Network Loss Methodology

Pursuant to Schedule 11.1, clause 7(1)(e) of the Electricity Industry Participation Code 2010 and developed in line with the Electricity Authority's Guidelines on the calculation of and use of loss factors for reconciliation purposes

Effective from 1 April 2025 to 31 March 2026

Document Control

Responsibility	Position
Document Approver:	Network Planning and Development Manager
Document Owner:	Regulatory and Pricing Manager
Document Reviewer:	Revenue Manager

Approval and Revision History

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1.0	28/07/2021	Initial Document
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4.0	20/03/2024	Annual Review
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1. Introduction

In accordance with the *Electricity Industry Participation Code 2010* (the [Code](#)), Distributors must create loss category codes and loss factors and populate these into the registry loss factor table.[1] This methodology captures how we calculate our technical and non-technical losses to derive the loss factors effective from 1 April 2025 to 31 March 2026.

We have developed this methodology pursuant to the Code and in line with the Electricity Authority's *Guidelines on the calculation and use of loss factors for reconciliation purposes* (the [guidelines](#)).

2. Definitions or Loss and Factors

We categorise our energy losses as either:

- technical losses
- non-technical losses
- reconciliation losses
- unaccounted for electricity.

Losses include energy losses from the point of transmission connection at the grid exit points (GXP) to the point of connection for all customers.

Technical losses are the difference between energy injected into a network and energy delivered to the points of connection.

Technical losses result from load losses (also known as copper losses) and no-load losses (also known as iron losses). These are losses that arise from network equipment and are a function of the physical characteristics of the network equipment invested in by the us, the network owner.

Non-technical losses are the difference between the volume of energy conveyed at the points of connection and the volume of energy reported as conveyed at the same points of connection (as stated by traders in their submission information submitted for the reconciliation process).

Non-technical losses are any form of unexplained losses, such as:

- metering inaccuracy, regardless of:
    - the size of inaccuracy and whether it is compliant with the accuracy requirements of the Code; or
    - the source of inaccuracy, whether it be tampering, faulty equipment, poor installation, or misconfiguration; and
- errors or omissions in traders' back-office systems.

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[1] Clause 7(1)(e) of Schedule 11.1 of the Code. Schedule 12A.4, Appendix A, clause 6.4 requires distributors to provide a Transparent Loss Factors methodology to Traders. This methodology also meets that Code requirement.

Reconciliation losses are the difference between reported energy injected into our network and reported energy extracted from our network. Reconciliation losses are the combination of technical and non-technical losses.

Unaccounted for electricity is calculated from the difference between reported energy injected into our network and the reported energy extracted from our network after it has been adjusted for losses.

Conceptually, it is the inevitable difference between our volume predictions and volumes as measured by the trader's meters. Unaccounted for electricity accounts for the difference between actual and calculated technical losses and actual and estimated non-technical losses.

Reconciliation loss factor is the multiplier to be applied to the volume of energy measured at a point of connection within our network study area. We use this factor to scale the volume to account for the attributed reconciliation loss relevant to that point of connection.

3. Defining the Electra Network Study Areas

We have defined our network into two distinct network study areas:

- Northern area as normally supplied by the Mangahao Grid Exit Point; and
- Southern area as normally supplied by the Paraparaumu Grid Exit Point.

These study areas have been selected as they form discrete areas that can be studied independently within our modelling software.

4. Determining Technical Losses

Determining technical losses is an important step in determining reconciliation losses. We use a range of modelling software and formulae to calculate technical losses within our network study areas.

The guidelines require that we undertake this assessment at least once every five years or when major changes to network topology or connections occur. It is an estimate with an assumed accuracy of ±20%.

Technical losses were last calculated in November 2021, studying the period ending August 2021. There have been no major topology or connection changes warranting reassessment.

5. Reconciliation Losses

Our total network losses are identified by comparing real power entering and exiting the studied network.

The sum of real power injected into our network is obtained from metering data sources at the connection points to the Mangahao and Paraparaumu GXPs (PEMS.i). The energy that exits Electra's network is extracted from the Reconciliation Manager's report GR265 (PGR265.e).

We calculate network reconciliation losses as follows—

$$Reconciliation\ Losses = PEMS.i - PGR265.e$$

6. Non-technical Losses

Non-technical losses enable us to focus resources appropriately to minimise non-technical losses in forthcoming years. We calculate non-technical losses as follows—

$$Non\text{-}Technical\ Losses = Reconciliation\ Losses - Technical\ Losses$$

7. Calculated losses

For the period 1 April 2025 to 31 March 2026, we have calculated the following losses.

7.1 Reconciliation Loss Factors

Code / ICP	Description	Loss Factor Code	Loss Factor
Electra Network	LV Connections	1	1.071
0110007806EL3CF	Mangahao King Country Energy	MHO1	1.000

7.2 Losses by Category

Description	Losses (%)
Total Losses	6.60%
Total Technical losses	4.71%
Non-technical losses	1.89%

7.3 Technical Losses by Network Study Area

Network Area	Technical Losses (%)
Northern (from Mangahao GXP)	5.8
Southern (from Paraparaumu GXP)	4.1