
RIIO-ED2 Regulatory Instructions and Guidance - Annex I – DSO

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RIIO-ED2 is the price control for distribution network companies from 1 April 2023 to 31 March 2028.

This document is part of the regulatory instructions and guidance (RIGs) for RIIO-ED2.

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Contents

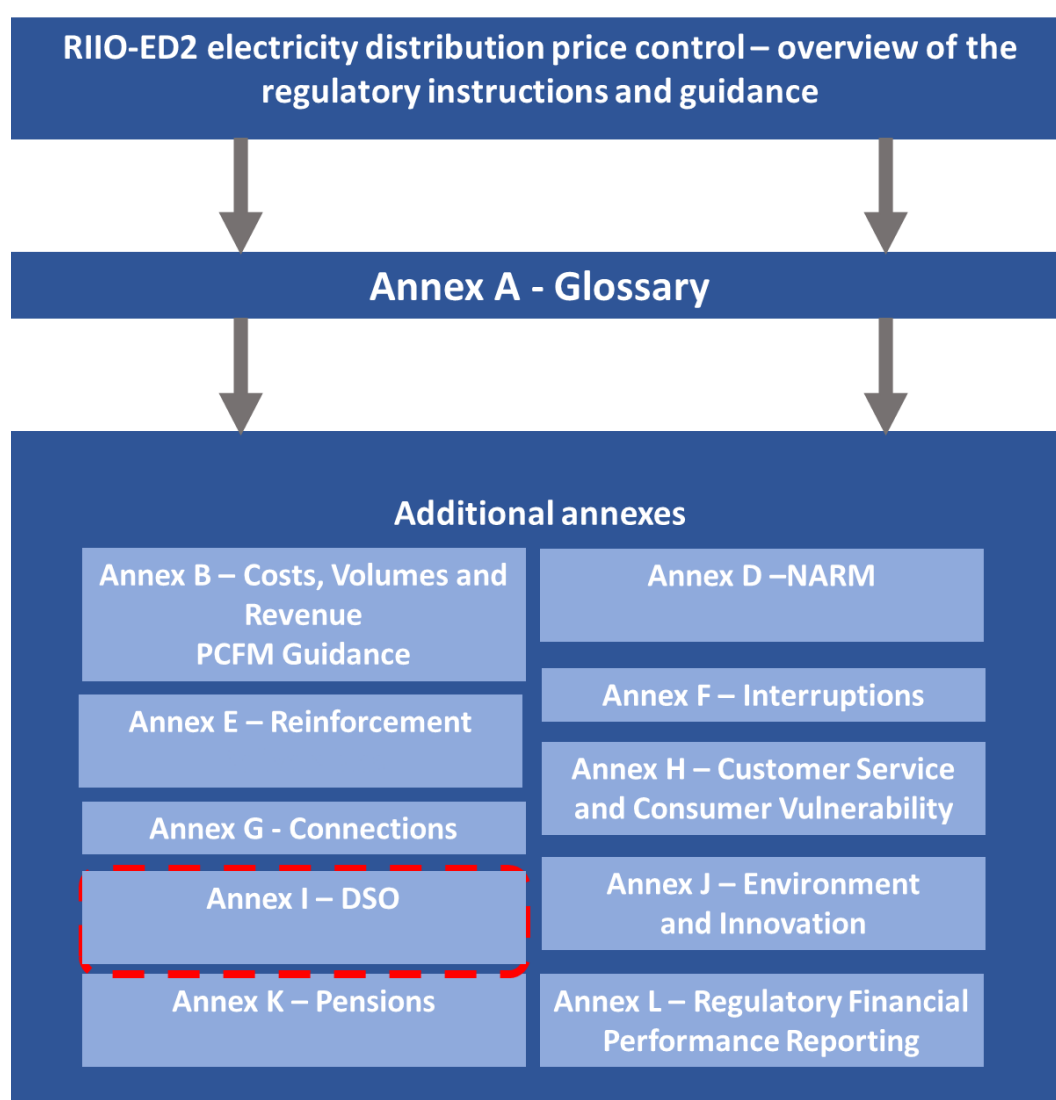
RIIO-ED2 Regulatory Instructions and Guidance - Annex I – DSO	1
1. Introduction	4
Scope of this document	4
General instructions for completing the worksheets	5
2. Instructions for completing the DSO Stakeholder Satisfaction Survey (DSOSAST) worksheet	6
DSO Stakeholder Satisfaction Survey population.....	6
Scored questions	6
Screening questions	6
3. Instructions for completing the DSO Outturn Performance Metrics worksheets	8
Flexibility Reinforcement Deferral Outturn Performance Metric (FDt)	8
Primary Reinforcement net impact (capacity released).....	8
Primary Reinforcement newly deferred net impact (capacity released, counterfactual).....	9
Secondary Reinforcement net impact (capacity released)	9
Secondary Reinforcement newly deferred net impact (capacity released, counterfactual).....	9
Secondary Network Visibility Outturn Performance Metric (NVt).....	10
Monitored sites (forecast and actual utilisation by transformer)	10
Unmonitored sites	11
Curtailment Efficiency Outturn Performance Metric (CEt)	12
Total import/export curtailed	12
Maximum potential import/export curtailment	13
4. Instructions for completing the DSO Regularly Reported Evidence worksheets	14
RRE 1: Flexible Connections	14
RRE 2: Primary Network forecasting accuracy.....	14
RRE 3: Transformer Utilisation	15
RRE 4: Network options assessment outcomes	15

1. Introduction

Scope of this document

- 1.1 This document is part of the RIGs for RIIO-ED2. The term RIGs refers to a collection of documents – our instructions and guidance, and the reporting packs and commentaries the licensees have to fill out.
- 1.2 Figure 1.1 shows all the instructions and guidance documents for the RIIO-ED2 RIGs. This document, circled in Figure 1.1, is one of a series of appendices containing instructions and guidance. It provides licensees with information on how to fill in the DSO Reporting Pack that they are required to submit to Ofgem.

Figure 1.1: Map of the RIIO-ED2 instructions and guidance



- 1.3 This document sets out the instructions and guidance for submitting data for:

- The DSO Stakeholder Satisfaction Survey.
- The DSO Outturn Performance Metrics.
- The DSO Regularly Reported Evidence (RRE).

1.4 This document should be read in conjunction with:

- The RIIO-ED2 electricity distribution price control – overview of the regulatory instructions and guidance document.
- The DSO Incentive Governance Document.¹
- Annex A – Glossary for the regulatory instructions and guidance.
- The associated Microsoft® Excel reporting pack named “DSO Reporting Pack”.

1.5 The purpose of the information we collect in the DSO Reporting Pack is to monitor licensees’ performance in RIIO-ED2 and to collate information that will inform the next Price Control review.

General instructions for completing the worksheets

1.6 In the worksheets, the numbers will be displayed to two decimal places. Licensees are required to provide data to a minimum of two decimal places, unless otherwise indicated in the guidance. Where a reportable value is zero the cell input should be zero. Where it is not applicable to the licensee, the cell should be left blank.

1.7 The DSO Reporting Pack contains a:

- Changes Log.
- Revenue Link Table.

1.8 The Changes Log worksheet must be used by the licensees to record any amendments (formulae or presentation) that are made to the reporting pack, including the date those changes were made. Ofgem will also record any changes made to the reporting pack in this worksheet.

1.9 The Revenue Link Table within the Revenue Link Table worksheet does not require any input from licensees. This worksheet links to other worksheets in the reporting pack. The information in this table will be used to complete the relevant cells in the Costs, Volumes and Revenue Reporting Pack.

¹ We will consult on any necessary changes to the DSO Governance Document once the RIGs have been finalised.

2. Instructions for completing the DSO Stakeholder Satisfaction Survey (DSOSASt) worksheet

- 2.1 Data submitted in the DSO Stakeholder Satisfaction Survey worksheet will be used to determine performance under the DSO Incentive.

DSO Stakeholder Satisfaction Survey population

- 2.2 Licensees must report the number of DSO Stakeholders who were issued the DSO Stakeholder Satisfaction Survey for the Regulatory Year and respective distribution network company.²
- 2.3 The appointed independent and reputable market research company ("Independent Third Party") must take all reasonable steps to contact the DSO Stakeholders, subject to the guidance in Chapter 3 of the DSO Incentive Governance Document.
- 2.4 A DSO Stakeholder must not be counted within the DSO Stakeholder Satisfaction Survey population if the Independent Third Party's emails were automatically rejected and/or if any telephone correspondence was unanswered.

Scored questions

- 2.5 Licensees must report the average (mean) of the scores that were submitted for each of the five scored questions in the DSO Stakeholder Satisfaction Survey. These must be the scores for the relevant Regulatory Year and distribution network company.
- 2.6 Licensees must also report the number of unique DSO Stakeholders who submitted a score in response to each of the five scored questions for the relevant Regulatory Year and distribution network company.
- 2.7 DSO Stakeholders must have responded to the DSO Stakeholder Satisfaction Survey within the timeframes that are set out in Chapter 3 of the DSO Incentive Governance Document.

Screening questions

- 2.8 Distribution network companies must also report the number of unique DSO Stakeholder responses received for the three screening questions in the DSO

² We use the term distribution network companies to refer to ENWL, NGED, NPg, SPEN, SSEN and UKPN.

Stakeholder Satisfaction Survey. These results must relate to the relevant Regulatory Year and distribution network company.

3. Instructions for completing the DSO Outturn Performance Metrics worksheets

- 3.1 Data submitted in the DSO Outturn Performance Metrics worksheets will be used to determine outturn performance for each of the 3 metrics that form part of the DSO Incentive.

Flexibility Reinforcement Deferral Outturn Performance Metric (FDt)

Primary Reinforcement net impact (capacity released)

- 3.2 Licensees must report work undertaken to manage capacity constraints (including voltage) affecting either an individual substation or substation group on the Primary Network (33kV and above). Within these categories, reporting must be disaggregated between reinforcement for n-1 or n-2 schemes.
- 3.3 In each of the sections of the tables for n-1 and n-2 schemes affecting individual substations or substation groups, licensees must report the Capacity Released³ at time of energisation (in MVA) and the number of schemes. Capacity Released must be an aggregated value for the three types of intervention:
- Conventional – substation: reinforcement using Conventional Solutions at substations.
 - Conventional – circuit: reinforcement using Conventional Solutions on circuits.
 - Innovative: any Innovative Solution.
- 3.4 The Capacity Released must be reported in the row corresponding to the highest and lowest voltages at a substation or the highest and lowest voltages affected by the constraint for a substation group. If a circuit constraint affects a number of substations, it should be reported under substation groups. For example, if two 33/11 kV substations are supplied by a common cable and the cable is restricting the capacity of the substation group and only circuit works are carried out on the 33kV cable causing the constraint, this should be classified as 33kV:11kV (related to the substations affected by the constraint) and not as 33kV:33kV work (based on the cable constraint).

³ Capacity Released is a net impact, in line with the definition included in the RIIO-ED2 RIGs Annex A - Glossary.

Primary Reinforcement newly deferred net impact (capacity released, counterfactual)

- 3.5 Licensees must report the Capacity Released (in MVA) and the number of schemes that would have been delivered by counterfactual reinforcement affecting either an individual substation or substation group on the Primary Network if the Distribution Flexibility Services were not procured. Within these categories, reporting must be disaggregated between reinforcement for n-1 or n-2 schemes and the row corresponding to the highest and lowest voltages at a substation or the highest and lowest voltages affected by the constraint for a substation group.
- 3.6 This counterfactual volume must be determined using the Common Evaluation Methodology (CEM) tool developed by the Energy Networks Association (ENA), or equivalent Cost Benefit Analysis (CBA) tool, and in accordance with the requirements of Electricity Distribution Standard Licence Condition (SLC) 31E (Procurement and use of Distribution Flexibility Services (SLC 31E)). This includes alignment with the reporting on flexibility that has been procured via the Distribution Flexibility Services Procurement Report.
- 3.7 Only newly deferred reinforcement through the use of Distribution Flexibility Services in the period should be included. Licensees must not include the counterfactual network reinforcement associated with ongoing Distribution Flexibility Service procurement where the contract to address an identified constraint was first commenced in previous Regulatory Year(s).

Secondary Reinforcement net impact (capacity released)

- 3.8 Licensees must report work undertaken to manage capacity constraints (including voltage) affecting a substation on the Secondary Network reporting must be disaggregated between pole mounted and ground mounted substations.
- 3.9 Licensees must report the Capacity Released at time of energisation (in MVA) and the number of schemes. Capacity Released must be an aggregated value for Conventional and Innovative solutions.

Secondary Reinforcement newly deferred net impact (capacity released, counterfactual)

- 3.10 Licensees must report the Capacity Released (in MVA) and the number of schemes that would have been delivered by counterfactual network reinforcement on the Secondary Network if the Distribution Flexibility Service was not procured.

Reporting must be disaggregated between pole mounted and ground mounted substations.

- 3.11 This counterfactual volume must be determined using the CEM tool developed by the ENA, or equivalent CBA tool, and in accordance with the requirements of Electricity Distribution Standard Licence Condition (SLC) 31E (Procurement and use of Distribution Flexibility Services (SLC 31E)). This includes alignment with the reporting on flexibility that has been procured via the Distribution Flexibility Services Procurement Report.
- 3.12 Only newly deferred reinforcement through the use of Distribution Flexibility Services in the period should be included. Licensees must not include the counterfactual network reinforcement associated with ongoing Distribution Flexibility Service procurement where the contract to address an identified constraint was first commenced in previous Regulatory Year(s).

Secondary Network Visibility Outturn Performance Metric (NVt)

Monitored sites (forecast and actual utilisation by transformer)

- 3.13 Licensees must report forecast and actual utilisation rates for every transformer on the Secondary Network that is monitored, ie uses direct measurement to allow for real time measurement and assessment of network conditions.
- 3.14 The assessment of a transformer's utilisation must be calculated as annual observed peak demand (MVA) divided by the transformer's capacity. The values must be entered to three decimal places.
- 3.15 In the tables, licensees must report for each monitored transformer:
- A unique name for each transformer that must remain unchanged throughout the price control period.
 - The type of transformer, ie ground mounted transformers (GMT) or pole mounted transformers (PMT).
 - A forecast of the transformer's utilisation for the year ahead, ie forecast utilisation for the Regulatory Year up to the 31 March immediately after the annual RRP submission. In the case of the first Regulatory Year of RIIIO-ED2, licensees must separately submit forecast utilisation up to 31 March 2024 to Ofgem by no later than 31 July 2023. The forecast for the year ahead should be based on the licensee's best view.

- The transformer's actual utilisation, ie the actual utilisation for the Regulatory Year up to the 31 March immediately before the annual RRP submission or 31 March 2024 in the case of the first Regulatory Year of RIIO-ED2.
- 3.16 For the avoidance of doubt, licensees must add transformers to the table each Regulatory Year if they are newly monitored.
- 3.17 If a transformer is reinforced during the current year, it should be excluded from the reporting (ie the actual asset utilisation for the Regulatory Year in question should be left blank). This is to prevent skewed utilisation results that reflect changes in the transformer's capacity.
- 3.18 If Ofgem chooses to audit data quality, it will request evidence of actual utilisation for a random sample of up to 100 transformers as reported in the DSO Reporting Pack. If such an audit reveals material discrepancies in the reported results, then we reserve the right to audit the entire set of actual utilisation results and recalculate accuracy scores accordingly.

Unmonitored sites

- 3.19 Licensees must report the number of transformers on the Secondary Network that are unmonitored, ie all the remaining transformers that use advanced analytics to allow for real time measurement and assessment of network conditions. The number of monitored and unmonitored transformers combined must equate to 100% of the transformers on the Secondary Network.
- 3.20 The number of transformers must be reported against the seven utilisation bands as set out in the DSO Incentive Governance Document. For each utilisation band, licensees must also report the real-time utilisation accuracy score in line with the results of their associated model that estimates real-time utilisation of unmonitored transformers and is validated using monitored transformers. The results should be expressed as the average (mean) of the mean absolute percentage error (MAPE) for a set number of iterations.
- 3.21 Licensees must develop a joint method statement to ensure that the real-time utilisation accuracy score of unmonitored transformers within each substation utilisation band are measured consistently across all licensees. The development of the method statement should be coordinated by the ENA, with input from Ofgem requested as appropriate. It must include a section that sets out each licensee's specific methodology. The method statement must be independently audited to confirm that the methodology used by each licensee to calculate accuracy scores produces consistent results. The audit will include validation of:

- the source data used.
- the modelling and calculations used (including the number of model iterations and random training/testing splits).
- the final outputs being correctly recorded in the DSO Reporting Pack.

3.22 The joint method statement, and its independent audit certificate, must be completed and submitted to Ofgem by the licensees via the ENA by no later than 31 July 2024.

Curtailment Efficiency Outturn Performance Metric (CEt)

Total import/export curtailed

3.23 Licensees must provide a unique name for each user on a Curtailable Connection that remains unchanged throughout the price control period. Where a user is subject to both import and export curtailment, both should be reported and included as separate rows in the table.

3.24 Licensees must report Curtailment, ie any action taken by the licensee to restrict the flow of electricity at the Connection Point, except where this restriction is caused by:

- an Interruption to the customer's supply; and/or
- curtailment as a result of constraints on the transmission network.

3.25 For each user, licensees must report the full import and export curtailment MWh in line with the following formulae:

$$Total\ import\ curtailed = \sum_{i=1}^n (di_i \times civ_i)$$

$$Total\ export\ curtailed = \sum_{i=1}^n (de_i \times civ_i)$$

Where:

- n is the number of curtailment instructions in the Regulatory Year.
- di is the duration of each period of Curtailment (in hours, partial or full) determined from the time the user is instructed by the licensee to Curtail its Maximum Import Capacity to the time it is notified that there is no longer a requirement to curtail.

- *de* is the duration of each period of Curtailment (in hours, partial or full) determined from the time the user is instructed by the licensee to Curtail its Maximum Export Capacity to the time it is notified that there is no longer a requirement to curtail.
- *civ* is the curtailment instruction value (ie the MW value by which the licensee instructs the user to limit its Maximum Import Capacity or Maximum Export Capacity).

Maximum potential import/export curtailment

- 3.26 For each user, licensees must also report the maximum potential import/export curtailment MWh that could have occurred in the Regulatory Year in line with the following formulae:

$$\text{Maximum potential import curtailment} = \sum_{i=1}^n (cic \times h_i)$$

$$\text{Maximum potential export curtailment} = \sum_{i=1}^n (cec \times h_i)$$

Where:

- *cic* is curtailable import capacity (ie the Maximum Import Capacity less the non-curtailable import capacity).
 - *cec* is curtailable export capacity (ie the Maximum Export Capacity less the non-curtailable export capacity).
 - *h_i* is the number of hours the user was connected to Distribution System in the Regulatory Year.
- 3.27 If a user is no longer subject to a Curtailable Connection, it should be excluded from the reporting (ie all rows for the Regulatory Year in question should be left blank).

4. Instructions for completing the DSO Regularly Reported Evidence worksheets

- 4.1 The data in the DSO Regularly Reported Evidence (RRE) worksheets will be used to gather additional performance data for each Regulatory Year during the RIIO-ED2 price control period.

RRE 1: Flexible Connections

- 4.2 Licensees must report the number of users and the total flexible import capacity and/or flexible export capacity in MW for each of the following types of Flexible Connections:
- Flexible connections that are facilitated through an **Active Network Management (ANM)** network control system.
 - **Single Generation Active Network Management (SGANM)**, which are similar to a full ANM scheme except instead of managing multiple constraints and multiple generators only one generator and up to two constraints is managed.
 - **Timed export/import connections**, where users have the possibility of connecting to the network but with limited export or import during certain periods of the day, week, month or year.
 - **Third-party ANM connections**, where users make use of shared capacity and demand management (both of which are installed and managed by the customer).
 - **Export limited connections**, where a user's installed capacity has a greater export capability than that which has been agreed to be exported onto the distribution system (and so is limited to a pre-agreed threshold).
 - **Import limited connections**, where a user's installed capacity has a greater import capability than that which has been agreed to be imported onto the distribution system (and so is limited to a pre-agreed threshold).
 - **Other**, where a user's connection is subject to Curtailment through any other form of agreement.

RRE 2: Primary Network forecasting accuracy

- 4.3 Licensees must report the forecast and actual maximum demand for substations on the Primary Network.

4.4 In the tables, licensees must report for:

- A unique name for each primary substation, excluding substations that are solely for a single customer. This must match the unique name which is submitted in the Reinforcement Load Index (LI) Reporting Pack.
- A forecast of the primary substation's maximum demand for the Regulatory Year. This must match the forecast maximum demand as included in the Long Term Development Statement (LTDS) that was published in the November two years prior to the annual RRP submission.⁴
- The primary substation's calculated maximum demand for use within the derivation of LI ranking and LI risk points and as submitted in Reinforcement LI Reporting Pack. This maximum demand is calculated as the observed maximum demand adjusted for the weather correction, measurable distributed generation (DG) latent demand and non-firm demand.

RRE 3: Transformer Utilisation

4.5 Licensees must report this through the LRE Volume Drivers Workbook, as set out in further detail in the RIIO-ED2 LRE Volume Drivers Governance Document.

RRE 4: Network options assessment outcomes

4.6 Licensees must report the number of potential reinforcement schemes that have been assessed using the CEM tool developed by the ENA, or equivalent CBA tool, on whether to defer conventional reinforcement through the use of distribution flexibility services.

4.7 Licensees must report against the following standardised categories:

- **Reinforce**, ie undertake network development to relieve an existing network constraint or facilitate new load growth.
- **Flexibility**, ie procure flexibility services to defer the need for reinforcement.
- **Reinforce and flexibility**, ie undertake a combination of reinforcement and flexibility to manage the existing constraint.
- **Signal future requirements**, ie alert potential providers of flexibility services that a requirement may arise in the near future.

⁴ For example, for the RRP submission in July 2024, the maximum demand forecast for 2023/24 would be sourced from the LTDS that was published in November 2022.

- **Do nothing**, ie no action required following the assessment of the potential reinforcement scheme.