Submission: Integrating hosting capacity into small-scale distributed generation connections – consultation paper

Submitter	Electricity Engineers' Association (EEA)

Question	Response
Q1. Do you agree the issues identified by the Authority? If not, why not?	Yes. However, here is a comment concerning Issue 1. The Authority (EA) wishes to update the standard reference to AS/NZS 4777.1 (2016) in Schedule 6.1 Clause 1D. The EA has already updated the other part of this series AS/NZS 4777.2 (2015) in this Clause. The Electricity (Safety) Regulations 2010 (ESRs), Clause 59(1) requires domestic installations having a demand below 18.4 kW (single phase) to comply with Part 2 of AS/NZS 3000 (2007), which in turn requires compliance to the superseded AS4777 (2005) series. Part 1 and 1A connection applications fall within this demand threshold, and those connections which are domestic must therefore comply with AS/NZS 3000 Part 2 and the superseded AS4777 (2005) series. Furthermore, ESR Clause 60(2)(f) requires those distributed generation installations required to comply to Part 2 of AS/NZS 3000 to also be compliant to AS 4777.1 (2005). In paragraph 2.22 the EA states that: 'The Authority considers it creates no conflict with the ESRs by moving now to update the standard reference in the Code because the reference is only used in Part 6 as an eligibility criterion for the streamlined Part 1A connection application process.' But if a domestic installation meets the updated standard references and is eligible for Part 1A application, it must still also comply with the old AS 4777 series in order not to

	violate the ESRs. However, certification of an inverter to both the old and the new standards is not possible, and there are some irreconcilable technical differences between the old AS 4777 series and the new AS/NZS 4777 series. Therefore, a domestic installation eligible under Part 1A arguably violates the ESRs. It then follows that only non-domestic distributed generation under 10 kW applying via the Part 1A process does not violate the ESRs. This situation persists until MBIE has updated to the new AS/NZS 4777 (and new AS/NZS3000) standards in the ESRs. Note that non-domestic installations are not bound to comply with Part 2 of AS/NZS 3000, but obviously only represent a much smaller fraction of applications.
Q2. Do you agree with the proposals identified by the Authority? If not, why not?	Yes.
Q3. Do you agree with the objectives of the proposed amendment? If not, why not?	Yes.
Q4. Do you agree the benefits of the proposed amendment outweigh its costs? If you don't agree, please explain your reasons.	Yes. Regarding paragraph 3.5(b) and 3.6, the proposed Code amendment allows distributors to set a threshold for maximum export power as an eligibility criterion for automatic assessment under the Part 1A application process. It should also be explained that an applicant wishing to connect distributed generation having an export power greater than this threshold may apply to do so using Part 1. In this case, the EDB may wish to conduct a manual assessment and may or may not require additional mitigation measures. It is important that applicants and installers understand when reading the Code that the maximum export power threshold is a threshold above which manual assessment is required, and is not a limit on how much power can be exported.
Q5. Do you agree the proposed amendment is preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory	Yes.

objective in section 15 of the Electricity Industry Act 2010.	
Q6. Do you agree the Authority's proposed amendment complies with section 32(1) of the Act? If you don't agree, please explain your reasons.	Yes.
Q7. Do you agree with the drafting of the proposed amendment? If not, why not?	The EEA is in favour of the EA's proposed Code amendment. However, the change to Clause 1D(b)(ii) only specifies the volt-response modes, and does not permit distributors to specify as eligibility criteria for Part 1A any of the other inverter operational modes described in AS/NZS 4777.2 that they may wish to use. It is the EEA's preference to allow distributors to specify as eligibility criteria which of the inverter operational modes they may require in their connection and operation standards, as proposed by the GREENGrid's Network Analysis Group in the EEA's 2016 Code amendment request. Inclusion of Demand Response Modes (DRMs), for example, as eligibility criteria in their connection standards would provide distributors with the flexibility of implementing centralized inverter control if they wished to do so in the future under Part 1A. Nevertheless, the EA's proposed change to this Clause does add simplicity by only listing the volt-watt and volt-var response modes. More importantly, the inclusion of these two modes as mandatory requirements, and the inclusion of the maximum export power threshold, for Part 1A application, allows the *Traffic Light System* of connection requirements described in the EEA's Guide for the Connection of Small-Scale Inverter-Based Distributed Generation to be effectively applied when applicants use the Part 1A connection application process. This was the original concern prompting the EEA's Code amendment request. There are some small changes which are essential for improving the clarity of the EA's proposed amendment. These concern proposed Clauses 1D(c) and 9B(2)(ea) and are shown below in blue text:

Part 6 Schedule 6.1

1D When application may be made under Part 1A

A **distributed generator** may elect to apply to a **distributor** under Part 1A instead of Part 1 if the **distributed generation** to which the application relates—

(a) is designed and installed in accordance with AS/NZS 4777.1:2016 and

(b) incorporates an inverter that—

(i) has been tested and issued a Declaration of Conformity with AS/NZS 4777.2:2015 by a laboratory with accreditation issued or recognised by International Accreditation New Zealand; and

(ii) has the following volt response modes:

(A) volt-watt response mode; and

(B) volt-var response mode; and

(iii) has protection and volt response mode settings that meet the **distributor's connection and operation standards**; and

(c) has a~~n~~ maximum export power ~~limit~~ at the **ICP** of the **distributed generator** that ~~meets~~ does not exceed the **maximum export power** threshold, if any, specified by the **distributor** in its **connection and operation standards**.

9B Application for distributed generation of 10 kW or less in total in specified circumstances

(1) ……

(2) An application must include the following:

(a) the name, contact, and address details of the **distributed generator** and, if applicable, the **distributed generator's** agent:

(b) a brief description of the physical location at the address at which the **distributed generation** is or will be connected:

(c) any application fee specified by the **distributor** in accordance with clause 6.3(2)(e):

(d) details of the make and model of the inverter:

(e) confirmation as to whether the inverter—

(i) is included on the **distributor's** list of approved inverters made publicly available under clause 6.3(2)(f); or

(ii) conforms with the protection settings and volt response mode settings specified in the **distributor's connection and operation standards**:

(ea) confirmation that the **distributed generation** has a **maximum export power** ~~limit~~ that ~~meets~~ does not exceed the **maximum export power** threshold, if any, specified by the **distributor** in its **connection and operation standards**:

(f) if the inverter is not included on the **distributor's** list of approved inverters, a copy of the AS/NZS 4777.2:2015 Declaration of Conformity certificate for the inverter:

(g) details of—

(i) the **nameplate capacity** of the **distributed generation**; and

(ii) the fuel type of the **distributed generation** (for example, solar, wind, or liquid fuel); and

(iii) the **maximum export power** of the **distributed generation**.