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Via email: DTF.UtilitiesReform@nt.gov.au

Dear Utilities Reform,

Submission in Response to *Consultation on the Form of Reliability Standards for the Northern Territory's Regulated Power Systems*

Ekistica appreciates the opportunity to consider and comment on the Department of Treasury and Finance's (DTF's) consultation paper, *Consultation on the Form of Reliability Standards for the Northern Territory's Regulated Power Systems*.

It is our considered view that the Northern Territory's regulated power systems will be exposed to significant external pressures over the coming years, and that consequently, it is highly probable that the balance of variable renewable generation will increase significantly in the coming years. As a result, we do not believe that maintaining the status quo can reasonably be assumed as the lowest cost option in the long term, particularly as the cost of renewable sources of energy decreases and the viability of alternative complementary technologies increases. Given the increasing diversity of power generation sources that these changes would likely bring forward, and specifically the opportunities and demands of consumers to engage with the power system in ways that have not previously occurred, Ekistica strongly agrees with the consultation paper's contention that the form of the Reliability Standard should not be generator-focussed but rather, customer-focussed.

Preferred Reliability Standard Form: Unserved Energy (USE)

In the matter of determining the most appropriate measure of reliability, consistent with the premise of a customer-focussed form, we acknowledge the difficulty of simultaneously accounting for multiple criteria including the number of customers affected and the frequency, duration and depth of outages, which all contribute to the understanding of system reliability.

We understand that the preference for Loss of Load Hours (LoLH) is motivated by the observation that the Darwin system presently has a relatively flat load profile, i.e., any supply shortages are likely to be shallow but sustained. However, we note that the increased contribution of variable renewable generation, both behind and in front of the meter, will result in increasingly variable daytime loads and increasingly variable generation availability.

Taking into consideration the DTF's assessment of various forms, as well as those by the North American Electricity Reliability Commission (NERC) and Australian Energy Market Operator (AEMO), Ekistica notes that only Unserved Energy (USE)[1] considers the frequency, duration and magnitude of outage,[2] while providing the following advantages:

[1] Hybrid approaches containing USE or similar principles may also be considered; Ekistica does not adopt any specific position on hybrid forms.
[2] North American Energy Reliability Commission (NERC). "Probabilistic Adequacy and Measures" Technical Reference Report. April, 2018.

1. The changing, increasingly variable load profile in the Darwin system requires a form that can consider depth and duration of outages.
2. It is preferable to adopt a form that is easily communicated, allowing it to be a ready basis for broader industry and community discussion.
3. It is preferable to have consistency with the NEM as well as between the Territory regulated systems, and while we note DTF's emphasis on arriving at a form that is system-appropriate rather than governed by precedence or consistency, there is inherent value in consistency due to:
    (i) the ease of performance comparison between the Territory systems; and
    (ii) there being no need to overcomplicate the approach – note that the USE form itself has sufficient flexibility to tailor its level (and specific measures) to all three of the regulated power systems in question.

The USE form appears the best candidate to meet the above but any alternative that considers these factors is also worthy of consideration.

Need for a Holistic Approach

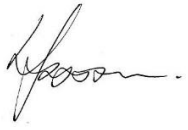
Ekistica acknowledges that the Territory is undergoing significant transition, with several other public consultations for energy-related issues underway. However, given the substantial overlap between the design of an energy market and Generator Performance Standards, the current review of the Reliability Standard should be undertaken with a view to the broader changes occurring in the Territory energy industry:

- The choice of reliability form and level will be both influenced by and necessitate significant changes to the System Control Technical Code and the Secure System Guidelines, both of which are currently under consultation for extensive revision.
- A generator's contribution towards overall system reliability should form the basis of any capacity credit or capacity market system,[3] such as that proposed in the current Northern Territory Energy Market (NTEM) draft specification.

We also acknowledge that this consultation is specifically focused on the form of Reliability Standards only, and we encourage DTF to have an additional consultation for setting the level of Reliability Standards.

Ultimately, as stated at the beginning of this submission, significant change is afoot in the Territory energy industry and the development of a Reliability Standard needs to consider the impact it will have on a changing generation profile and the consumer. Ekistica commends DTF for commencing this consultation and looks forward to seeing the outcome.

Regards,



Lyndon Frearson
Managing Director

[3]Ibanez, Eduardo, and Michael Milligan. "Comparing resource adequacy metrics and their influence on capacity value." *2014 International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)*. IEEE, 2014.