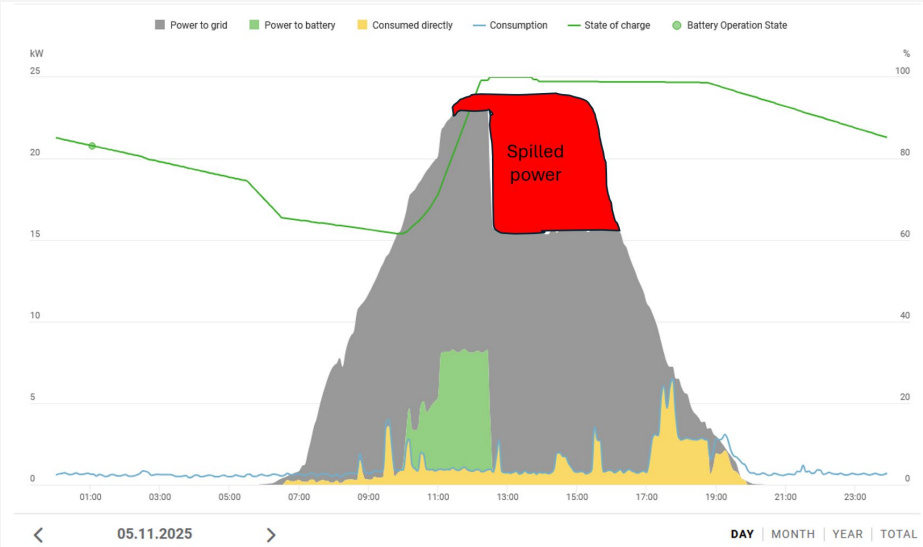


Appendix B Format for submissions

Maximising benefits from local generation

Submitter	Dr Ulrich Speidel
Submitter's organisation	Submitting in a personal capacity as a residential DG operator

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?	<p>Supportive. Our three phase PV system is capable of up to 24 kW, which would allow for 8 kW/phase. We have already seen limiting due to the current 5 kW/phase constraints. The image below shows the export limit kicking in as the grey curve plateaus at around 23 kW, which includes around 1 kW home use (yellow), ~7-8 kW battery charge (green), and 3 x 5 kW export (grey)). As the battery reached full SOC (thin green line), we lost ~30 kWh worth of export capability (approximately red area) on the day until solar generation declined for the day:</p>  <p>We would therefore benefit from the ability to export more. N.B.: Our installation already meets the requirements of the updated inverter installation standards and will be DC re-wired on 13 November 2025 in accordance with the new 1000 V_{oc} limit applicable from that date.</p>

<p>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?</p>	<p>Supportive.</p>
<p>Q3. There are requirements for distributors in Proposal A1. Which of these do you support, or not support, and why?</p>	<p>Supportive of all.</p>
<p>Q4. What are your views on the proposal for industry to develop an export limits assessment methodology?</p>	<p>I think there is a risk here that this will be overly restrictive if left solely to industry. There needs to be an incentive for industry to invest in network upgrades to facilitate integration of DC. The risk here is that an ELAM might result in a process aimed at avoiding investment in network upgrades or facilities like grid-attached battery energy storage systems that would benefit the wider system. A round-table approach involving neutral arbiters (e.g., academia, government, DG operators, solar installers etc.) might work better here.</p> <p>This methodology should be developed in tandem with a roadmap for the industry aimed at making distributor networks fit for increased amounts of distributed generation (i.e., commitment to upgrades to transformers, lines, distributed battery storage etc.).</p>
<p>Q5. What would you do differently in Proposal A1, if anything?</p>	<p>Look at establishing a more guided process for ELAM development and add requirements for distributors to consider network upgrades, e.g., involving distributed energy storage.</p> <p>Another concern that has surfaced in Australia is on inverter security rather than safety. We now have an increasing number of systems connected. These operate on a relatively small set of vendor platforms, most of which connect to the Internet to “call home” for anything from monitoring to remote configuration. While this adds convenience, there</p>

	<p>is now an increased concern that this connectivity may be used by malicious threat actors in order to destabilise grids in a crisis.</p> <p>I am personally aware that European inverter manufacturers such as SMA and Fronius have invested heavily into securing this connectivity, however the same cannot be said for other manufacturers, let alone for manufacturers located in economies where they may be pressed into service for such cyberattacks by their own government.</p> <p>Does the DGA process need a means of addressing this?</p>
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?	<p>None whatsoever.</p> <p>Quite why particular versions of standards are being cited here rather than “the standard in its current version” is a mystery to me, however. I have observed on numerous occasions in New Zealand that this practice has held up innovation and productivity.</p> <p>I would also ensure that the code permits inverters that according to manufacturer specifications meet the requirements of the standard (i.e., not require certification).</p> <p>This would be to ensure that NZ gets to benefit from the very latest in inverter technology. In designing our own systems, we have noticed that there is both a lag in getting new inverters certified, and a reluctance of local equipment vendors to certify or bring non-certified equipment in of which they do not foresee a large number being sold locally. Our houses don’t all look alike – why should our inverters?</p>
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?	<p>Yes. NZ is an extremely small economy – there are many cities overseas that are larger in terms of population and energy use. We cannot demand bespoke solutions to suit an ageing grid.</p>
Q8. What would you do differently in Proposal A2, if anything?	<p>Have Part 6 of the code cite the respective version of AS/NZS 4777.2 that is current at the time of application rather than the version applicable at the time of code enactment. The current practice of citing the latter has held the solar industry in NZ back by years. In the words of a solar leader overseas: “stupid”.</p>

	As already stated above, I would also like to see some sort of a roadmap for the industry towards making their networks fit for increased distributed generation (i.e., commitment to upgrades to transformers, lines, distributed battery storage etc.).
Q9. Do you have any concerns about the Authority citing the Australian disconnection settings for inverters when high voltage is sustained?	No.
Q10. Do you have any concerns about the Authority requiring the latest version of the inverter performance standard for Part 1A applications?	No, as long as “latest” means “at the time of application” rather than “at the time of code enactment”.
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?	See my comments on the assessment methodology above. There is likewise a risk here that this may hinder innovation.
Q12. What are your views on	Seems fine but see comments on BELAM above.

the several requirements that must be adhered to regarding the distributors' documentation (see paragraph 5.96) relating to setting export limits under Part 2?	
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?	Yes. I think this process needs a neutral external party to arbitrate also. It should be pegged against the distributor's adherence to the aforementioned roadmap. Read: Where a distributor is refusing Part 2 applications due to network issues, an applicant should be able to demand that the distributor upgrade their network to accommodate the export if this is what the roadmap envisions.
Q14. What would you do differently in Proposal B, if anything?	Reference BELAM against the aforementioned network upgrade roadmap.
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	<p>See above: Require standard that is current "at the time of application" rather than a specific version, which is bound to become outdated quickly. The same should apply to AS/NZS 4777.1:2024 and other standards referenced to prevent the interlocking of outdated versions between different regulations.</p> <p>As already mentioned in Q6, I would also propose amending the code to permit inverters that according to manufacturer specifications meet the requirements of the standard (i.e., not require certification).</p>

applications in New Zealand?	
Q16. Do you consider the transitional arrangements workable regarding requirements and timeframes? If not, what arrangements would you prefer?	Yes. The timeframes seem realistic.
Q17. What are your views on the objective of the proposed amendments?	<p>I consider both objectives valid.</p> <p>I would add here susceptibility of wider networks to geohazards such as cyclones, earthquakes, slips, or volcanic eruptions. Distributed generation adds resilience here, in particular around critical infrastructure (communications, medical, transport, emergency services buildings, civil defence shelters, etc. ...). The ability to grid-connect significant-scale solar PV at such sites helps the operators of such sites pay for adding that resilience. Systems restricted to 5 kW / phase export with battery storage currently often end up with ~5 kWp solar, leaving them too small to meet site demand 24/7 in a backup situation. Designing them larger makes them uneconomical because the export caps throttle payback. Allowing larger systems to pay for themselves helps here.</p>
Q18. Do you agree the benefits of the proposed amendments outweigh their costs? If not, why not?	<p>Yes. Absolutely.</p> <p>There is also the additional resilience benefit (see above) and a technological benefit in that the amendments would incentivise distributors to move away from business as usual towards shifting towards a more modern and flexible network.</p>
Q19. What are your views on the Authority's estimate of costs of lost benefits from a 5kW export limit?	I think the estimate has its flaws. For one, you seem to base your yield on installed PV DC wattage and you also assume that all panels point north at ideal tilt (which doesn't reflect most systems). But the price of PV panels is already making it attractive to present up to 600 V _{oc} DC to the inverter under current rules, something that will increase with the incoming 1000 V _{oc} limit later in the year.

	<p>E.g., our system has about 30 kWp installed in terms of panels but a maximum inverter capacity of 24 kW. While this caps generation from the panels during the day, it distributes yield more evenly during the day and also gives more yield in lower light conditions. That is, the yield per installed kW will change – perhaps to a somewhat lower figure.</p> <p>I have only got nine weeks of data to go by at this point, but I am currently looking at just under 1000 W of yield for every installed kWp if I take the first six weeks as being representative for the annual average (given that these were 3 weeks either side of spring equinox), or around 1240 W for each nominal kW of approved DG connection.</p> <p>But note that the upcoming change to 1000 V_{oc} will also likely result in rapid growth of installed size (panels are cheap) as this now permits better twilight and winter yield for relatively little extra investment. Current spill from our system: up to ~30 kWh/day, likely to increase with the conversion to higher DC voltage.</p>
Q20. Are there costs or benefits to any parties (eg, distributors, DG owners, consumers, other industry stakeholders) not identified that need to be considered?	<p>Benefits in terms of resilience, especially as the proposed changes would encourage more uptake of distributed storage. Our system is probably one of the first in NZ (if not the first) to operate with a backup power switchover system (by enwitec.eu) that lets us use our full primary inverter power and battery in case of a grid outage by safely islanding us.</p> <p>As the increased export limits will encourage larger systems with higher DC voltage input, this will also increase the solar contribution during morning and evening peak hours in winter. These are exactly the times when there have been significant power shortages in recent years.</p> <p>Another benefit is that it makes electric vehicle use more attractive. We just bought one and charge entirely from our roof.</p>
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	<p>Yes.</p>

objective in section 15 of the Electricity Industry Act 2010	
Q22. Do you agree the Authority's proposed amendments comply with section 32(1) of the Act?	Yes.
Q23. Do you have any comments on the drafting of the proposed amendment?	Yes. Standards should be cited as the applicable standard at the time of application, and not as a specific version.