

## **Submission to the Electricity Authority**

Consultation: Maximising Benefits from Local Electricity Generation

From: Robert Bogers – Auckland homeowner (Vector Network)

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### **1. Introduction**

I welcome the Electricity Authority's consultation on proposed rule changes to increase the amount of electricity distributed generators can supply to local networks. These changes are timely and important for unlocking the full potential of distributed solar generation in New Zealand.

### **2. Background**

Our home in Auckland is supplied with three-phase electricity. We have installed two 5 kW solar inverters (10 kW total generation capacity) and one Tesla Powerwall 2 battery, all connected to a single phase.

We pay significantly more for the electricity we import than we receive for what we export, which creates a strong incentive to self-consume our own solar generation. To optimise self-consumption, our main switchboard is configured so that as many household loads as safely possible are supplied from the same phase as the solar inverters and battery.

However, from October through March, when solar output is high and household demand is lower, our system is throttled back to comply with the current 5 kW per-phase export cap from Vector. This restriction significantly limits the return on investment from solar generation and reduces the total solar electricity available to the wider grid.

If our second 5 kW inverter were connected to one of the other two phases, the 5 kW cap would not constrain either inverter, and we could export all surplus electricity. However, doing so would be financially suboptimal because it would significantly reduce the proportion of solar energy we could self-consume.

### **3. Support for Lifting the Export Cap**

I strongly support increasing the per-phase export cap from 5 kW to 10 kW.

Lifting the limit would:

- Allow households and small businesses to fully utilise the capacity of their existing solar installations.
- Increase renewable electricity available to the local network without major infrastructure upgrades.

- Encourage further uptake of distributed solar generation, an essential part of New Zealand's decarbonisation pathway.

For homes like ours that already have compliant inverters and export-limiting controls, there is no technical reason exports should remain capped at 5 kW per phase.

#### 4. Phase-Netting for Billing – the Australian Example

In addition to lifting export limits, I strongly encourage the Authority to consider changes to how imports and exports are measured and billed for three-phase retail customers.

In Australia, electricity retailers and metering systems commonly use phase-netting for billing purposes. This means that over each standard settlement interval (typically 30 minutes), the imports and exports across all three phases are summed, and customers are billed only on the net energy consumed or exported.

For example, if during a 30-minute period:

- Phase A exports 3 kWh
- Phase B imports 1 kWh
- Phase C imports 2 kWh

then the net flow is zero, and the household is neither charged nor credited.

This approach is embedded in the Australian Energy Market Operator (AEMO) metering standards and ensures that billing fairly reflects the property's total energy balance, regardless of internal load distribution between phases.

By contrast, in New Zealand, metering and billing systems treat each phase independently. As a result, a household can be charged for imports on one phase while receiving minimal credit for simultaneous exports on another, even when the overall grid impact is neutral.

This difference penalises customers who invest in solar generation and energy-efficient design and discourages optimal load balancing within three-phase homes.

The Authority's own amendment to the Electricity Industry Participation Code (Clause 10.13A), which came into effect on 1 February 2021, is understood to prevent phase-netting for billing purposes not only for large customers but also for residential and small business customers.

#### 5. Recommendations

I urge the Electricity Authority to:

1. Lift the per-phase export cap from 5 kW to 10 kW, recognising the capability of modern inverter and protection technologies.
2. Amend the Electricity Industry Participation Code to require retailers and metering providers to implement phase-netting for billing for Category 1 (Cat 1) ICPs, so that three-

phase retail customers are billed on their total net import or export over each settlement period, consistent with Australian practice.

These changes would:

- Make rooftop solar and battery investments more efficient and equitable.
- Increase renewable generation available to the network.
- Better align New Zealand's distributed energy framework with proven Australian practice.

## **6. Conclusion**

I strongly support the Authority's initiative to maximise the benefits of local electricity generation and encourage reforms that enable households to contribute more clean energy to the grid.

Yours faithfully,

Robert Bogers