a result of an energy efficiency saving measure.
Reporting Boundary	–	Defines the scope of the calculation. This can include direct impacts (such as combustion of fuel to generate electricity), consequential impacts (such as the carbon emissions from grid generation to produce and transport electricity imported by a battery), or indirect impacts (such as embedded and end of life emissions attributed to the assets). We also describe narrow or wide boundaries to refer to the extent to which the calculation focuses on direct or whole-life emissions respectively.

FMR: Carbon Reporting Methodology - Amendment record

Guidance

This section is provided as guidance to the Flexibility Market Rule. Therefore, it is not legally binding and falls outside of the formal change management process.

Version	**Published Date**	**Document Status**	**Description of Changes**	**Change Proposal Reference**	***Market Facilitator* Decision Report Ref**
1.0	12/12/2025	Final	Document Published	-	-
2.0	04/02/2026	Final	Housekeeping changes	CP002	CP002
3.0	25/08/2026	Final	End date added	CP005	CP005

4.0.2 Annex 1: Associated meta-data

Guidance

This annex is provided as guidance to the Flexibility Market Rule. Therefore, it is not legally binding and falls outside of the formal change management process.

Identifier	FMR-CRM
Title	Carbon Reporting Methodology
Type	*Flexibility Market Rule*
Collection	*Sub-Market* Alignment
Audience	*DNOs*, *Flexibility Service Providers*
Expertise	Carbon Reporting
Owner	*Market Facilitator*
Expected benefit	Aligned approach to reporting on carbon impact of *flexibility*
Related end-to-end process reference	V.6 Report on Service Delivery
References	
IsReferencedBy	
Published version number	3.0
Applicability	All *DNO sub-markets*
Published Date	04/02/2026
Implementation Date	25/08/2026

End Date	31/03/2027
Terms of variations	Approved *Derogation*
IsReplacedBy	N/A
Replaces	N/A
Status	Final
Change since last version	This Rule will become obsolete once FMR-DDR *DNO* Data Reporting is implemented on 31 March 2027.
Description	**What?** This rule aligns the methodologies used to report on the carbon impact of their *flexibility service* provision **How?** The methodology for reporting carbon impact has been defined here and must be followed for LC 31E reporting requirements. **Who?** This rule impact all *DNOs*, and in turn their *Flexibility Service Providers*. **When?** This rule comes into force in February 2026 **Why?** This rule aims to make carbon reporting methodology comparable across *DNOs*.