13 June 2025

OPEN LETTER TO DISTRIBUTORS

The Electricity Authority expects distribution companies to make changes to give effect to the updated voltage limits

On Friday 13 June 2025, the Government announced changes to the Electrical (Safety) Regulations 2010 (Regulations). The changes will widen the upper and lower voltage limits that low voltage networks may operate at to 230 volts ±10% (from ±6%). The new limits are expected to come into effect in Q3 of this year.

This letter sets out the Electricity Authority Te Mana Hiko's expectation that distribution companies will revise and update their processes and settings to reflect the widened voltage limits.

The Authority intends to monitor the extent distributors are updating their practices to adopt the widened voltage limits and incorporating the new limits into their policies, practices, modelling and operations, and supporting the wider industry in making necessary changes.

Consumer-owned distributed energy resources can bring important benefits to the electricity system and all New Zealanders, and we want to maximise the contribution they make to the system, while encouraging greater up-take.

Most small consumers and distributed generators connect to low-voltage 230-volt networks. These consumers are investing in new technologies, like rooftop solar photovoltaic (solar), storage batteries and in-home (and some public) electric vehicle chargers, in rapidly increasing numbers. Compared with traditional household appliances, these technologies can require large capacity connections. The change to the Regulations will enable more capacity for low-voltage networks to host consumer investments in these new technologies.

Updating publicly available information to ensure benefits are realised

The increased voltage operating range will provide benefits in terms of network hosting capacity and ease voltage-induced network congestion. However, the benefits will only flow through to consumers and distributed energy resource (DER) investors if appropriate enabling actions are undertaken by distributors. These actions require distributors and others make adjustments to planning, design, connection and operation standards, practices and guidance relevant to managing low-voltage networks.

Relevant to connection of distributed generation under part 6 of the Electricity Industry Participation Code 2010 (Code), the Authority expects distributors will take steps to ensure the information they are required to make publicly available, under clause 6.3 of the Code, is updated to reflect the increased voltage operating range including:

(a) connection and operation standards
(b) the statement of the circumstances where distributed generation will be, or may be, curtailed or interrupted

(c) an updated list, or preferably a map, of all locations on the distribution network that the distributor knows to be subject to export congestion now or within the next 12 months

(d) the maximum export power threshold, and the methodology used to determine that threshold, for locations where the distributor has set a maximum power threshold for applications under Part 1A of Schedule 6.1.

The Authority expects an industry-led approach in the first instance with consumers and DER investors as the primary beneficiaries. Distributors should move promptly to coordinate the identified reviews and actions, focusing on removing barriers to investment in DER and benefits to consumers.

The Authority will be engaging with industry groups to see how they can support distributors to implement their reviews and to make the changes that will be required.

The Authority will closely monitor distributors' progress on the expectations stated above. The Authority will consider other options if progress towards these changes is too slow.

Getting in touch

Please contact us if you wish to discuss any aspect of this letter at distribution.feedback@ea.govt.nz. We will publish this letter on the 'Distributed Generation' section of the Authority's website.

Yours sincerely

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Background

Prior to the Regulations being updated, voltage measured at points of supply from low-voltage networks was permitted to fluctuate within a range of ±6% of 230 volts alternating current. This voltage limit was set to ensure consumers' electrical equipment operates safely and reliably, while mitigating risks to people.

For the low-voltage networks with premises that have distributed generation connected, more power is transmitted through circuits and substations, and the network experiences more bi-directional power flows and greater voltage fluctuations. An additional challenge is that distributors have traditionally had limited real-time monitoring of the status and power quality at points on their low-voltage networks.

The Ministry of Business, Innovation and Employment released a discussion document in October 2024 that proposed two options to widen the permitted operating voltage range. Option 1 was 230 volts -6% to +10%, with an alternative option of ±10%. The Ministry's stated overall objective was to ensure low-voltage networks continue to operate safely and cost-effectively while managing trade-offs between three sub-objectives:

- reducing the curtailment of consumer generation at times of voltage-induced network congestion
- mitigating distributors' costly upgrades to low-voltage network infrastructure
- maintaining the safe operation of low voltage networks.

Having considered the feedback, the Government has amended the Electricity (Safety) Regulations 2010 to widen the upper and lower voltage limits that low-voltage networks may operate at 230 volts ±10%.

The change is in line with international jurisdictions that have adopted voltage standards promulgated by the International Electrotechnical Commission, aligning New Zealand's standards with other countries that have a standard low voltage of 230 volts.

The new range also brings New Zealand's supply voltage range into alignment with the voltage range that has been reflected in New Zealand's regulated appliance standards for many years. Accordingly, no further changes should be required to the electrical parameters of our appliance standards.