

**Attn: Dr Kerry Schott AO**  
**Chair, Energy Security Board**

Submitted via email to: info@esb.org.au  
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# Energy Security Board Governance of Distributed Energy Resources Technical Standards

## *IEEFA's Response to Consultation Paper*

### Introduction

As a public interest thinktank, the [Institute for Energy Economics and Financial Analysis](#) (IEEFA) examines energy markets, trends, and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy.

IEEFA is grateful for the opportunity to respond to the Energy Security Board's discussion paper, **Governance of DER Technical Standards**, released earlier this month for public consultation.

Addressing industry requirements for widespread adoption of distributed energy resources (DER) and consideration of a two-sided market are initiatives that are timely, if not overdue, and are strongly supported by IEEFA. These initiatives are important elements of regulatory reform that is urgently needed in the National Electricity Market NEM (and the Wholesale Electricity Market WEM), and across the broader energy sector, to help coordinate and expedite the orderly transition to a net zero emissions economy, as has been endorsed by all states and territories.

### *The Importance of DER Technical Standards*

In Australia, the rapid uptake of rooftop solar and utility-scale renewable energy, against the backdrop of political ambiguity concerning energy and climate policy, has been widely publicised.

Coal-fired power generation in Australia, currently still the majority supplier, is now clearly on the decline and is expected to continue its retreat from the market, possibly ahead of scheduled plant retirements, driven primarily by price competition underpinned by lower-cost firming renewable energy continuing to penetrate the market.

The promise of cheap gas fuelling an economic recovery following COVID-19 or acting as a transition fuel by firming variable renewable energy is debatable. Gas exploration in Australia remains uneconomic<sup>1</sup>, and it is emerging that the emissions from gas production, transport and combustion are significantly higher than previously reported by industry participants.<sup>2</sup> In IEEFA's opinion gas is not a transition fuel, and there is actually no real need for a designated transition fuel if Australia embraces the direct transition to renewable energy, combined with battery storage, demand response (DR), pumped hydro storage (PHS) and distributed energy resources (DER).

Both the coal and gas sectors face increasingly challenging economic conditions, making new investment in production and generating assets unlikely, and increasing risk of stranded assets in the medium term. A series of recent green hydrogen pilot projects announcements, involving global energy corporations including from the oil and gas sector, suggests the potential for technology-led disruption, with momentum continuing despite COVID-19.

Notwithstanding environmental factors, market economics now favour variable renewable energy as the primary source of electricity in the Australian grid going forward. The identification of Renewable Energy Zones (REZs) in the draft Integrated System Plan (ISP), and recent calls for Registration-of-Interest for proposed REZs from state governments, point clearly to the potential for a green economic recovery from the current recession. Nine times oversubscription in the call for Central West REZ proposals by the NSW government confirmed that there is a high level of interest in new large-scale renewable energy developments in Australia.

The expected rapid shift towards utility-scale renewable energy (wind, solar) as a primary supply in the NEM, coupled with the continued uptake of residential and commercial rooftop solar photovoltaics (PV), and batteries, suggests that the penetration of renewables overall in the systems could reach levels indicated in the Australian Energy Market Operator's (AEMO's) Renewables Integration Study (April 2020) on accelerated timeframes. IEEFA's analysis of fossil fuel asset writedowns and financial sector divestments suggests that, with continued state-level leadership and even in the absence of federal policy certainty, the generation mix in the NEM will tilt strongly towards renewables over the next decade.<sup>3</sup>

Alongside a high and rising penetration of variable renewable energy (VRE), the contemporaneous increase in smart-meter enabled DER with storage aggregated across the NEM<sup>4</sup>, could play a critical role in providing system security services and demand response. IEEFA also appreciates that market reform is needed to allow DER visibility to AEMO, as will be required to manage the system in future.

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<sup>1</sup> IEEFA update: Australia sponsors a failing gas industry. 23 July 2020.

<sup>2</sup> IEEFA Update: The markets won't respond to Australia's proposed "gas-fired recovery". 9 June 2020.

<sup>3</sup> IEEFA: Renewables Continue to Break Records Despite COVID-19 Impacts. June 2020.

<sup>4</sup> Green Energy Markets. Projections for distributed energy resources – solar PV and stationary energy battery systems Report for AEMO. June 2020.

Effective governance of DER at national scale is important, as DER will become a critical element of the grid in the near future. Not only will DER provide benefits to consumers, it will provide a key component in balancing the system and delivering grid services necessary for secure and reliable operation of the NEM. Harnessing DER and including consumer assets in controlled demand response could help avoid substantial system costs, leading to lower consumer prices.

### *Key Items to Consider*

It is well understood that the DER Technical Standards must align to the overall requirement for consumers and businesses to have access to reliable and affordable electricity, even during market reforms and changes to the physical network. From IEEFA's perspective, included amongst the many competing objectives of the DER Technical Standards, we suggest the following specific areas be considered:

- **Simplicity.** There is a close inter-relation between DER regulation, rules for a two-sided market, and Consumer Data Rights (CDR). It would be easy for this emerging component of the market, which is expected to become substantial in the next decade, to be stifled by complexity and bureaucracy. IEEFA urges the ESB to strive for a clear, simple, and universally applicable arrangement that minimises cost to consumer, maintains reliability, and expedites decarbonisation of the electricity sector. DER Technical Standards should be harmonising, clear, and simple to interpret.
- **Innovation.** Consumers, retailers, aggregators, and other yet-to-be-identified market participants should be provided full and open opportunities to develop innovative business and technology models, without excessive overburden of compliance, data access, regulation. DER Technical Standards should be designed to encourage this activity.
- **Emissions.** It is assumed that DER is comprised mainly of solar systems, batteries, smart meters, appliances, heaters, pumps, heat pumps, EVs and other electrical devices. Provisions should be made to ensure that fossil-fuel power devices and machines, including generators and motors, are treated explicitly under the DER standards and rules. No special provision should be made to include harmful or polluting items in the DER standards.

As you, Dr Schott, said last week during the Clean Energy Summit, in reference to the consultation paper for DER Technical Standards, "this is only the first step". IEEFA agrees that it is surprising that this step has not been taken and progressed much earlier, but we acknowledge other competing priorities and the unconstructive political influences of the past decade.

### **However, now is the time for DER!**

In the interest of transforming the NEM to a renewables-based system, combined with a wider electrification of the Australian energy / transport / industry system, IEEFA is hopeful that broad market reforms will underpin significant new investment. This will be much needed in the decade ahead, particularly given the state of the economy and ongoing impacts of COVID-19.

IEEFA wishes the ESB every success in establishing the DER Technical Standards Governance Committee, and in all of its other important market reform initiatives to drive sustainable economic growth for Australia.

The following pages include responses to the questions posed in the DER Technical Standards consultation paper.

## Response to COAG paper questions

We appreciate the opportunity to provide our responses to the questions raised in the paper.

### **Q1. Do you support the proposal to establish a DER Standards Governance Committee under the National Electricity Rules? If not, what alternative would you suggest?**

IEEFA is supportive of this proposal, in the absence of any other framework, as formal standards and rule changes are urgently needed so that DER can be fairly valued in the market and AEMO can have the visibility so desperately needed to ensure system security and reliability. However, the uncertainty hanging over what was previously COAG, and how this might inhibit progress on the vital market reform work of the ESB, gives rise to some reservations. Despite this, once the ESB has established the DER Standards Committee, then it should find stability under the auspices of the AEMC, as proposed, regardless of what becomes of the ESB.

We hope the DER Standards Committee will be sustainable and provide certainty for this important sector of the market. It is essential that the Committee be adequately resourced and funded. It should be provided a level of autonomy and be given a budget commensurate with the scale of the undertaking, with due consideration to accelerated timeframes. The changes involved in establishing a two-sided market, DER, and CDR amount to a paradigm shift, and IEEFA appreciates that the ESB is well-aware of the scale of this endeavour.

### **Q2. Do you support the DER Standards Governance Committee being advisory or be determining? Please provide reasons.**

It is essential that DER standards are designed to facilitate, and to expedite, integration of DER and participation in the market at the earliest possible date. Consumers and businesses are ready for the energy transition and will be increasingly impatient with overly bureaucratic and partisan approaches to energy market administration. Therefore, the DER Standards Governance Committee should be determining. If it is to be assembled with key authority figures from all of the relevant stakeholder groups, there should not be a more qualified group to determine rules and procedures related to DER standards.

In order to cut down the levels of administration, within and between the market bodies, the DER Standards Governance Committee should be given budget and authority to act autonomously, within the market rules, but not subject to further review and approval. The convening body, if it is to be the AEMC, can provide the secretariat as well as a representative, on level terms with the other market bodies.

IEEFA agrees that the AEMC is likely to be the most suitable over-arching agency to act as the convening body, but the AEMC is not necessarily the appropriate body to make final definitive decisions or to approve specific standards in relation to DER.

### **Q3. Do you have any feedback on the proposed functions of the DER Standards Governance Committee?**

Its early in the process of establishing national standards for DER. As explained in the consultation paper, Australia is at the forefront of DER integration internationally, so the coordinating role of the DER Standards Committee to harmonise all related standards and associated stakeholders will be important. IEEFA does not have specific feedback on the proposed functions, and at this stage, they would appear to be both appropriate and thorough. We are certain the functions will evolve, as the industry evolves, and the Australian and international markets come to terms with modern flexible grids, dominated by distributed generation and DER, and the imperative to meet Paris commitments and achieve the broadly accepted target of net zero emissions by 2050.

### **Q4. Do you have any feedback about the Committee determining standards in a subsidiary instrument under the rules?**

Although it may be most convenient, for now, for the Governance Committee to be hosted by, and funded by, the AEMC, this arrangement raises some concerns. The possibility of the AEMC influencing the activity and/or ongoing viability of the Governance Committee, once established, would be detrimental to its long-term effectiveness. Ultimately, it may be more effective for a DER Standards organisation to be established independently, and funded through membership by state and federal governments, industry members, and potentially by revenues derived from products, training, and services. If a dependency on AEMC develops, it may become difficult to migrate to a more independent model.

For now, we see no immediate issue with the standards being located in a subsidiary instrument under the rules and IEEFA supports the Governance Committee to be determinative. We would not see the AEMC as being a suitable arbiter for any unresolved matters or decisions made by the Governance Committee. Decisions by the Governance Committee could lead to rule change requests lodged with AEMC, but equally could lead to national standards that are adopted by state-based energy safety regulators, the AER, and distributors, and to certification practices adopted by appointed organisations, without AEMC rule changes. The AEMC should act as a host only.

Determining standards in a subsidiary instrument under the rules should be manageable but diligence must be applied in the unification of standards currently established under other frameworks and instruments, including legacy standards and work done previously by Standards Australia. It is expected that AEMO will maintain an authoritative position in the Committee, as facilitating a direct pathway to a large visible DER pool in the NEM will be critical to the market operator.

**Q5. Do you have any feedback on the development of new compliance and enforcement arrangements for DER technical standards?**

As noted in the consultation paper, various items that can currently be classed within the broad definitions of DER, are regulated by various organisations. Depending on the particular item, and its intended use, it could be subject to inspection, testing, and/or certification by the Clean Energy Regulator, the Clean Energy Council, DNSPs, state regulators, the AER, and perhaps others. All of these practices will continue, and it will be a task for the DER Governance Committee to develop a comprehensive and authoritative guide for stakeholders to reference when making a determination on classification of a DER item (hardware, software, installation, configuration, system, or procedure, etc), and where to go get the required certification and approval.

IEEFA suggests that the DER Standards Governance Committee aims to become the primary national body for DER standards. The market will require this unifying central authoritative body. By regularly reviewing, updating, and then publishing the definitive guide to DER standards and certifications, it will be possible for stakeholders, consumers, OEMs, and the like to participate in compliance and enforcement, with the relevant organisation (i.e. state-based safety regulator, Clean Energy Regulator, etc). This coordination role will facilitate DER uptake and market participation and could lead to lower prices and support for increased penetration of renewable energy in the NEM.

**Q6. Do you support the proposed composition of the membership and nature of chair of the Committee? Please provide reasons or nominate alternative arrangements.**

We support the proposed composition of the Committee, and to the appointment of an independent chair with DER knowledge but suggest that provisions are made to ensure an appropriate mix of commercial, legal and technical expertise is represented within the members.

**Q7. Do you support the proposed terms and selection arrangements? Please provide reasons.**

We have no comments to make on the proposed terms, other than that attention should be given at the outset to ensuring some continuity and a broad cross-section

of expertise. If members are rotated too frequently, important information and momentum will be lost.

**Q8. Do you have any feedback on the other elements of the proposed operation of the Committee?**

One of the key concerns will be ensuring that the DER Technical Standards Committee is adequately resourced. The required sub-committees, working groups, consultants, and so on, will place a substantial financial and administrative burden on the committee. Consideration should be given to the scope of what is actually involved, and to ensure that adequate resources are committed at the outset.

**IEEFA Further Comments on DER**

As is known, DER does not have any mechanical inertia. Nor do wind, solar, batteries, or (in the future) hydrogen fuel cells, or other inverter-based technologies. The increase in penetration of large-scale renewables and battery storage is displacing traditional generation, and therefore inertia in the system will be reduced, leading to some commentators expressing concern about system stability.

IEEFA urges that this mindset should be broken, and that a future grid that is flexible, inverter-dominated, with low mechanical inertia, can be reliable, secure and economical. AEMO Stage 1 Renewable Integration Study demonstrates that the NEM grid is already reasonably capable of accommodating a relatively high percentage of renewable energy. With added DER, demand response, advanced control technologies and digital systems, it is entirely possible that a grid dominated by inverter-based systems can be managed securely. Indeed, NREL<sup>5</sup> has recently published work demonstrating how this can, and is (Texas), being done.

In conclusion, DER will be an important large component of the NEM in future and establishing and then maintaining Technical Standards is timely and needed. IEEFA supports the initiative of the proposed DER Technical Standards Governance Committee and looks forward to observing how this and related market reforms progress in the coming months.

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<sup>5</sup> NREL. [Inertia and the Power Grid: A Guide Without the Spin](#). 28 May 2020.

## About IEEFA

The Institute for Energy Economics and Financial Analysis conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. [www.ieefa.org](http://www.ieefa.org)

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