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RIIO-ED2 LRE Volume Drivers Governance Document

Subject	Details
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This document is version 1.0 of the RIIO-ED2 LRE Volume Drivers Governance Document referred to under Special Condition 3.9 of the Electricity Distribution Licence.

This document covers the arrangements for the Load Related Expenditure (LRE) Volume Drivers in RIIO-ED2. The purpose of the Load Related Expenditure Volume Drivers is to allow Distribution Network Operators (DNOs) to deploy flexibility services and invest in their secondary networks as demand increases over the RIIO-ED2 Price Control Period.

This document is aimed at DNOs and other stakeholders with a general interest in the LRE Volume Drivers. It covers the scope, governance and administration of the LRE Volume Drivers, including the metrics and workbook that will be used to monitor and assess delivery under the volume drivers, how caps will be set, and the process that will be undertaken to review these parameters during the price control.

Related Documents

- Electricity Act 1989
- RIIO-ED2 Final Determinations, Core Methodology Document, Chapter 3
- Special Condition 3.9 (LRE Volume Drivers) of the Electricity Distribution Licence
- RIIO-ED2 LRE Volume Drivers Workbook (Appendix 1)
- ED2Models_MasterTemplate_Disag_Secondary_Reinforcement.xls (Appendix 2)

Context

Ofgem is the Office of Gas and Electricity Markets which regulates the electricity and gas industries in Great Britain. Our principal duty is to protect the interests of existing and future gas and electricity consumers. Consumers' interests are taken as a whole, including their interests in the reduction of greenhouse gases and in the security of the supply, and in the fulfilment of relevant statutory objectives when we are carrying out our functions as the gas and electricity regulator of Great Britain.

We work in various ways to protect the interests of current and future consumers. One way we do this is by regulating the network companies though the RIIO price controls. We set price controls to specify the services and level of performance that the network operators must provide for users and consumers and to restrict the amount of money that the network companies can recover through network charges over the length of a price control period.

In November 2022 we published our RIIO-ED2 Final Determinations for the electricity Distribution Network Operators (DNOs). This set out the key elements of the price control from 1 April 2023 to 31 March 2028. This included the Secondary Reinforcement Volume Driver and the Low Voltage Services Volume Driver for Load Related Expenditure (LRE). These newly introduced arrangements are given effect to in the Electricity Distribution Licences.

The purpose of this document is to outline the operation of the LRE volume drivers and the requirements the DNOs need to satisfy to comply with the associated licence conditions.

It is the responsibility of each DNO to understand the provisions of this Governance Document and how those provisions apply to it. This Governance Document comes into effect on 1 April 2023.

Contents

1. Introduction

1.1. This Load Related Expenditure (LRE) Volume Drivers Governance Document ("the Governance Document") is issued under Special Condition (SpC) 3.9 (Load Related Expenditure volume drivers) of the RIIO-ED2 licence. It provides information on the reporting requirements and methodologies for the Secondary Reinforcement Volume Driver (SRVD) and the Low Voltage Services Volume Driver (LVSVD) (the "LRE Volume Drivers"). The LRE Volume Drivers will enable relevant LRE allowances to be adjusted during RIIO-ED2.

1.2. This Governance Document is intended to help DNOs fulfil requirements to receive funding under the LRE Volume Drivers. It provides information on the accompanying monitoring and reporting framework and should be used by DNOs alongside the Regulatory Instructions and Guidance (RIGs) and Regulatory Report Packs (RRPs) processes to assist reporting on the use of the LRE volume drivers.

1.3. DNOs may use the LRE Re-opener, set out under SpC 3.2 of the RIIO-ED2 licence to apply for additional LRE allowances for certain activities that do not fall within the scope of the LRE Volume Drivers. Guidance on the LRE Re-opener is provided in Appendix 9 of the RIIO-2 Reopener Guidance and Application Requirements document.

Compliance

1.4. DNOs are required by SpC 3.9 to comply with this document.

1.5. For the avoidance of doubt, this Governance Document is subordinate to the licence. It does not change any definition or obligations contained within the licence and in the event of any ambiguity or inconsistency with the licence, the licence will take precedence.

1.6. This document in no way relieves affected parties, including DNOs, from their responsibility to ensure ongoing compliance with legislation including competition, data protection, environment, and consumer protection laws.

1.7. The Authority may amend this Governance Document in accordance with the procedure set out in SpC 3.9.

2. Secondary Reinforcement Volume Driver

Overview

2.1. The SRVD is used to fund certain load related activity on the DNOs' secondary networks relating to capacity constraints. DNOs have been provided with an ex ante allowance for this investment, set at the start of RIIO-ED2 and shown in the PCFM.

2.2. We expect that the dominant driver of secondary network reinforcement for RIIO-ED2 will be the uptake of Low Carbon Technologies (LCTs), specifically Electric Vehicles (EVs) and Heat Pumps (HPs). The pace, location and local network impact of these technologies is challenging to predict. This creates uncertainty over the volumes of network interventions which will be needed to ensure that connections of LCTs can be supported without compromising network reliability. The SRVD is designed to help manage this uncertainty.

2.3. The core parameters of the volume driver are provided in the table below.

Table 1: Secondary Reinforcement Volume Driver overview

UM Parameter	Position
Scope	The SRVD funds certain activities that are required to manage load related capacity constraints affecting substations and circuits on the secondary distribution network at voltages up to 22kV. The activities in scope for the SRVD are the replacement of ground mounted and pole mounted transformers, the replacement of overhead lines and buried cables and the use of flexibility services to defer replacement of either transformers, overhead lines or buried cables (or any combination of these). The purpose of the SRVD is to fund reinforcement works (or flexibility services) for assets that are highly utilised. For transformers, the threshold for the volume driver is where utilisation is above, or forecast to be above, 100%. Assessment of transformer utilisation is based on a forecast of the asset's utilisation for a year ahead, ie up to 31 March 2024 and each 31 March after the RRP submission thereafter. A tolerance of 10% transformer capacity additions where assets are <100% utilised is permitted.
Volume measure	The SRVD mechanism is used to vary allowances based on set unit costs for the following volume measures:

UM Parameter	Position
	• Substations: MVA gross additions for pole mounted transformers (PMTs) and ground mounted transformers (GMTs). • Circuits: km gross additions for overhead pole lines (OHL) and buried cables with separate unit costs for each, by voltage level (HV and LV). • Flexibility services: gross deferred secondary reinforcement in substations (MVA) and/or circuits (km).
Adjustment mechanism	DNOs received an ex ante secondary reinforcement allowance for the whole of Price Control Period, set at the start of the Price Control Period. The volume driver will adjust the total ex ante allowances for Secondary Reinforcement (up or down). Allowances are calculated as the sum of the volumes delivered multiplied by the relevant unit rates as set out in SpC 3.9. Five metrics are included in the monitoring and reporting package for the SRVD, to help guard against sub-optimal investment, above ex ante funding levels. • Metric 1: Transformer utilisation • Metric 2: Transformer capacity released ratio • Metric 3: Circuits length added ratio • Metric 4: Measured Low Voltage Peak Demand Growth and Electricity Consumption Growth Indices • Metric 5: Flexibility procured transformer utilisation Each metric is described in further detail later in this section of the LRE Volume Drivers Governance Document.
Totex Incentive Mechanism (TIM)	The TIM will be applied to allowances where there is variance between the unit rates set out in SpC 3.9 and the outturn unit rates.
Allowance cap	The total expenditure that can be accessed from the SRVD will be subject to a cap. The cap is set on an aggregate basis, limiting the total costs that are available from the SRVD. The cap is individual to each DNO and applies for the whole of RIIO-ED2. The value of each DNO's cap is set out in SpC 3.9.

Flexibility services

2.4. The SRVD has been designed to provide funding for the procurement of flexibility services on the secondary network ("secondary flex"), consistent with the 'flexibility first' principle that we established for RIIO-ED2 in our Sector Specific Methodology Decision[1]. This is in addition to any ex ante funding that has been allocated for secondary flex.

2.5. The economic case for flexibility, in the context of the SRVD, relates to the value of deferring investment in secondary reinforcement, where these assets would otherwise be eligible for replacement under the SRVD.

2.6. Deferral will be achieved where asset utilisation can be reliably managed below 100%, through the use of contracted flexibility services.

2.7. Allowances for flexibility will be calculated in the same way as other allowances under the SRVD ie a volume multiplied by the relevant unit rate. Paragraphs 2.8 and 2.9 describe how the unit rate is set and the volume measure that should be used.

2.8. The unit rate for flexibility services within the SRVD will reflect the value of deferring investments in other secondary reinforcement assets. The value of deferral is determined by the type of asset investment being deferred and the period of deferral, with the unit rate calculated as set out in SpC 3.9 of the RIIO-ED2 licence.

2.9. This unit rate will be multiplied by a volume; in this case the transformer capacity (MVA) or circuit length (km) as appropriate, that would have been delivered by the counterfactual network reinforcement under the SRVD if the flexibility service wasn't procured, to provide the overall secondary flexibility allowance. This counterfactual volume shall be determined using the Common Evaluation Methodology (CEM) tool developed by the Energy Networks Association and Baringa, in accordance with the requirements of Electricity Distribution Standard Licence Condition (SLC) 31E (Procurement and use of Distribution Flexibility Services (SLC 31E)).

2.10. Flexibility solutions delivered through the SRVD must be reported and procured in accordance with the provisions of SLC 31E. DNOs should follow the reporting requirements set out in SLC 31E in meeting this condition, including the detailed requirements in respect of

[1] https://www.ofgem.gov.uk/publications/riio-ed2-sector-specific-methodology-decision

annual reporting on the flexibility they intend to procure (via a Distribution Flexibility Services Procurement Statement) and that which has been procured (via a Distribution Flexibility Services Procurement Report).

2.11. Only flexibility that is shown to be economically advantageous can be funded through the SRVD. In accordance with SLC 31E, DNOs must publish details of the comprehensive quantitative analysis that is undertaken, including through the CEM tool, to demonstrate that flexibility is the most economic and efficient solution in all cases where it is proposed. Such details shall be reported through the annual Distribution Flexibility Services Procurement Statement and the Distribution Flexibility Services Procurement Report, as required by SLC 31E.

2.12. Where a flexibility contract is procured using the SRVD in order to defer the reinforcement of an asset, and that asset is then subsequently reinforced, prior to the expiry of the flexibility contract, the DNO must highlight this as part of the review of the LRE volume drivers (see Chapter 4) and provide justification as to why the reinforcement was required. Where we consider that the requirement for secondary reinforcement in advance of the expiry of the flexibility contract is not justified, we may disallow volumes relating to the secondary reinforcement. Justification could for example be a change in circumstances impacting load forecasts, that could not reasonably have been foreseen at the point where the flexibility contract was entered into.

2.13. The use of flexibility services funded through the SRVD, does not reduce or compromise the requirement for compliance with any other part of the RIIO-ED2 licence, including standards and obligations relating to reliability and network security.

2.14. DNOs can secure allowances for flexibility services through the SRVD at any point during the Price Control Period, in accordance with this Governance Document. However, the SRVD is intended to enable funding of secondary flex over and above the ex ante secondary flex allowances that have been set for RIIO-ED2. As such, during the RIIO-ED2 close out process, we will carry out a reconciliation of secondary flex spend across both ex ante allowances and the volume driver. In the event that all ex ante secondary flex allowances have not been used, we will adjust secondary flex allowances funded through the volume driver down by the total of the unused ex ante allowance.

2.15. The inclusion of flexibility in the SRVD will be reviewed in Year 3 as part of the wider LRE Volume Driver review, described in Chapter 4 of this document.

SRVD reporting and monitoring framework

2.16. DNOs are required to report their performance in relation to the SRVD in accordance with the RIIO-ED2 RIGs. This includes submission by the deadline stated in the RIGs and in the format prescribed by the RIIO-ED2 RRP. The sections below describe the SRVD reporting and monitoring framework in more detail, including the specific metrics that will be used. Where the same information is required for multiple metrics, DNOs are only required to report this information once.

2.17. Central to the reporting and monitoring framework is the LRE Volume Drivers Workbook (Appendix 1). This workbook forms part of this LRE Volume Drivers Governance Document, will form part of the RRPs, and will be used throughout the Price Control Period, to track volumes, costs and compliance with the metrics described in this document.

2.18. In this SRVD reporting and monitoring framework, the following definitions of HV and LV apply, in respect of transformers and circuits;

- High Voltage (HV): 1,000V – 22kV
- Low Voltage (LV): <1,000V

2.19. In accordance with the RRPs 'CV2 – Secondary Reinforcement' datasheet, each DNO must submit both their costs and volumes annually for the following reinforcement activities:

(a) Substation Reinforcement (reinforcement to increase capacity at substations)

- PMT Transformer gross (capacity) additions (HV / LV, MVA)
- GMT Transformer gross (capacity) additions (HV / LV, MVA)

(b) Circuit Reinforcement (reinforcement to increase the capacity of circuits)

- OHL Circuit (length) additions (LV, km)
- OHL Circuit (length) additions (HV, km)
- Cable Circuit (length) additions (LV, km)
- Cable Circuit (length) additions (HV, km)

2.20. In accordance with the RRPs 'CV2 – Secondary Reinforcement' datasheet, each DNO must submit both their costs and deferred activity volumes annually split out by the length of the contact, for the following activity types when flexibility has been procured to defer reinforcement:

(a) Deferred Substation Reinforcement

- PMT Transformer capacity deferred (gross, counterfactual) (HV / LV, MVA)
- GMT Transformer capacity deferred (gross, counterfactual) (HV / LV, MVA)

(b) Deferred Circuit Reinforcement

- OHL Circuit length deferred (gross, counterfactual) (LV, km)
- OHL Circuit length deferred (gross, counterfactual) (HV, km)
- Cable Circuit length deferred (gross, counterfactual) (LV, km)
- Cable Circuit length deferred (gross, counterfactual) (HV, km)

2.21. In accordance with the relevant RRP datasheet, each DNO must also submit their volumes for the following, in order to facilitate the calculation of the reporting and monitoring metrics:

- PMT gross capacity additions (HV / LV, MVA) within the respective 20% **forecast** utilisation bands of the transformer before it was reinforced.[2]
- GMT gross capacity additions (HV / LV, MVA) within the respective 20% **forecast** utilisation bands of the transformer before it was reinforced.
- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#).
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#).
- PMT disposals (HV / LV, MVA).
- GMT disposals (HV / LV, MVA).
- LV monitored GMT peak demand growth (HV / LV, #) within the respective growth bands.[3]
- LV monitored PMT peak demand growth (HV / LV, #) within the respective growth bands.
- LV monitored GMT electricity consumption growth (HV / LV, #) within the respective growth bands.

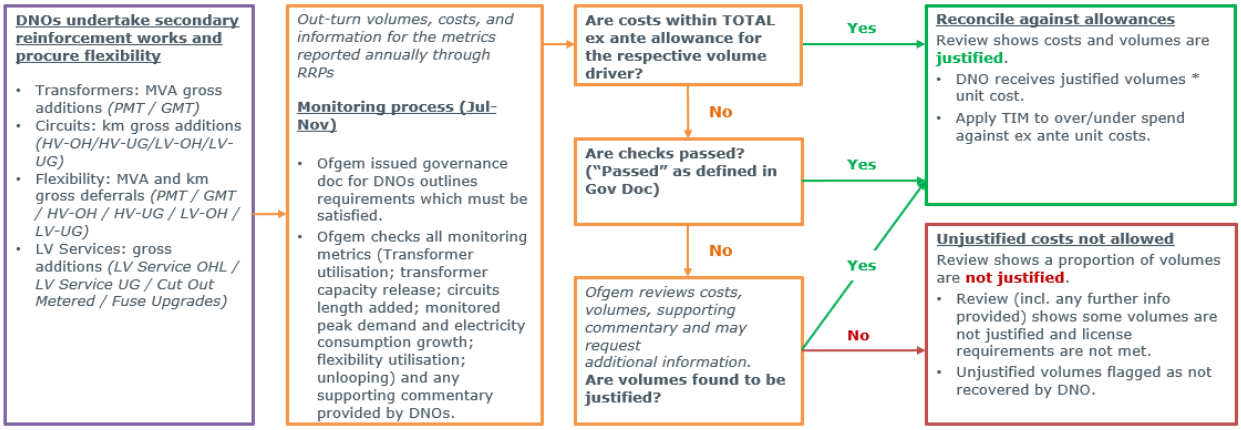
[2] The 20% bands for PMT and GMT gross capacity additions are those outlined in the RRPs: $0 \leq x < 20\%$, $20\% \leq x < 40\%$, $40\% \leq x < 60\%$, $60\% \leq x < 80\%$, $80\% \leq x < 100\%$, $100\% \leq x < 120\%$, and $\leq 120\%$

[3] The bands are those outlined in the RRPs: $x < -5\%$, $-5\% \leq x < 0\%$, No growth, $0\% < x < 5\%$, $5\% \leq x < 10\%$, $10\% \leq x < 20\%$, $20\% \leq x < 30\%$, $30\% \leq x < 50\%$, $50\% \leq x$, monitored sites with sufficient data but bad data / nil return, and monitored sites with insufficient data. These bandings apply for PMTs and GMTs, for both peak demand and electricity consumption growth.

- LV monitored PMT electricity consumption growth (HV / LV, #) within the respective growth bands
- PMT existing capacity of assets with flexibility procured (HV / LV, MVA) within the respective 20% **forecast** transformer utilisation bands and split out by the length of the contract in years.[4] [5]
- GMT existing capacity of assets with flexibility procured (HV / LV, MVA) within the respective 20% **forecast** transformer utilisation bands and split out by the length of the contract.

2.22. Figure 1 below sets out the high-level process that DNOs and the Authority will follow in using the SRVD.

Figure 1: SRVD monitoring process



SRVD monitoring metrics

2.23. DNOs must provide information which will be used to track DNO performance against five SRVD metrics in the RRPs in each year of the price control. The metrics are designed to protect customers against unjustified costs arising from sub-optimal investment in the network that was not supported by robust information on network requirement. This is achieved by each metric identifying whether DNOs are exhibiting unexpected behaviour, for example increasing investment when LCT demand is lower than expected, or reinforcing a high proportion of low utilised assets.

[4] The 20% bands are those outlined in the RRPs: 0 ≤ x < 20%, 20% ≤ x < 40%, 40% ≤ x < 60%, 60% ≤ x < 80%, 80% ≤ x < 100%, 100% ≤ x < 120%, and ≤ 120%.
[5] The length of the contract should be recorded as either 1, 2, 3, 4, or 5 years.

2.24. Metrics will be calculated from the first year of the price control. If DNO expenditure is within its ex ante RIIO-ED2 allowance for the relevant cost areas, results from the metrics will not lead to withholding of allowances by the Authority.

2.25. If, having exceeded its ex ante allowances for the SRVD activities described in Appendix 1 of SpC 3.9, the DNO does not pass certain metrics, the Authority may review costs, volumes, and additional information submitted by the DNOs as outlined in Chapter 4, associated with the failed metric(s). Where the review identifies sub-optimal expenditure, the Authority may decide to disallow a portion of the allowances associated with the failed metric(s). More detail on the annual review process can be found in Chapter 4.

2.26. Metrics 2a, 2b, 3a and 3b monitor the efficiency of SRVD activity, with reference to LCT demand growth, by calculating ratios that are compared with industry benchmarks. The calculation of the industry benchmark ratios can be found in the *Cal_LCT_Modelling_Inputs* tab of the RIIO-ED2 Secondary Reinforcement Disaggregated Model (the "Disaggregated Model"), attached at Appendix 2.

Metric 1: Transformer utilisation

2.27. The transformer utilisation metric is designed to control against sub-optimal reinforcement of transformers. The metric checks that reinforcement activities, funded through the SRVD, are occurring within areas where transformer utilisation is above, or forecast to be above, 100%.

2.28. Assessment of transformer utilisation shall be based on a forecast of the asset's utilisation for a year ahead, ie to the 31 March immediately after the annual RRP submission or 31 March 2024 in the case of the first year of RIIO-ED2. A tolerance of 10% of capacity additions in utilisation bands below 100% will be permitted, to account for situations where it is justified, or necessary for safety reasons, to invest in transformers with a utilisation below 100%.

2.29. The metric uses the following information reported by each DNO on an annual basis:

- PMT gross capacity additions (HV / LV, MVA) within the respective 20% **forecast** utilisation bands of the transformer before it was reinforced.[6]
- GMT gross capacity additions (HV / LV, MVA) within the respective 20% **forecast** utilisation bands of the transformer before it was reinforced.

2.30. DNOs must develop a joint method statement that ensures that utilisation is measured consistently across DNOs. The method statement must be independently audited to confirm that the methodology is appropriate and can be applied consistently by all DNOs. This will include validation of:

- the source data used
- modelling and calculations being based on the source data correctly
- final outputs being correctly recorded
- final outputs providing a consistent measure of utilisation as defined in the method statement.

2.31. In order to recover allowances under the SRVD, the independent audit of the method statement must be completed before July 2024 (ie when reporting starts for the first year of RIIO-ED2).

Metric 2a: Transformer capacity released ratio (PMT)

2.32. The transformer capacity released ratio (PMT) checks that transformer capacity additions for PMTs are proportional to changes in LCT demand, by measuring the ratio of PMT net capacity additions[7] to the increase in peak load capacity for PMTs caused by new LCT demand.[8] The percentage of new LCTs contributing to peak load capacity for PMTs is assumed to be proportional to the percentage of total capacity served by PMTs on the network and is calculated in the Disaggregated Model.

2.33. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation

[6] The 20% bands are those outlined in the RRPs: 0 ≤ x < 20%, 20% ≤ x < 40%, 40% ≤ x < 60%, 60% ≤ x < 80%, 80% ≤ x < 100%, 100% ≤ x < 120%, and ≤ 120%
[7] Net capacity additions are calculated as the difference between gross capacity additions and disposals.
[8] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions; 1.3kW/EV; and 2.9kW/HP.

above that resulting in the check not being passed. The formula for the ratio is presented below:

$$\frac{[PMT\ gross\ capacity\ released_t\ -\ PMT\ disposals_t]}{\sum_i Proportion\ of\ LCTs\ served\ by\ PMTs_i \cdot Additional\ LCT\ connected_{t,i} \cdot Peak\ load\ contribution_i}$$

Where:

$t = time$

$i = LCT\ technology\ type$

2.34. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- PMT Transformer gross (capacity) additions (HV / LV, MVA)
- PMT disposals (HV / LV, MVA)

Metric 2b: Transformer capacity released ratio (GMT)

2.35. The transformer capacity released ratio (GMT) checks that transformer capacity additions for GMTs are proportional to changes in LCT demand, by measuring the ratio of GMT net capacity additions[9] to the increase in peak load capacity for GMTs caused by new LCT demand.[10] The percentage of new LCTs contributing to peak load capacity for GMTs is assumed to be proportional to the percentage of total capacity served by GMTs on the network and is calculated in the Disaggregated Model.

2.36. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that resulting in the check not being passed. The formula for the ratio is presented below:

$$\frac{[GMT\ gross\ capacity\ released_t\ -\ GMT\ disposals_t]}{\sum_i Proportion\ of\ LCTs\ served\ by\ GMTs_{\ i} \cdot Additional\ LCT\ connected_{t,i} \cdot Peak\ load\ contribution_i}$$

Where:

[9] Net capacity additions are calculated as the difference between gross capacity additions and disposals.
[10] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions; 1.3kW/EV; and 2.9kW/HP.

$t = time$

$i = LCT\ technology\ type$

2.37. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- GMT Transformer gross (capacity) additions (HV / LV, MVA)
- GMT disposals (HV / LV, MVA)

Metric 3a: LV Circuits length added ratio (LV OHL)

2.38. The LV circuits length added ratio (LV OHL) checks that the addition of LV overhead pole line circuits (length) is proportional to changes in LCT demand, by measuring the ratio of LV overhead pole line (LV OHL) length additions to the increase in peak load capacity for LV OHLs caused by new LCT demand.[11] The percentage of new LCTs contributing to peak load capacity for LV overhead pole lines is assumed to be proportional to the percentage of LV overhead pole lines on the network (relative to the total number of LV circuits) and is calculated in the Disaggregated Model.

2.39. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that meaning that the check will not be passed. The formula for the ratio is shown below:

$$\frac{LV\ OHL\ length\ added_t}{\sum_i Proportion\ of\ LCTs\ served\ by\ LV\ OHLs_{\ i} \cdot Additional\ LCT\ connected_{t,i} \cdot\ Peak\ load\ contribution_i}$$

Where:

$t = time$

$i = LCT\ technology\ type$

[11] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions: 1.3kW/EV; and 2.9kW/HP.

2.40. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- OHL Circuit (length) additions (LV, km)

Metric 3b: HV Circuits length added ratio (HV OHL)

2.41. The HV circuits length added ratio (HV OHL) checks that the addition of HV overhead pole line circuits (length) is proportional to changes in LCT demand, by measuring the ratio of HV overhead pole line (HV OHL) length additions to the increase in peak load capacity for HV OHLs caused by new LCT demand.[12] The percentage of new LCTs contributing to peak load capacity for HV overhead pole lines is assumed to be proportional to the percentage of HV overhead pole lines on the network (relative to the total number of HV circuits) and is calculated in the Disaggregated Model.

2.42. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that meaning that the check will not be passed. The formula for the ratio is shown below:

$$\frac{HV\ OHL\ length\ added_t}{\sum_i Proportion\ of\ LCTs\ served\ by\ HV\ OHLs\ _i \cdot Additional\ LCT\ connected_{t,i} \cdot\ Peak\ load\ contribution_i}$$

Where:

$t = time$

$i = LCT\ technology\ type$

2.43. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)

[12] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions; 1.3kW/EV; and 2.9kW/HP.

- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- OHL Circuit (length) additions (HV, km)

Metric 3c: LV Circuits length added ratio (LV cable)

2.44. The LV circuits length added ratio (LV cable) checks that the addition of LV cable circuits (length) is proportional to changes in LCT demand, by measuring the ratio of LV cable length additions to the increase in peak load capacity for LV cables caused by new LCT demand.[13] The percentage of new LCTs contributing to peak load capacity for LV cables is assumed to be proportional to the percentage of LV cables on the network (relative to the total number of LV circuits) and is calculated in the Disaggregated Model.

2.45. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that meaning that the check will not be passed. The formula for the ratio is presented below:

$$\frac{LV\ Cable\ length\ added_{\ t}}{\sum_i Proportion\ of\ LCTs\ served\ by\ LV\ cables_{\ i} \cdot Additional\ LCT\ connected_{\ t,i} \cdot Peak\ load\ contribution_{\ i}}$$

Where:

$t = time$

$i = LCT\ technology\ type$

2.46. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- Cable Circuit (length) additions (LV, km)

Metric 3d: HV Circuits length added ratio (HV cable)

[13] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions; 1.3kW/EV; and 2.9kW/HP.

2.47. The HV circuits length added ratio (HV cable) checks that the addition of HV cable circuits (length) is proportional to changes in LCT demand, by measuring the ratio of HV cable length additions to the increase in peak load capacity for HV cables caused by new LCT demand.[14] The percentage of new LCTs contributing to peak load capacity for HV cables is assumed to be proportional to the percentage of HV cables on the network (relative to the total number of HV circuits) and is calculated in the Disaggregated Model.

2.48. Each DNO is compared to an industry benchmark, calculated in the Disaggregated Model. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that meaning that the check will not be passed. The formula for the ratio is presented below:

$$\frac{HV\ Cable\ length\ added_{\ t}}{\sum_i Proportion\ of\ LCTs\ served\ by\ HV\ cables_{\ i} \cdot Additional\ LCT\ connected_{\ t,i} \cdot Peak\ load\ contribution_{\ i}}$$

Where:

$t = time$

$i = LCT\ technology\ type$

2.49. The metric uses the following information reported by each DNO on an annual basis:

- HPs installed on the DNOs' network during the year, using the MCS database as a data source (#)
- EVs registered in the DNOs' region(s) during the year using the DVLA registration database as a data source (#)
- Cable Circuit (length) additions (HV, km)

Metric 4: Measured Low Voltage Peak Demand Growth and Electricity Consumption Growth Indices

2.50. The Measured Low Voltage Peak Demand Growth and Electricity Consumption Growth Indices measure the change over time in the peak load and electricity consumption volume measured by LV Monitoring[15]. The metric tracks whether year on year growth is positive or

[14] LCT peak load contribution is calculated for EVs and heat pumps using the following assumptions; 1.3kW/EV; and 2.9kW/HP.

[15] LV Monitoring means the use of direct measurement, or advanced analytics, to allow for real time measurement and assessment of network conditions on the licensee's LV network, as defined in the RIIO-ED2 licence

negative. It is intended to provide visibility of the change in demand on the low voltage network as opposed to check whether DNO expenditure is sub-optimal.

2.51. DNOs are required to calculate their (i) year-on-year Annual Peak Demand Growth and (ii) year-on-year Annual Electricity Consumption Growth measured by LV Monitoring and where there is sufficient data to do so.[16] DNOs should report additional data points as 'new sites' once they have LV Monitoring installed, even where insufficient data has been recorded to calculate year-on-year annual growth.

2.52. The year-on-year Annual Peak Demand Growth shall be calculated as the percentage difference in measured peak demand across regulatory reporting years. For this measure the in-year annual peak demand shall be based on the average of the peak demand across multiple events for each LV Monitoring point, using the highest 10 Half Hour periods for that LV substation. The formula is presented below:

$$\frac{Peak\ demand\ (asset\ type\ i)_t\ -\ Peak\ demand\ (asset\ type\ i)_{t-1}}{Peak\ demand\ (asset\ type\ i)_{t-1}} \cdot 100\%$$

Where:

$T = time$

$Asset\ type\ i = GMT\ or\ PMT$

2.53. The year-on-year Annual Electricity Consumption Growth shall be calculated as the percentage difference in measured annual electricity consumption (MWh) across regulatory reporting years, at the locations where LV Monitoring is being used. The formula is presented below:

$$\frac{Electricity\ consumption\ (asset\ type\ i)_t\ -\ Electricity\ consumption\ (asset\ type\ i)_{t-1}}{Electricity\ consumption\ (asset\ type\ i)_{t-1}} \cdot 100\%$$

Where:

$T = time$

$Asset\ type\ i = GMT\ or\ PMT$

2.54. As per Data Best Practice requirements, we expect DNOs to publish all LV monitoring data, subject to open data triage processes, and make this accessible to stakeholders.

[16] This will require data for two consecutive Regulatory Years.

2.55. The metric uses the following information reported by each DNO on an annual basis:

- LV monitored GMT peak demand growth (HV / LV, #) within the respective growth bands.[17]
- LV monitored PMT peak demand growth (HV / LV, #) within the respective growth bands.
- LV monitored GMT electricity consumption growth (HV / LV, #) within the respective growth bands.
- LV monitored PMT electricity consumption growth (HV / LV, #) within the respective growth bands.

Metric 5: Flexibility procured transformer utilisation

2.56. The flexibility procured transformer utilisation metric is designed to check that flexibility is only being procured in situations where transformer utilisation is above, or projected to be above, 100%.

2.57. Assessment of transformer utilisation shall be based on a forecast of the asset's utilisation for a year ahead, ie to the 31 March immediately after the annual RRP submission or 31 March 2024 in the case of the first year of RIIO-ED2.

2.58. The metric uses the following information reported by each DNO on an annual basis:

- PMT existing capacity of assets with flexibility procured (HV / LV, MVA) within the respective 20% **forecast** transformer utilisation bands and split out by the length of the contract in years.[18] [19]
- GMT existing capacity of assets with flexibility procured (HV / LV, MVA) within the respective 20% **forecast** transformer utilisation bands and split out by the length of the contract.

[17] The bands are those outlined in the RRPs: x < -5%, -5% ≤ x < 0%, No growth, 0% < x < 5%, 5% ≤ x < 10%, 10% ≤ x < 20%, 20% ≤ x < 30%, 30% ≤ x < 50%, 50% ≤ x, monitored sites with sufficient data but bad data / nil return, and monitored sites with insufficient data. These bandings apply for PMTs and GMTs, for both peak demand and electricity consumption growth.
[18] The 20% bands are those outlined in the RRPs: 0 ≤ x < 20%, 20% ≤ x < 40%, 40% ≤ x < 60%, 60% ≤ x < 80%, 80% ≤ x < 100%, 100% ≤ x < 120%, and ≤ 120%.
[19] The length of the contract should be recorded as either 1, 2, 3, 4, or 5 years.

SRVD Cap

2.59. The total expenditure that can be recovered through the SRVD will be subject to a DNO specific cap, set out in SpC 3.9. The cap is set on an aggregate basis, limiting the total costs that are available from the volume driver, ie individual caps will not be set per asset type. The cap applies for the whole of RIIO-ED2, allowing an uneven profile of spend across years if necessary.

2.60. The SRVD cap for each licensee has been determined by adding additional reinforcement costs to the SRVD ex ante allowances. Such additional reinforcement costs are calculated using the Disaggregated Model and are the difference between the efficient reinforcement costs using the LCT uptake forecasts in the FES 2022 System Transformation scenario (used in the derivation of ex ante funding) and the efficient reinforcement costs using the LCT uptake forecasts in the FES 2022 Leading the Way scenario. All other assumptions used in the calculation of the cap are the same as those used in the Disaggregated Model.

2.61. Taking a scenario from an independent source ensures an even treatment across DNOs. Using a scenario with ambitious forecasts for LCT take-up reduces the risk of blocking net zero whilst mitigating the risk that DNOs are provided with uncontrolled funding that will unfairly increase costs for GB consumers.

2.62. If a DNO reaches the cap, it will no longer be able to increase allowances against the SRVD. As set out in Chapter 4, the level of the cap will be reviewed in Year 3 of RIIO-ED2, with provision to review the cap earlier should it be necessary.

3. Low Voltage Services Volume Driver

Overview

3.1. The LVSVD is designed to fund proactive and reactive load related LV service reinforcement, including works associated with 'unlooping' of LV service cables.

3.2. The core parameters of the volume driver are provided in the table below.

Table 2: Low Voltage Services Volume Driver overview

UM Parameter	Position
Scope	The LVSVD funds certain activities that are required to increase the capacity of service connections to individual loads at low voltage (<1kV). The LVSVD can fund certain proactive and reactive load related LV service reinforcement activities as follows; • Installation of new overhead pole lines – LV Service (OHL) • Installation of buried cables – LV Service (UG) • Works to upgrade switchgear cut outs – Cut Out (metered) • Works to upgrade switchgear fuses - Fuse upgrades In the context of the LVSVD the following definitions apply: **LV Service** means the service line from the low voltage distributing main to the licensee's protection device situated upon the Customer's premises, but does not include the joint and associated components connecting the service line to the distributing main. **Reactive Works** means works that are undertaken in response to a specific customer request **Proactive Works** means works that are undertaken where no specific customer request has been received
Volume measure	The mechanism is used to vary allowances based on set unit costs for the volume of assets reinforced for each activity. The same unit cost will apply whether the works are delivered proactively or reactively. In each case the volume measure is the number of each type of activity delivered, where the specific activities are as follows. • Overhead pole lines – LV Service (OHL) • Buried cables – LV Service (UG)

UM Parameter	Position
	• Number Switchgear – Cut Out (metered) • Number Switchgear – Fuse upgrades
Adjustment mechanism	DNOs received an ex ante allowance for the whole Price Control Period, set at the start of RIIO-ED2. The LVSVD will adjust the ex ante allowances for LV Services (up or down). Allowances are calculated as the sum of the volumes delivered multiplied by the relevant unit rates as set out in SpC 3.9. One 'LV Services unlooping' metric is included in the monitoring and reporting package for the LVSVD, to ensure that any proactive LV Service works carried out and funded through the LVSVD are primarily related to unlooping.
Totex Incentive Mechanism (TIM)	The TIM will be applied to allowances where there is variance between the unit rates set out in SpC 3.9 and the outturn unit rates.
Allowance cap	The total expenditure that can be accessed from the LVSVD will be subject to a cap. The cap is set on an aggregate basis, limiting the total costs that are available from the volume driver. The cap is individual to each DNO and applies for the whole of RIIO-ED2. The value of each DNO's cap is set out in SpC 3.9.

LVSVD reporting and monitoring framework

3.3. DNOs must report their individual performance in relation to the LVSVD in accordance with the RIIO-ED2 RIGs. This includes submission by the stated deadline and in the format prescribed by the RIIO-ED2 RRP.

3.4. Each DNO is required to submit both their costs and volumes annually in the RRP 'CV2 – Secondary Reinforcement' datasheet for the following reinforcement asset additions:

- Reactive OHL LV Service reinforcement asset additions (LV Service (OHL), LV, #)
- Reactive Cable LV Service reinforcement asset additions (LV Service (UG), LV, #)
- Reactive Switchgear reinforcement asset additions (Cut out (metered), LV, #)
- Reactive Switchgear reinforcement asset additions (Fuse upgrades, LV, #)
- Proactive OHL LV Service reinforcement asset additions (LV Service (OHL), LV, #)

- Proactive Cable LV Service reinforcement asset additions (LV Service (UG), LV, #)
- Proactive Switchgear reinforcement asset additions (Cut out (metered), LV, #)
- Proactive Switchgear reinforcement asset additions (Fuse upgrades, LV, #)

3.5. In accordance with the RRPs 'CV2 – Secondary Reinforcement' datasheet, each DNO must also submit their volumes for the number of properties that have been unlooped[20], in order to facilitate the calculation of the reporting and monitoring metric.

3.6. The reporting and monitoring process that DNOs and the Authority will follow in using the LVSVD is the same as the SRVD process and is set out above at Figure 1 Chapter 2.

LVSVD monitoring metric

3.7. The LVSVD metric is designed to ensure that any proactive LV Service works carried out and funded through the LVSVD are primarily related to unlooping.

3.8. The metric will be calculated from the first year of the Price Control Period. If DNO expenditure is within the ex ante allowance for the activities identified at paragraph 3.4, results from the metric will not lead to withholding of allowances by the Authority.

3.9. If, having exceeded its ex ante allowances for the activities identified at paragraph 3.4, the DNO does not pass the metric, the Authority may review costs, volumes, and additional information submitted by the DNOs as outlined in Chapter 4. Where the review identifies sub-optimal expenditure, the Authority may decide to disallow a portion of the allowances. Further details on the review process can be found in Chapter 4.

Metric 6: LV Services Unlooping

3.10. The LVSVD metric is designed to ensure that any proactive LV Service works carried out and funded through the LVSVD, are primarily related to unlooping.

3.11. The metric checks that LV Service cables (overhead pole lines and cables), fuse upgrades and cut outs (metered) are in the majority of cases only being reinforced as part of an unlooping. In relation only to proactive LV Service works; if the number of i) LV Service

[20] Properties that have been unlooped (#) means, the number of properties that were originally fed from a looped service, and which, because of an unlooping, are now fed by separate cables connected directly to the distribution main.

overhead pole lines and LV Service cables, ii) cut outs (metered), or iii) fuse upgrades exceeds the number of properties unlooped by more than 20% then the check will not be passed.

3.12. The metric uses the following information reported by each DNO on an annual basis:

- Number of properties proactively unlooped (#)
- Proactive OHL LV service reinforcement asset additions (LV Service (OHL), LV, #)
- Proactive Cable LV Service reinforcement asset additions (LV Service (UG), LV, #)
- Proactive Switchgear reinforcement asset additions (Cut out (metered), LV, #)
- Proactive Switchgear reinforcement asset additions (Fuse upgrades, LV, #)

LVSVD Cap

3.13. The total expenditure that can be recovered from the LVSVD will be subject to a DNO specific cap, set out in SpC 3.9. The cap is set on an aggregate basis limiting the total costs that are available from the volume driver, ie individual caps will not be set per asset type. The cap applies for the whole of RIIO-ED2, which allows an uneven profile of spend across years if necessary.

3.14. The LVSVD cap for each licensee has been determined by adding an additional sum for proactive & reactive LV Services to the LVSVD ex ante allowances. Such additional costs have been calculated by applying the industry median % uplift between submitted CV2 LV Services costs and submitted M13 LV Services costs, to the modelled LVSVD ex ante allowances. All other assumptions used in the calculation of the cap are the same as those used in the Disaggregated Model.

3.15. If a DNO reaches the cap, it will no longer be able to increase allowances against the LVSVD. As set out in Chapter 5, the level of the cap will be reviewed in Year 3 of RIIO-ED2, with provision to review the cap earlier should it be necessary.

4. Annual metric review process

4.1. DNOs will report on the five SRVD metrics and the LVSVD metric as part of the annual RRP process. Ofgem will then review the information between July and November.

4.2. If a DNO's cumulative, recalculated LRE Volume Driver costs (using adjusted volumes and efficient unit rates and excluding any net impact of the TIM) have not exceeded its ex ante allowance, or it has exceeded its ex ante allowance, passed all the metrics and not reached the cap, then the volumes recorded in that year will be used for the volume driver calculations without adjustment, with the TIM applied to allowances where there is variance between the unit rates set out in SpC 3.9 and the outturn unit rates.

4.3. If any of the six metrics are not passed, with the exception of SRVD Metric 4, and a DNO's cumulative, recalculated LRE Volume Driver costs (using adjusted volumes and efficient unit rates and excluding any net impact of the TIM) have exceeded its LRE Volume Driver ex ante allowances for the whole of the Price Control Period, for one or both LRE Volume Drivers, the Authority may require the DNO to submit additional information.

4.4. Listed below are examples of the type of additional information that DNOs would be expected to submit if one or more of the metrics are not passed, though the Authority may request such additional information as it considers necessary in the circumstances. The specific additional information requested will depend on which of the six metrics have not passed. DNOs may also provide additional information for the Authority's consideration.

- Forecast LCT volume uptake;
- Engineering Justification Papers for interventions on low (ie below 100%) utilisation assets;
- Circuits (km and MVA) reinforced broken down by new circuits and replacement of old circuits;
- Local engagement that has informed the DNO investments subject to the review;
- Data on HV and LV network existing and forecast constraints in the areas where reinforcement has been undertaken, both before and after the interventions; and
- Age and condition of assets replaced.

4.5. If, following its review of this additional information, the Authority is not satisfied that the expenditure above the ex ante allowance was justified, the Authority may decide to withhold some, or all of the expenditure incurred by the DNO in relation to the LRE Volume Driver(s) that had metrics which were not passed.

5. Review of LRE Volume Drivers

5.1. There will be a review of the LRE Volume Drivers during RIIO-ED2. The review is designed to ensure that they are functioning as intended, ie that DNOs are able to invest in the network, or procure flexibility services, to meet net zero, without consumers paying for work that isn't necessary.

Process

5.2. The review of the LRE Volume Drivers will begin in October 2025, as the RIIO-ED2 Year 2 RIGs and RRP processes are reaching a conclusion. The Authority will aim to conclude its review by March 2026, ahead of the RIIO-ED2 Year 3 RIGs and RRP processes. If, as a result of the review the Authority identifies changes required to the LRE Volume Drivers or this Governance Document, it will consult on the proposed changes and will aim to publish its decision on the proposed changes during March 2026.

5.3. The Authority will notify the DNOs by 1 July 2025 of any information it considers relevant to inform the scope of the review. DNOs should provide the Authority with that information by 30 Sept 2025.

5.4. Following the submission of that information the Authority will engage in a supplementary question (SQ) process with the DNOs. The detailed arrangements of the SQ process which will be agreed between the Authority and the DNOs in September 2025.

5.5. If, as a result of the review, the Authority identifies changes required to be made to either SpC 3.9 or this Governance Document, it will make those changes following the statutory modification process set out in S11A of the Electricity Act 1989. Where changes to the RIGs or RRPs are identified as a result of the review, those changes will made in accordance with Standard Licence Condition 46.

5.6. The Authority may, if it considers it necessary to do so, initiate the review earlier during the Price Control Period, at a time agreed with the DNOs.

Scope

5.7. The scope of the review will include, but is not limited to:

- The efficacy of the unit costs set out in the volume drivers.

- A review of whether the volume driver caps are set at the right level, including through consideration of revised forecasts for LCT uptake, outturn LCT uptake figures and additional commentary provided by DNOs. For the cap to be increased, DNOs must provide strong evidence that additional investment is justified and that demand arising from LCTs is increasing above the levels predicted by the FES 2022 Leading the Way scenario.
- A review of the method statement required under SRVD Metric 1.
- A review of the flexibility services element of the SRVD, its effectiveness in supporting flexibility solutions where investments in secondary reinforcements can be deferred, and consideration of the efficiency of DNO activity under this part of the volume driver.
- Consideration of whether the SRVD metrics are functioning effectively, ie whether they are identifying unjustified investment and not incorrectly identifying justified investment.
- An assessment of progress against the expectations of granular utilisation data to be available for RIIO-ED3.
- Availability and consistency of data.

5.8. In respect of flexibility services, DNOs will be required to provide the Authority with information for each asset where flexibility has been used to defer investment through the SRVD mechanism. Such information may include the following, as a minimum:

- Details of the secondary reinforcement activity that has been deferred (including the type of asset, the relevant volume and cost and the revised forecast date for replacement).
- Details of the flexibility services procured (contract term, service provider, terms and type of flex, cost).
- Forecast asset utilisation at the start and end of the flexibility contract.
- Details of assets where reinforcement was originally deferred through the use of contracted flexibility services but that have subsequently been reinforced within the RIIO-ED2 period.

Appendix 1 – RIIO-ED2 LRE Volume Drivers Workbook

The RIIO-ED2 LRE Volume Drivers Workbook has the following filename:

RIIO-ED2 LRE Volume Drivers Workbook 1.0.xls

Appendix 2 - RIIO-ED2 Secondary Reinforcement Disaggregated Model

The Secondary Reinforcement Disaggregated Model has the following filename:

ED2Models_MasterTemplate_Disag_Secondary_Reinforcement.xls