7 April 2026

Tim Sparks
GM Networks and System Change
Electricity Authority
By email

CC: Justine Cannon, MBIE; Murray Bell, EECA

Dear Tim,

Mandating smart inverter capability for distributed generation

Electricity Networks Aotearoa (ENA) is writing to the Electricity Authority (the Authority), MBIE, and EECA to recommend that a mandate be introduced to require that all inverters used in New Zealand be 'smart' – i.e. able to communicate with remote systems and receive instructions to manage their operation (e.g. to expand or constrain electricity export). The suggested approach is adopted and well aligned in the Australian and US California regulatory environments.

ENA represents the 29 electricity distribution businesses (EDBs) that deliver electricity to more than two million homes and businesses across Aotearoa. Our members are increasingly focused on enabling higher levels of distributed generation, while maintaining efficient and reliable network operation.

From a distribution sector perspective, mandating smart inverter capability is a necessary and time-sensitive step to ensure that increasing volumes of distributed generation can be integrated efficiently over the long term. We have seen from our counterparts in Australia, most notably South Australia Power Networks, how effective the use of dynamic operating envelopes (DOEs) can be – especially for solar PV and batteries. Dynamically allocating export capacity on a day-to-day basis means that consumers can receive the maximum value from their distributed generation investments, while also ensuring network stability and security for all consumers. There is every reason to expect that EDBs in New Zealand will be looking to introduce DOEs on their networks, and smart inverters are a necessary pre-condition to doing so.

We also want to make you aware that EDBs are preferring the CSIP AUS (IEEE 2030.5) communications protocol, over its competitors. Any smart inverter mandate that is introduced should reflect the strong preferences of the distribution sector to have devices that conform to CSIP AUS (IEEE 2030.5).

We do not yet have a fixed view on the exact regulatory mechanism that would be most suitable for implementing such a requirement. ENA and its members would welcome the opportunity to work with agencies to develop an appropriate and proportionate approach.

Summary of key points

- EDBs are increasingly expected to enable higher export limits (e.g. 10kW) for residential solar PV, which will accelerate the emergence of localised network constraints.

- Inverters being installed today will remain in service for decades; without intervention, a large proportion of the DER fleet will lack the capability required for coordinated network operation.
- Many inverters sold in New Zealand are also sold in Australia where the mandate already exists, hence a remote configuration update can be applied to these to connect them to EDB CSIP AUS utility servers
- Mandating smart inverter capability at the point of connection is a low-cost, high-impact intervention that ensures future optionality and avoids locking in inefficient outcomes.
- There is a clear precedent: ENA has previously advocated for mandating smart EV charger capability, which the Government has accepted and is progressing. The rationale for smart inverters is directly analogous.
- There is strong alignment across EDBs on CSIP AUS (IEEE 2030.5) as the preferred protocol, supported by its maturity and adoption in Australia.
- Early establishment of a common standard will avoid fragmentation and provide EDBs with the tools needed to manage emerging network constraints efficiently.

The case for mandating smart inverter capability

New Zealand's electricity distribution networks are entering a period of rapid change, driven by increasing uptake of distributed solar generation and evolving expectations around export capability.

EDBs are increasingly being encouraged to enable higher export limits for residential solar PV installations (for example, up to 10kW). While this supports consumer choice and decarbonisation objectives, it will also bring forward the point at which localised network constraints begin to bind.

From a distribution sector perspective, the key issue is not whether these constraints will emerge, but whether EDBs will have the tools available to manage them efficiently.

At present, many inverters being installed are effectively "passive" devices. They export electricity based solely on local conditions, with no ability for networks or authorised third parties to coordinate their behaviour in response to system needs.

EDBs consider that continuing to deploy these devices at scale will materially limit the sector's ability to manage increasing export volumes over time. Inverters typically remain in service for 20–30 years, meaning that installation decisions made today will define the capability of distribution networks for a generation.

Absent smart functionality, EDBs will have limited options available to manage emerging constraints, other than applying increasingly conservative export limits or undertaking network reinforcement. Neither outcome is likely to deliver efficient long-term outcomes for consumers.

Mandating smart inverter capability at the point of connection ensures that the necessary functionality is in place before constraints emerge, preserving the ability to implement more efficient operational approaches as the system evolves.

Consistency with recent policy direction

This issue is closely analogous to challenges identified in relation to electric vehicle charging. ENA has previously advocated for mandating smart EV charger capability[1], on the basis that unmanaged demand growth would otherwise drive avoidable network costs and reduce system efficiency.

The Government has accepted this rationale and is progressing requirements for smart EV charger capability through standards and regulatory pathways.

From an EDB perspective, the case for smart inverter capability is directly comparable. In both cases, relatively low-cost functionality at the point of connection enables significantly more efficient use of existing network capacity, supports future system flexibility, and reduces the likelihood of higher-cost interventions being required later.

Opportunity to leverage existing standards and supply chains

The distribution sector notes that this issue has already been addressed in comparable jurisdictions. In Australia, the mandating of CSIP AUS-compliant (IEEE 2030.5) inverters has established a clear and consistent foundation for DER integration.

Importantly, the same global manufacturers supply both the Australian and New Zealand markets. As a result, compliant hardware is already present in regional supply chains, and the incremental cost of enabling these capabilities is understood by members to be negligible.

EDBs have engaged with their Australian counterparts, who have emphasised the importance of acting early to avoid the accumulation of non-compliant legacy installations. New Zealand is well positioned to align with this approach at minimal cost and disruption.

The importance of a common protocol

ENA members have discussed potential protocol options and there is a clear and consistent preference for CSIP AUS (IEEE 2030.5), reflecting its maturity and demonstrated implementation.

More broadly, EDBs consider that establishing a single, widely adopted standard is critical. A fragmented approach would create interoperability challenges, increase integration costs, and reduce the efficiency of DER utilisation.

Mandating a common capability framework would support a coordinated and scalable approach to managing distributed generation as network constraints emerge.

[1] https://www.ena.org.nz/assets/DMSDocuments/2025-8-1-supporting-the-uptake-of-smart-electric-vehicle-charging-submission.pdf

Enabling efficient and equitable access to network capacity

Smart inverter capability is a foundational enabler of more efficient use of distribution network capacity.

Under current arrangements, export limits are typically static and applied on a first-come, first-served basis. As constraints emerge, this approach risks entrenching inequities between early and later adopters of distributed generation.

Members have indicated that more dynamic approaches to export management—enabled by smart inverter capability—would allow available network capacity to be shared more efficiently across users, supporting higher utilisation of existing infrastructure and more equitable access over time.

However, these approaches are contingent on inverters having the necessary communication and control capability. Mandating this functionality now ensures that these options remain available as the system evolves.

Implementation considerations

ENA does not at this stage have a preferred view on the specific regulatory mechanism through which a smart inverter requirement should be implemented.

We consider that there would be value in agencies working together, alongside industry, to determine the most appropriate pathway—whether through standards, the Electricity Industry Participation Code, or other regulatory instruments.

ENA and its members would welcome the opportunity to contribute to this work and to support the development of a proportionate and practical implementation approach.

Conclusion

In summary, EDBs consider that mandating smart inverter capability for new distributed generation connections is a necessary and pragmatic step to support higher export limits, manage emerging network constraints, and enable efficient long-term system outcomes.

Early action will be important to avoid locking in a generation of inverters that are unable to support the evolving needs of New Zealand's electricity system.

ENA would welcome the opportunity to engage further with the Authority, MBIE, and EECA on this issue.

If you would like to discuss any aspect of this letter, please contact Richard Le Gros, Policy and Innovation Manager, at ENA.

Yours sincerely

Richard Le Gros

Policy and Innovation Manager

Electricity Networks Aotearoa