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Tuesday, 24 April 2018

John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Lodged electronically: www.aemc.gov.au

Dear Mr Pierce

Frequency Control Frameworks Review Draft Report (EPR0059)

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia. We represent and work with hundreds of leading businesses operating in solar, wind, hydro, bioenergy, marine and geothermal energy, energy storage and energy efficiency along with more than 5,000 solar installers. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

We welcome the opportunity to input into the Australian Energy Market Commission's (AEMC's) Frequency Control Frameworks Review Draft Report. The CEC supports the AEMC's ongoing system security work program and considers this review important to ensuring frequency control frameworks are not only efficient now, but also adaptable as new technologies emerge in the future.

The Draft Report outlines the AEMC's proposed improvements to the existing frequency control arrangements to support the security of the power system. The CEC welcomes the intention of these recommendations to:

1. address current concerns with frequency performance in the National Electricity Market (NEM);
2. remove barriers to distributed energy resources participating in system security frameworks; and
3. explore how best to integrate faster frequency control services offered by new technologies into the current regulatory and market arrangements.

While we do not oppose any of the recommendations, we suggest more consideration needs to be given to their prioritisation. The separation of recommendations into immediate and emerging risks the emerging needs being delayed unnecessarily while immediate needs are addressed. In our view, the emerging needs are where the substance of the changes are that will deliver on the AEMC's three above aims for this review. An ineffective outcome for this review would be that progress stalls on recommendations and the frequency control arrangements remain unchanged particularly when new technological capabilities, such as rapid response capabilities that have not existed in the NEM to date, are firmed up and able to participate.

The CEC urges the AEMC to develop a series of strict timeframes for each of its recommendations to ensure they are progressed. These timeframes should recognise the pace and hence disruptive nature of technological development. As such, the emerging needs should be addressed in the immediate term rather than in the longer term to ensure frequency control arrangements that are adaptable to new technological capabilities and encourage participation from a broad range of technologies. These timeframes should also incorporate regular updates throughout any process in order that all stakeholders are kept informed of progress.

The remainder of our submission addresses each of the AEMC's recommendations separately.

We thank you for the opportunity to provide our views on these matters. Please contact me on the below details for any queries regarding this submission.

Sincerely,

Lillian Patterson
Director Energy Transformation
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CEC Response to the Draft Recommendations

	Draft recommendation	CEC response
1	a) That AEMO investigate whether: i) the average period used for calculation of contribution factors could be aligned with the period over which the costs are incurred, preferably on a five minute basis ii) the ten business day notice period between publishing and applying contribution factors is appropriate or could be removed. b) That AEMO clarify how the causer pays procedure works and the specific variable that generator performance is measured against (i.e. frequency indicator or frequency) such that contribution factors can be calculated in real time by market participants.	The intent of the causer pays procedure is to provide a price signal that incentivises market participants to act in a way that minimises the need to procure frequency services. The CEC supports improving the mechanics within, and the clarity of, the causer pays procedures to improve price signals and hence market participant incentives.
2	That the providers of a primary regulating response should be remunerated for the costs of providing the service, in particular where the opportunity costs of maintaining the capacity to provide the service (e.g. maintaining headroom to be able to increase output) are likely to be high. The implementation of one of the following two options is likely to build on the existing market frameworks and support improved frequency control during normal operation: • provision of a primary regulating response through the existing regulating FCAS markets • changes to the causer pays arrangements to facilitate the provision of incentive payments for primary frequency response during normal operation.	The CEC supports introducing incentive payments for primary frequency response during normal operation. We strongly support rewarding performance based on speed and accuracy as this would improve the efficiency of current frequency control arrangements and ensures that new technologies are encouraged to enter the market.

	Draft recommendation	CEC response
	Further work is required to investigate and describe the potential arrangements for the implementation of these options, and the associated costs and benefits of these arrangements.	
3	That a rule change request be submitted to amend the NER to require: a) AEMO to monitor, and publish reports on, frequency outcomes with respect to the requirements of the frequency operating standard b) AEMO to provide information to the AER on the performance of FCAS markets and for the AER to monitor, and report on, the performance of FCAS markets.	The CEC supports more information being made available on frequency outcomes. We support a monthly publication of key metrics with a longer annual report on system and market trends. This will not only be helpful for current market participants but also those looking to enter the market.
4	That a rule change request be submitted to enable: a) Market Ancillary Service Providers to classify small generating units as ancillary service generating units for the purposes of offering market ancillary services b) Small Generation Aggregators to classify small generating units as ancillary service generating units for the purposes of offering market ancillary services. These changes may also require changes to AEMO's market ancillary service specification (MASS).	The CEC supports these two participants being able to offer market ancillary services as a means for distributed energy resources to participate in the ancillary services market.
5	That: a) AEMO provide more information regarding particular service characteristics that may be able to be trialled under the MASS b) undertake trials of distributed energy resources providing FCAS that consider various technology types and different options for metering and verification, with a view to sharing the outcomes of the trials with relevant stakeholders	The CEC urges that AEMO commence trials of distributed energy resources providing FCAS as soon as practicable. AEMO should clearly articulate the parameters for the trials prior to their commencement and look to share knowledge and learnings throughout and at the conclusion.

	Draft recommendation	CEC response
	c) conduct a broader review of the MASS and consider how the value of distributed energy resources can be appropriately recognised.	
6	That Energy Networks Australia, in developing its national connection guidelines, provide guidance on: • what capability is reasonable to require from distributed energy resources as a condition of connection in order to address the impact of that connection • the expected application of AS 4777 to different connection types and sizes • the technical justification for any mandated services • the extent to which any mandated services would detract from the ability for distributed energy resources to offer system security services. The Commission encourages stakeholders to provide input into the development of these guidelines.	The CEC supports the ENA initiative and shares the AEMC's concerns regarding the practice of mandating the supply of network services as a condition of the connection of distributed energy resources to the grid. The CEC supports the continuous improvement of inverter capability and requirement of that capability as a condition of grid connection. However, we are very concerned by any moves to mandate the provision of the services enabled by improved inverter capability as a condition of grid connection. We have attached a copy of CEC's submission to the ENA draft national connection guidelines.
7	That: a) AEMO, in conjunction with DNSPs, conduct trials of aggregated distributed energy resources providing FCAS to assess their ability to provide services under different network conditions, and how the provision of those services affect the local network and the power system more broadly b) DNSPs and aggregators share information about the types of network conditions that may constrain the operation of distributed energy resources providing system security services, and the types of services that may affect network conditions, with a view to	The CEC welcomes the proposal for trials of aggregated distributed energy resources providing FCAS. The scope of the trials should involve market participants, DNSPs and TNSPs so that the entire supply chain can be better informed about the potential benefits, challenges and opportunities involved with distributed energy resources.

	Draft recommendation	CEC response
	determining how the value of distributed energy resources can be maximised for both parties.	We are concerned that the practice of requiring export limitation as a condition of grid connection will constrain the operation of distributed energy resources providing system security services.
8	That, in the medium term: a) AEMO conduct a broader review of the MASS to recognise the capability, and more accurately value the response profile, of new technologies that are capable of providing frequency control services b) the AEMC and AEMO refine the time frames and develop a work program for making any substantive changes to FCAS frameworks, informed by: i) an assessment of any consequential impacts arising from the implementation of any revisions to frequency control arrangements in the normal operating frequency band ii) investigations undertaken by AEMO into: – the emerging capabilities of fast frequency response technologies, including trials of various technology types, with a view to publishing the outcomes of the trials with relevant stakeholders, and to inform the development of future service specifications – the evolving technical and operational requirements of the power system and the inter-relationships between different system services, including frequency response, inertia and system strength.	The CEC supports these recommendations but suggests these be pursued earlier than in the medium term in order that the frequency control frameworks are ready and adaptable for when new technologies are market ready. In particular, the CEC supports the need to encourage faster response capability in the NEM and urges the AEMC and AEMO to consider this as a priority.

Annex A – CEC submission to ENA national connection guidelines

22 March 2018

Stuart Johnston
Energy Networks Australia
Level 1, 110 Giles Street
Kingston ACT 2604

Dear Stuart,

National Connection Guidelines – Framework and Principles

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the framework and principles for the Energy Networks Australia (ENA) National Connection Guidelines. I have attached a dot point summary of feedback on framework and principles, addressing the key issues raised in our discussion with you and in subsequent discussions between CEC members.

Some key recommendations include:

- There should be separate guidelines for controllable and non-controllable systems,
- A principle for queuing should be to give precedence to controllable systems that provide a net benefit to the system (such as improving the hosting capacity of a constrained network), and
- The 10kW limitation for single phase connections is too limiting. We note, for example, that SA Power Networks proposes to allow up to 10kW solar arrays with up to 10kW batteries on a single phase system with a 5kW export-limited inverter.

We would welcome the opportunity continue to engage with ENA as the National Connection Guidelines are developed.

Yours sincerely

Darren Gladman

Coverage

Should technical guidelines be produced for all connection types? Are registered connections best lefts to AEMO / GSP?

- Distribution-level grid connection should be treated separately to transmission-level grid connection.
- TNSPs should also have a consistent approach based on AEMO requirements however there are technical standards being developed for transmission connection and additional guidelines could create unnecessary complications.

Queuing

Should queuing policy be addressed within the framework and principles guidelines (given the AEMC response)?

- We agree that a rule change for queuing policy is desirable.
- Some principles / outcomes for a queuing policy could include giving precedence to:
    - Batteries that fulfil a health and safety role (eg. elderly customers, life support)
    - Controllable systems that will provide a net benefit to the system (eg. by improving the hosting capacity of a constrained network)
- Current queuing policy has issues with 'free riders'. Queuing policy should ensure that augmentation costs are borne by all beneficiaries, not just the first causer of a network constraint.

Connection types

Are the connection types proposed appropriate?

- The 10kW limitation for single phase connections (30kW for three phase) is too limiting.

Battery storage

Is it appropriate to have a stand-alone battery storage technical guideline? What sort of connections should this cover (e.g. large-scale stand-alone?)

- There should be separate guidelines for non-controllable technologies (eg. solar PV array) versus controllable technologies (eg. batteries, microhydro). The key distinction should be flexibility / controllability of the time of operation, rather than on a technology basis (eg. solar versus storage).
- Categorizing energy storage as either a load or a generator will limit its usefulness and opportunities for energy storage to provide additional services.
- Large-scale stand-alone energy storage will have project-specific requirements and a connection guidelines is not needed at this stage.
- There should be consideration of whether electric vehicles present unique issues or whether they can be treated simply as another battery.

Feedback on proposed principles

- "Be compliant with relevant regulation and legislation" – OK, but over what timeframe and how will the National Connection Guidelines be reviewed and updated?
- "Stand-alone" – Would a stand-alone document have value if it is not reflected in changes to other processes and regulations? Does this depend on 100% adoption by all NSPs?
- "Be flexible by accommodating differences in generation technology and differences in network characteristics" – Need to clarify that the "differences in network characteristics" refers to technical requirements and not, say, differences in commercial drivers.

Other items

What is missing?

- Protocols and standards for communication between the DER and the network
- Who draws the line between network services that are required as a condition of grid connection and those that are remunerated?