Summary of consultation responses for DER Connection Guidelines - Basic

Energy Networks Australia

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Summary of Consultation Responses

1. Energy Networks Australia DER Connection Guidelines and their objectives

The Energy Networks Australia DER Connection Guidelines are a set of guidelines that establish the structure, definitions and technical settings that Australian Distribution Network Service Providers (DNSPs) should adopt in the development and application of their technical requirements for grid connection of DER. The guidelines use instructional language directed towards Network Service Providers (NSPs) in developing and applying their technical requirements. The contents of the guidelines are defined through the Energy Networks Australia Framework and Principles Guideline. Energy Networks Australia has directed significant effort to achieve a well-rounded and considered approach to each of these objectives, which include:

- striking the right balance between the efficiency in the DER connection process and the mitigation of network risks/costs;
- increasing the consistency between NSPs in terms of technical requirements, documentation requirements and structure of the technical requirements documents;
- improving the clarity of the technical requirements;
- establishing a platform for NSPs to develop common standards and protocols for future management of active DER.

In the absence of these guidelines, there is greater variability across the DNSP's technical requirements documents and the specificity of technical requirements. The DER Connection Guidelines serve the purpose of succinctly capturing what the technical requirements are for prominent DER technologies in place today with consideration of DER compatibility, network security and safety.

2. Iterative Process of Evolving the Guidelines

In this first iteration, the Connection Guidelines are a 'point in time' document much needed to form a baseline for DNSPs. The refinement of desired outcomes of the guidelines are envisioned to be achieved through an iterative process of evolving the guidelines. For optimal outcomes, there will be a priority placed on broad engagement with technology providers and experts as well as taking learnings from internationally recognised standards. The process of updating the guidelines will certainly aim to capture future industry innovations (e.g. AS/NZS 4777 updates) driven through other vehicles of change/organisations. Given other programs such as the joint Energy Networks Australia and AEMO Open Energy Networks (OpEN) project (and its particular focus on dynamic management), as well as with other industry processes currently in their development stages, it will be necessary for the guidelines to be updated to reflect these advancements. Specific outcomes of the OpEN consultation to date have identified the need for common standards and protocols for active DER

and further specific technical requirements are yet to be developed as a result of the project. With the OpEN project as well as the DER Connection Guidelines, proponents of DER should expect that these projects will be coordinated in a manner that progressively increases uptake of DER while reducing network costs/risks.

3. Consistency of Technical Requirements

Determining the extent to which convergence can be achieved for each of the technical requirements and settings in the guidelines has been an outcome of the overall consultation process. Where there is convergence in technical requirements, it has been intended to improve the consistency to create a baseline from which to build the guidelines. The guidelines are geared towards supporting a nationally consistent approach to achieve the objective of maximising the efficient uptake of DER, while enabling innovation by bringing to the fore good practices deployed by leading DNSPs for minimal adoption by all DNSPs where practicable. The current guidelines should not stop DNSPs from planning, carrying out research or studies or partnering with other bodies to carry out works, or develop content in preparation for advancements.

4. Specificity of Technical Requirements

The intent of specificity within the guidelines is to encourage consistency of the baseline parameters, and in turn, maximise the efficient uptake of DER. It is expected that in future iterations the specificity over certain areas of the guidelines, such as generation control, may be removed altogether with dynamic management being introduced.

5. Audience of the Guidelines

The DER Connection Guidelines are intended to support DNSPs in improving their technical requirements documents such that they are consistent and organised for efficient and effective use by proponents, particularly those operating across multiple jurisdictions. For this reason, all of these guidelines are primarily DNSP facing. Feedback received about empowering consumers with access to information about their investment choices and their role in supporting the grid is highly important and will need to be driven through the appropriate avenues, with initial suggestions being around individual DNSPs engaging with their stakeholders directly and supplementing the guidelines with information that responds to their specific needs.

6. Compliance with the Guidelines

All DNSPs have communicated an intention to adopt the requirements of the guidelines. Compliance will be reviewed and assessed independently six months after publication and one year after publication. Compliance is likely to be reviewed biennially thereafter. Where DNSPs choose to adopt an alternate setting, structure or approach, they can still be deemed to comply so long as the deviation is set out and explicitly justified. Acceptable justifications could include meeting a jurisdictional legislative or regulatory requirement and/or providing improved benefits to

Australia's electricity system. Where the guidelines are not effective in driving desired outcomes, then regulators and policy makers may consider mandatory (standards) based options. The extent to which regulators and policy makers are to be further involved will be considered following the independent reviews of the compliance. After publication of the guidelines, the focus of the period that follows will be to both encourage further improvements to the guidelines in addition to channelling efforts for supporting how the process of implementation could be improved.

7. Energy Networks Australia's Communications and Transition Plan

With the publication of the guidelines, Energy Networks Australia will prepare a communications piece and transition plan for DNSPs with consideration of the following feedback provided, including, but not limited to:

1. Changes to DNSP web portals that may be required and the expected timeframes for finalisation;
2. Changes to technical requirements documents and the expected timeframes for finalisation;
3. Consultation process for gauging DNSP feedback from the initial implementation stages;
4. Consultation process for establishing a communications pathway for consumer organisations to facilitate experiential feedback from the industry;
5. Guidance on transitioning connection arrangement contracts when updates to the guidelines occur that would impact the DNSPs technical requirements documents;
6. Storing all technical requirements in one location;
7. Volt-var and volt-watt response modes and their potential to increase network hosting capacity;
8. Generation control support for DNSPs and external stakeholders;
9. FAQs including suggestions received.

8. References to Australian/ International Standards

Where technical requirements are related to standards, these are referenced as required to minimise confusion. In particular, the most commonly referenced standard within the Basic and LV EG connections guidelines is the AS/NZS 4777 series. Referencing the industry standard AS4777 throughout the basic and LV guidelines is crucial as solar PV technology, which is the focus of this standard series, is the DER technology that is most prevalently installed across Australia. Technical requirements for ESS and other DER technologies are intended to be introduced in future iterations of the guidelines. In the meantime, alignment with the AS/NZS 4777 series is incorporated for consistency in technology practice and to allow for technological

advancements into the future whilst also bringing specificity and clarity for consumers.

It was suggested that the guidelines should not make direct references to the AS4777 standards as they are difficult for consumers to access and instead that the guidelines should include summarised content that aids consumer understanding. Keeping in mind that the guidelines are primarily DNSP facing and that they need to be as concise as possible in order to be followed, they cannot incorporate summarised standards information in every instance that a reference to the standard is made.

9. Expediency of Processing Basic EG Connections

Timeframes for assessments of applications and connections are certainly expected to be provided by DNSPs and conveyed to proponents in ways other than through their technical requirements documents. To expediently process connections that are the most commonly occurring and straightforward in their technical requirements (generally of a system capacity below 30 kVA), the Basic EG connections guideline plays an important role. For connections that do not satisfy the basic EG connection criteria, these will need to meet the slightly more negotiated requirements of the LV EG connections. From this perspective, proponents are not limited by their options but are instead empowered by the methodical consistency introduced by the guidelines into the range of the DNSP technical requirements documents.

10. Incorporating Energy Storage System (ESS) Technical Requirements into the Guidelines

Given that the current set of guidelines act as a foundation to build upon, there is every intention to incorporate further ESS requirements into future iterations of the guidelines, especially as ESS standards for product and installation are developed by industry. There is also consideration for an ESS guideline to be introduced following completion of the MV/HV guideline. The DER Connection Guidelines maintain intentional references to ESS for the purpose of improving consistency without introducing any constraints on battery operation or capacity. While it is intended for the guidelines to be technology agnostic, there is more guidance provided on solar PV technology as this is the DER technology type that has the highest penetration across Australia for Basic and LV connections. Introducing ESS in further detail will increasingly become a priority for future iterations as battery uptake becomes increasingly popular. Throughout the guidelines, the use of the terms "excluding ESS" generally refers to the specific technical requirement to remove constraints from installing ESS. For example, in clause 4.2 of the Basic guideline the phrase "For single-phase basic micro EG connections of IES (excluding ESS), the maximum system capacity shall be set to greater than or equal to 5 kVA" places a minimum threshold for the maximum system capacity setting for IES, however it does not require limits for ESS. This means that a customer with single-phase connection has no restrictions on the size of battery they can install. In addition, it would be useful to note that the definition provided within the guidelines of ESS, that is systems with one or more

batteries, should address the concern raised for consistent articulation of how the technical requirements affect one or multiple batteries.

11. No Limits placed on ESS through the Guidelines

In the Basic EG connections guideline, the maximum system capacity and generation control limits are defined for the single-phase and three-phase subcategories without including limits on ESS. Therefore, there are system capacity limits and generation control limits on IES though not on ESS. Due to the language used throughout the guidelines being instructional, the guideline does clarify that generation control applies to the IES only, with no restrictions on ESS generation control.

12. Generation Control

Generation control is used in the current guidelines in order to avoid the misconception that DNSPs are universally capable of allowing export greater than the specified amount in the guidelines. The export limit for Basic EG connections that are single-phase IES of 5kVA or higher has been required through the guideline as it has been realistically achieved by networks with the highest penetration of DER and more difficult network characteristics. Export limits coupled with the volt-var and volt-watt response modes aim to promote network security whilst also allowing customers to maximise export to the grid. Demonstration of compliance to generation control settings is covered under section 6 testing and commissioning of the guidelines. The guidelines, and generation control section, will aim to evolve with dynamic management emerging in the industry and developments in VPP trials, OpEN and individual DNSP research and development programmes.

13. Non-Standard Network Connections (Basic EG Connections)

'Non-standard network connections' is the subcategory that describes areas having differing network characteristics to the expected uniform (in most cases the large majority) parts of the network. These include SWER, isolated networks and CBD networks. These network connections typically have their own set of technical requirements and in most instances cannot fit within the Model Standing Offer or equivalent model offer for jurisdictions not subject to Chapter 5A or the NER. Due to the variance in network characteristics, there are varying technical requirements and capabilities for networks to be able to handle DER connections and export. The guideline therefore requires DNSPs to set out generation control limits for each non-standard network type up front within their technical requirements document.

14. Voltage Response Modes

Learnings from the recently updated international standard IEEE1547 series include that volt-var and volt-watt response modes contribute to network voltage regulation, which can ultimately encourage further DER penetration. Energy Networks Australia will be working closely with AEMO and DNSPs to develop volt-var and volt-watt

settings that are forecast to be incorporated into the next iteration of the guidelines (with fixed power factor references removed altogether once the transition period is complete).

15. Maximum System Capacity

Maximum system capacity is a technical requirement that is included in the guidelines as a safeguard from 'masking' of the load. This in turn will increase network safety and security. Once dynamic management requirements are introduced through external drivers in future iterations, this section will be amended appropriately. It is in the DNSP's best interests to assign the setting for maximum system capacity to match what is currently recommended by the DNSP to proponents (unless of course it is lower than the setting provided within the guidelines). Energy Networks Australia will look to adopt feedback received around incorporating an additional sentence into this iteration of the Basic guideline to reflect that; where a DNSP reduce the maximum system capacity setting from their currently allowed setting, they shall include this as a deviation and provide a justification.