Appendix B Format for submissions

Maximising benefits from local generation

Submitter	Tarun Sharma
Submitter's organisation	**Independent Consumer**

Please send your submission to connection.feedback@ea.govt.nz by **5pm, Wednesday 19 November 2025**

Questions	Comments
Q1. What are your views on the proposal to set a default 10kW export limit for Part 1A applications?	A default 10 kW export limit for small scale distributed generation is a much-needed improvement over the outdated 5 kW per phase limit imposed by many lines' companies. Key reasons to support the 10-kW default include: • Reflecting Modern System Sizes: The average new residential solar installation in NZ is already around 7.9 kW and many consumers are installing systems in the 8-10 kW range to meet household demands. A 5-kW export limit is below the output of these modern systems, causing "spilled" energy that cannot be used is being wasted. • Minimal Network Impact: Evidence from high-DG regions shows that allowing up to 10 kW exports has only a minimal impact on network safety and power quality, especially now that voltage standards have been widened. In South Australia, where flexible export up to 10 kW is offered, the export is actually constrained below 10 kW only ~2% of the time. NSW for example, similarly found it can permit nearly double the exports (from 5 to 10 kW) 95% of the year without stability issues. These should give us enough confidence about NZ networks as well. • Lower Costs for All Consumers: Enabling more local generation to flow into the grid can reduce wholesale prices and infrastructure costs for everyone. In other words, even non-

	solar households benefit from their neighbours' ability to export more clean energy.
Q2. What are your views on the Code clarifying that a distributor cannot limit the nameplate capacity of a Part 1A application, unless the capacity exceeds 10kW?	The Code should explicitly prevent distributors from capping the installed generation capacity (e.g. solar array size or inverter rating) for small installations ≤10 kW. Distributors should only regulate the export power limit (how much can be fed into the grid at one time), not the total generation capacity behind the meter, except where the system's capacity itself exceeds 10 kW. This is because consumers often install generation capacity above the export limit for valid reasons for example, oversizing a PV to improve output during winter or cloudy periods, or to charge a battery or EV during the day. The code change also needs to close the back door limit loophole that allows lines companies to impose rules on inverter and solar array sizes, which in turn undermines the export limit policy. This ensures the intent of the 10-kW default export limit is realized. Enabling slightly larger installations behind the meter (without higher export) can increase self-consumption and resilience. The Code clarification will remove such barriers, encouraging investment in larger systems that have "extra capacity to support networks" during peak times or outages. It also creates a fair, level playing field across regions.
Q3. There are requirements for distributors in Proposal A1. Which of these do you support, or not support, and why?	Support all of these requirements, as they collectively ensure the higher export limits are implemented effectively, transparently, and with appropriate safeguards.
Q4. What are your views on the proposal for industry to develop an export limits assessment methodology?	A common methodology means all distribution companies will evaluate network hosting capacity using the same criteria and calculations. Today we see a disparity – e.g. Aurora and Powerco now allow 10 kW per phase by updating their assessments, whereas others like Wellington Electricity have even lowered limits in some cases. A standard methodology evens out these differences. By codifying a methodology (likely via an industry code of practice), the basis for export limit decisions becomes transparent.

	All stakeholders like installers, customers, even regulators - can understand how a particular limit was determined - and its no longer a coin toss for consumers. This is far better than the opaque “black box” analyses (or blanket rules) some lines companies use now. If a homeowner is told they can only export, say, 6 kW instead of 10 kW, the methodology would allow them to see why (e.g. feeder X has Y% voltage drop at that level, etc.). It will also enable independent review or challenge if needed. A consistent methodology could have the positive side effect of highlighting where networks need reinforcement or new technologies. If consistently applying the method shows certain feeders or transformers often trigger low export limits, that data can guide distributors to upgrade those bottlenecks or deploy solutions. I would expect it to cover factors like voltage rise calculations, thermal limits of lines/transformers, fault level impacts, and possibly minimum load scenarios. It should also address single-phase vs three-phase balancing.
Q5. What would you do differently in Proposal A1, if anything?	• Clarify Export Limits on Multi-Phase Connections: Proposal A1 sets a 10-kW default “maximum export power threshold”, but it should be clear whether this is per installation (ICP) or per phase. • Encourage/Enable Dynamic Export Solutions as a Next Step: While Proposal A1 rightly focuses on a static 10 kW limit for now (a pragmatic first step), I would flag the importance of moving toward flexible export options in the future. I suggest laying groundwork in Proposal A1 (or in accompanying guidance) for distributors to optionally offer dynamic export agreements where appropriate. For example, if a particular feeder can’t always support 10 kW, the distributor might offer the customer a dynamic limit (e.g. 5 kW at peak times, 10 kW off-peak) rather than a flat 5 kW. We have seen this in Australia, customers can export up to 10 kW most of the time, but are automatically curtailed during the rare periods the network is

	under stress. While I understand mandating dynamic exports is premature (given the need for advanced inverter comms, etc.), Proposal A1 could at least not preclude them.
Q6. What concerns, if any, do you have about requiring the 2024, rather than 2016, version of the inverter installation standard for Part 1A applications?	I have no significant concerns about moving to the latest (2024) inverter installation standard for Part 1A distributed generation. On the contrary, I support this update as a logical and necessary step to ensure new DG installations meet modern safety and performance expectations.
Q7. Do you support amending the New Zealand volt-watt and volt-var settings to match the Australian values for Part 1A applications - why or why not – what do you think are the implications?	Yes. Here's why I support it and my view on implications: • Allows Higher Exports Before Curtailment: Australia's standard volt-watt and volt-var curves were developed through extensive analysis to manage high PV penetration while maximizing export. If NZ's current settings are more conservative (likely due to the previously tighter ±6% voltage range), then adopting the Australian parameters will raise the voltage thresholds or delay the onset of curtailment. This means inverters will feed more power into the grid before they start throttling back. • Improves Network Voltage Management: The volt-var (reactive power) and volt-watt (active power) responses help prevent voltage from rising too high due to exports. The Australian values have been proven effective in a grid with very high solar uptake (South Australia, Queensland, etc.). By adopting them, NZ networks get the benefit of that proven setting. • Simplification for Manufacturers/Installers: If NZ's default settings match Australia's, inverter manufacturers can ship units with one common "AU/NZ" profile. This reduces confusion and the chance of misconfiguration. Many inverters sold here are Australian-compliant already.
Q8. What would you do differently in Proposal A2, if anything?	• Require Communication-Capable Inverters (Future Flexibility): I would consider explicitly encouraging or requiring that new inverters have communications capability (e.g. an internet or wireless connection and

	compliance with standards like IEEE 2030.5 or Sunspec) to allow remote monitoring and control in the future. It means down the road the Authority or distributors could introduce voluntary programs to further raise export limits dynamically, knowing the hardware can support it. In practice: AS/NZS 4777.2:2020 already requires inverters to have a Demand Response Mode interface; perhaps just ensuring that functionality is enabled and standardized here would be enough. • Monitor and Review the Impact of New Settings: Rather than a change to A2 itself, I suggest a plan to review the effectiveness of the new volt-var/volt-watt settings after, say, 1–2 years. We should verify that these settings are indeed yielding the intended benefits (higher exports, fewer voltage complaints) and not causing any unintended issues.
Q9. Do you have any concerns about the Authority citing the Australian disconnection settings for inverters when high voltage is sustained?	No concerns noted.
Q10. Do you have any concerns about the Authority requiring the latest version of the inverter performance standard for Part 1A applications?	No concerns noted.
Q11. What are your views on the proposal that where distributors set bespoke export limits for Part 2 applications, they must do so using the industry developed assessment methodology?	Consistent, Evidence-Based Limits for Larger DG: The stakes (and export sizes) are larger, but that's all the more reason to ensure the limits are determined rigorously and consistently. If a distributor needs to impose a specific export cap (say a 50 kW limit on a 100 kW solar array), they should be using the same assessment methodology as for smaller systems – just scaled appropriately. I strongly agree with making this a requirement. Preventing Undue Discrimination: By mandating the standard methodology, we ensure that distributors cannot "over-compensate" by setting low limits just to

	be safe or to avoid network work, unless the calculations show it's necessary.
Q12. What are your views on the several requirements that must be adhered to regarding the distributors' documentation (see paragraph 5.96) relating to setting export limits under Part 2?	Support these.
Q13. Do you agree it is fair and appropriate that where distributors set export limits for Part 2 applications, applicants can dispute the limit? If so, what sort of process should that entail?	This provides a vital check-and-balance in the regime and protects applicants from potentially erroneous or unduly conservative decisions. The dispute process should be clear, time-bound, and involve independent assessment. A possible process could be: • Internal Review: Initially, the applicant should formally request the distributor to reconsider, providing any additional info or counterevidence. • Mediation Phase (Optional): If disagreement remains, perhaps a facilitated discussion or mediation by an independent expert could be done quickly. For example, both parties could agree on a third-party engineer to re-run the assessment methodology or examine the assumptions. This could be done under the umbrella of the Authority. • Escalation to Authority or Utilities Disputes: If still unresolved, the applicant should be able to escalate to a formal dispute resolution body. Since this is a Code/connection issue, the Electricity Authority itself might take on an arbitrator role (or delegate to Utilities Disputes or an expert panel). • Cost and Burden: It should be low-cost or free for the applicant to lodge a dispute, to not deter them. Perhaps if an applicant's dispute is found frivolous, they could bear some cost, but generally this should be accessible. Distributors have more resources, and the process should reflect the power imbalance.
Q14. What would you do differently in Proposal B, if anything?	• Extend Dispute Rights (or Similar Oversight) to Part 1A in Rare Cases: Proposal B focuses on larger DG, but one could consider whether very occasional disputes or reviews might be

	needed for Part 1A as well. By design, Part 1A is streamlined and should almost always result in 10 kW default. However, if a distributor invokes an exception (e.g. treats a ≤10 kW application as needing only 5 kW export due to a constraint), technically they'd have to bump it to Part 2 or justify via methodology anyway. It might be useful to clarify that small applicants too can dispute if they are downgraded. • Codify an Upgrade Option Discussion: One improvement to Proposal B should be to require that if a Part 2 export limit is set below what the applicant requested due to network constraints, the distributor's documentation should include a description of what network upgrade or operational change would be needed to allow the originally requested export. • Ensure Enforcement/Monitoring of Proposal B: This is more about implementation, I would suggest the Authority actively monitor how distributors implement these new Part 2 processes, especially in the first year or two.
Q15. What are your thoughts on requiring the inverter performance standard (AS/NZS 4777.2:2020 incorporating Amendments 1 and 2) for low voltage DG applications in New Zealand?	Support these.
Q16. Do you consider the transitional arrangements workable regarding requirements and timeframes? If not, what arrangements would you prefer?	Agreed.
Q17. What are your views on the objective of the proposed amendments?	In my view, this objective is laudable, timely, and fully aligned with the long-term interests of consumers and New Zealand's energy policy goals. This is an important objective given NZ's increasing climate risks. Importantly, the objective isn't "open the floodgates regardless of consequences" – it explicitly includes maintaining safety and reliability. I appreciate this balance.

Q18. Do you agree the benefits of the proposed amendments outweigh their costs? If not, why not?	Agreed. By doubling the typical export limit (from 5 kW to 10 kW), owners of distributed generation will earn more from exporting surplus power. When more distributed renewable energy is utilized, the whole electricity system benefits through reduced wholesale prices and deferred infrastructure. Broader studies support this. The IEEFA analysis by Dr. Gabrielle Kuiper found that implementing flexible/higher exports across Australia could unlock A$5.08 billion in net benefits for all consumers to 2042 (through wholesale price reductions, etc.). While that's Australia-specific, it underscores the magnitude of benefits available. New Zealand may be smaller, but even if benefits are in the hundreds of millions over time, that dwarfs the relatively small costs of implementation. What are the costs? Primarily: • Distributor implementation costs: Updating connection processes, possibly upgrading some monitoring/control systems for higher flows, staff training, and contributing to methodology development. These are relatively small one-time or infrequent costs. They might also need to invest in a few network upgrades sooner if constraints become issues – but recall, they always could do that or limit exports. The Code still lets them limit if genuinely needed, so they won't incur upgrade costs unless it's justified economically (which then is not a net cost but an investment to enable more DG). • Costs of compliance with new standards: Mostly borne by inverter manufacturers/installers – however, modern inverters cost about the same as old ones. There might be a minor cost for any installer who has to scrap out-of-date stock, but that's negligible industry-wide. The consumer buying a new inverter now is basically paying the same for a 2020-standard unit as they would have for a 2015 unit a few years ago (tech costs have dropped). • Administrative costs: The Authority and industry will spend some effort on developing methodologies, handling disputes, etc. This is

	a normal regulatory cost and small relative to benefits. In sum, the “costs” are mostly just the effort to change some business-as-usual practices and ensure compliance. These are tiny compared to multi-million-dollar annual energy savings and to consumer benefits enumerated above.
Q19. What are your views on the Authority’s estimate of costs of lost benefits from a 5kW export limit?	Seems reasonable and a bit conservative.
Q20. Are there costs or benefits to any parties (eg, distributors, DG owners, consumers, other industry stakeholders) not identified that need to be considered?	Retailers and Electricity Traders: More distributed generation export can actually create opportunities for innovative retail products and trading. For example, with higher exports, more retailers might offer time-of-export incentives, and perhaps peer-to-peer energy platforms or community energy schemes become more viable if people can export surplus freely. The reforms hopefully will spur demand for smart inverters, monitoring equipment, and possibly battery storage (since with higher export limits, adding a battery to shift export to peak times can be profitable). I believe Octopus Energy currently already offer this. Beyond carbon reduction, using more renewable generation improves air quality and reduces pollution from thermal plants. One micro-issue: raising allowable voltage could slightly stress some older appliances or legacy network components. MBIE’s consultation on voltage range indicated this risk is minimal since most devices are built to wider ranges. But if any sensitive equipment is out there, it could be affected by more frequent operation at higher voltages (though still within ±10%). This might result in very minor costs (e.g. someone might need a voltage regulator at their premise if they’re at the end of line and see higher volts). Finally, with more advanced inverters and potentially dynamic controls in the future, there’s a slight increase in complexity of managing the LV grid. That could have costs in terms of needing better IT systems, cybersecurity for any remote control, etc.

	Right now, the proposals don't mandate remote control, but they implicitly push towards smarter systems.
Q21. Do you agree the proposed Code amendments are preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's main statutory objective in section 15 of the Electricity Industry Act 2010	Agreed.
Q22. Do you agree the Authority's proposed amendments comply with section 32(1) of the Act?	Agreed.
Q23. Do you have any comments on the drafting of the proposed amendment?	None that haven't already been covered above.