
# Wellington Electricity

# Loss Factor Methodology

# 2025-2026

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# 1. Introduction

This document presents Wellington Electricity's loss factor methodology to determine the loss factors for the regulatory period 2025-2026. The loss factor calculation considers energy losses from the Transpower Grid Exit Point (GXP) to customers.

# 2. Methodology

The methodology employed to calculate the loss factors is derived from EA's guidelines (versions 2008 [3], 2013 consultation [1], and 2018 [4]) and adapted as appropriate to suit the data and tools available. The calculation involves the following loss factors defined below.

## 2.1 Reconciliation Loss

Reconciliation Loss (RL) represents the difference between the injected electricity at one point of connection and the electricity delivered at any other point of connection.
Energy injected is the sum of energy from Transpower GXPs and large distributed generation connected to the network. Energy delivered at customer installations was provided by retailers for the period of 1 January 2025 to 31 December 2025.

## 2.2 Technical Loss

Technical Loss (TL) represents the electricity that is consumed due to the inherent characteristics of the electrical system, like distribution transformer losses and line losses. The TL was calculated through a Digsilent Powerfactory simulation as below.

### 2.2.1 Sub-transmission; Zone substation and HV network

The hourly feeder data for all zone substations during the study period were utilized as input data.

### 2.2.2 Distribution Transformer

- The latest available data for the distribution transformers were taken from GIS. If the data on the full load and no-load losses were available from the GIS extract, the same was mapped to the transformer.

- For the transformers with incomplete information, typical transformer load and non-load data were derived for the study for a defined range of transformer ratings. In case the transformer rating was not available, the next largest value was used for the study.

- A utilization factor was derived for the various distribution transformers by analysing the average and maximum load values for each feeder. The average loss was calculated for each transformer and was applied across the study period to produce a kWh loss value.

### 2.2.3 Low Voltage network

A new low voltage (LV) was modelled based on the following inputs.

- The LV network was categorized into four categories based on the type of settlement and the installation control point (ICP) counts.
- The average number of ICP for each LV network type.
- The average load of the LV network type.
- The spacing and number of loads per pole.
- A generalized LV conductor.

### 2.3 Non-Technical Loss

Non-Technical Loss (NTL) represents inaccuracies caused by measurement and data handling, metering and reading errors, incorrect meter installations, theft, and unread meters.
NTL is the difference between the RL and TL.

## 3. Loss Factors Applicable 31 March 2026

The loss factors to be applied from 1 April 2026 remain unchanged from 2023 and are as follows.

| Distribution Losses by metering voltage, transformer connection, and load | | | |
|---|---|---|---|
| **Loss Factor Code** | **Consumers metering voltage** | **Distribution loss ratios with respect to the injection meter point** | **Distribution loss factors with respect to the ICP meter** |
| **VECG1** | LV | 5.13% | 1.0541 |
| **VECG2** | LV | 2.77% | 1.0285 |
| **VECG3** | LV | 3.78% | 1.0393 |
| **VECG4** | HV | 1.55% | 1.0157 |