

The (Im)maturity Plan for Distributed Energy Resources

*ESB Final Advice Highlights Need for Greater
Rigour and Resourcing of DER Integration
by AEMC and AEMO*

Executive Summary

The Energy Security Board's final advice regarding the integration into the energy mix of Distributed Energy Resources (DER), such as rooftop solar PV, smart appliances and electric vehicles, is disappointing. It shows that scant progress has been made since the ESB published its DER Integration Roadmap one year ago.

The ESB's recommendations 7-9 are DER-related and are analysed in this briefing note.

Recommendation 7: The Adoption of ESB's DER Implementation Plan, including a Maturity Plan process

It appears the ESB was distracted from more meaningful changes for DER integration by its 'Maturity Plan process' comprising hundreds of hours of stakeholder workshops with embarrassingly little to show for it.

ESB's clumsy Maturity Plan process highlights the importance of balancing expertise and appropriately formulated consultation. In order for consultation to be a productive part of policy or regulation-making, it needs to be based on technical analysis and evidence. Experts need to do analytical work, calculations, modelling, using the disciplines of engineering, economics, law, etc. The ESB's workshops and Maturity Plan pilot collected a few facts and many opinions, but produced no new tangible insights or progress on DER integration and resulted in many frustrated stakeholders.

**It appears the ESB
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for DER integration.**

Technical, regulatory and market-design issues cannot be addressed using these types of stakeholder workshops as the primary activity. The ESB's post-2025 market design process for DER was a series of online workshops over the last year. Such post-it note workshops create the danger of prioritising opinion and emotion, of neglecting the quantitative and qualitative analysis that needs to be the

foundation for policy and regulation. The argument in this briefing note is not against consultation, but for rigorous evidence-based public policy making that uses consultation appropriately.

The ESB's Maturity Plan approach failed and should not be continued. The ESB has proposed that further codesign approaches would operate on six-monthly cycles but there is no clear governance or accountability and disturbingly it is not articulated in the recommendation on the DER Implementation Plan. Energy Ministers are seemingly being asked to sign off on a process by default, without understanding how little progress the workshop-after-workshop approach has made. IEEFA strongly opposes the inclusion of the Maturity Plan approach within the ESB's DER Integration Plan.

**The ESB's Maturity Plan
approach failed and
should not be continued.**

The ESB's advisory report includes a table showing how the issues in the Maturity Plan over 2022-23 can be examined through existing or planned energy market institution processes, via the Australian Energy Market Operator and the Australian Energy Market Commission (AEMC or AEMO). In addition, where consultation and collaboration is best conducted outside the energy market institutions, IEEFA suggests the Distributed Energy Integration Program (DEIP), a collaborative process facilitated by the Australian Renewable Energy Agency (ARENA), provides a well-established means of examining the issues.

Instead of the Maturity Plan process continuing, the DER integration work set out in the ESB final advice needs to be continued by AEMO and the AEMC with significant additional resources. There are only a few staff at these organisations devoted to DER and more resources are needed to speed up actions such as the development of a minimum system load and other mechanisms in which consumers could be paid for demand management—turning up and turning down appliances to match variable renewable supply.

In terms of the ESB's DER Implementation Plan, it is unclear what the scope of the AEMC review on network services mentioned in the final advice is, or what the terms of reference are for the proposed study into community storage and Local Use of System (LUoS) charges. IEEFA notes Energy Ministers would be wise to ask for clarity on both these matters.

**Recommendation 8: Energy Ministers Adopt a Jurisdictional Ministerial
Lever for Emergency Backstop Measures, as an Immediate Reform**

IEEFA's previous critique of household solar cut-offs in South Australia sets out why this recommendation is unjustified in terms of the engineering, economics and

policy process. Further, AEMO has already announced the development of minimum system load scheme.

IEEFA recommends that instead of the emergency backstop adoption, that AEMO and the AEMC be tasked with prioritising the development of this scheme for trial implementation in priority jurisdictions by mid-2022.

In addition, Ministers should consider legislating ‘a demand response capability’ requirement for priority household appliances under the Commonwealth *Greenhouse and Energy Minimum Standards (GEMS) Act 2012*. This would be a foundation action to support household appliances soak up abundant solar electricity production in the middle of the day. Without this smart demand response capability, households' ability to participate in wholesale, Frequency Control Ancillary Services (FCAS), or future demand-response or two-sided markets will likely be limited to inverter-based devices.

Recommendation 9: Consumer Protections

The consumer protection risk assessment tool developed by the AEMC is included in the ESB's final advice, but far more work on consumer protections are needed given the substantial and growing role of distributed energy resources in providing electricity to Australian homes and businesses.

**Far more work on
consumer protections
is needed.**

Energy Ministers should task the AEMC with conducting a comprehensive review of the National Energy Consumer Framework (NECF) to be completed by the end of 2022.

Similarly, DER has changed the nature of operating a distribution network and, in the same vein, a comprehensive review of distribution network revenue regulation is overdue. There needs to be a major, well-resourced review rethinking the entire nature of network revenue regulation, including the potential for performance-based regulation. The current CPI-X network revenue regulation model was developed for steadily increasing demand growth and one-way flows of electricity. Today, the national electricity market has millions of distributed rooftop solar systems, some smart appliances, and growing numbers of batteries and electric vehicles. Australia needs to look to performance-based regulation and other more modern approaches to revenue regulation.

The reviews proposed in this briefing note need to be based on evidence and analysis with appropriate consultation, for reasons outlined in detail below.

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The ESB's DER Implementation Plan

Distributed Energy Resources (DER) can be summarised as 'resources located on the distribution system that generate, manage demand, or manage the network.' This is inclusive of, but not limited to: rooftop solar, battery storage, electric vehicles and vehicle-to-grid services, solar hot water, other generators, smart appliances (e.g. air conditioning, pool pumps), energy efficiency, small diesel, building electrification (e.g. heat pumps), energy management systems (e.g. microgrid controllers) and standalone power systems (SAPS).

The Energy Security Board (ESB) was tasked by Energy Ministers in March 2019 to advise on a long-term, fit-for-purpose national electricity market (NEM) design. The ESB's final advice to Ministers includes a DER Implementation Plan. Table 1 provides a high-level summary of the actions in the ESB's DER Integration Roadmap published in September 2020¹ compared with the ESB's final advice to Ministers on 27 July 2021².

A comparison of the two plans in summary show only very minor changes:

- Considering modular networks and non-financial motivations of consumers is missing from the final advice
- The final advice has added emergency backstops for minimum system load (rejected by the ESB DER Steering Committee in the August 2020 Roadmap), an IT systems roadmap and the consumer protection risk assessment tool (previously included under the two-sided market design work of the post-2025 market design).

**Has the ESB made
any substantial progress
on DER integration
in the last year?**

Comparing the plans, one could well ask, has the ESB made any substantial progress on DER integration in the last year?

This paper will look at the details of the DER Implementation Plan and some minor changes to what was proposed by the ESB one year ago.

¹ Energy Security Board. [DER Integration Roadmap and Workplan](#). September 2020.

² Energy Security Board. [Post Post-2025 Market Design Final advice to Energy Ministers. Part B](#). July 2021.

Table 1: Comparison of ESB DER Plans a Year Apart

	DER Roadmap and Workplan, September 2020	DER Implementation Plan, 27 July 2021
Device, comms, cyber and data standards	✓	✓
Governance arrangements for DER standards	✓	X
Improve LV network/connection point visibility	✓	✓
Implement dynamic operating envelopes	✓	✓
Incorporate DER into T&D planning	✓	✓ Plus: IT systems roadmap
Consider modular networks	✓	X
Enhance DNSP requirements for DER integration and network revenue regulation to optimise the use of DER	✓	✓ In part – nothing on network revenue regulation
Accelerate tariff reform and consider future pricing	✓	✓ Plus: consider community storage tariffs
Define aggregators and market participants, consider Multiple Trading Relationships	✓	✓ Now called Flexible Trading Relationships
Enable value-stacking of DER services	✓	✓ In part - focus on Flexible Demand
Consider non-financial motivations	✓	X
Pilot DER for network services, wholesale, FCAS/ESS (Frequency Control and Ancillary Services/Essential System Services) and via local markets	✓	X
Emergency backstops for Minimum System Load	X Did not support solar cut-offs	✓
Build Turn-Up capability (new ARENA trials)	X	✓ New action from ARENA
Fit for purpose Consumer Protections	X Through broader post-2025 process (not in DER specifically)	✓

Source: IEEFA analysis of ESB DER plans.

The Maturity Plan Approach Failed and Should Not Be Continued

The most significant change in approach to DER integration proposed by the ESB since the DER Implementation Plan (and which is not clear from the figures above) is the proposal that a 'Maturity Plan will run for three years' and 'operate as a tool to support delivery of the reforms across the DER Implementation Plan'.³

DER staff (contractors and consultants) from the ESB's post-2025 market design process conducted dozens of online small and larger workshops over the last year. The outcomes of these hundreds of hours of discussions have not been publicly documented, but by comparing the 2020 DER Integration Roadmap with the 2021 ESB Final Advice, we can clearly see the lack of progress.

In addition, consultants RPS Group and UTS Design Innovation Research Centre (DIRC) partnered with the ESB on a 'Maturity Plan Pilot' over nine weeks in April-June 2021. The Co-Design Knowledge Share Report about that pilot and talking to those who participated is instructive.

The Report describes the outcomes as:

- *"A range of diverse stakeholders were brought together to represent their interests and explore the problem and possible solutions.*
- *A space was created for stakeholders to have equal input into understanding and exploring. Grounded by customer-centricity, this allowed for a shared understanding to be applied.*
- *The approach tested the validity of using design thinking principles as a way of exploring the complexity of the energy sector."*⁴

Effectively the consultants running the process knew nothing about the NEM and the only tangible outcome seems to have been an agreement to change the language from 'minimum demand' to 'minimum system load'.

Feedback from those involved in the pilot suggests it involved an enormous amount of stakeholders' time for very little progress.

Even the knowledge sharing report acknowledges:

- *"Some concern about the 'messiness' of the workshop and lack of concrete outcomes*
- *Some questions about whether the process should be technical or customer*

³ Energy Security Board. [Post-2025 Market Design Final advice to Energy Ministers. Part C. P. 36.](#) 27 July 2021.

⁴ RPS and UTS Design Innovation Research Centre (DIRC). [Co-Design Knowledge Share Report.](#) July 2021.

focused."

and

- *"Some were concerned that the customer centric approach limited the conversation and was not technically sufficient."*⁵

The problem is that "a space was created for stakeholders to have equal input into understanding and exploring". This means that highly knowledgeable stakeholders (such as experts with PhDs in electrical engineering) were given equal input with participants with little technical or regulatory education or knowledge of the NEM. The type of consultation used by the ESB post-2025 DER consultants put argument and discussion and opinions to the fore, leaving analysis and cognitive work in the background.

IEEFA notes policy and regulatory processes need to be based on evidence and analysis. Consultation can be a very important part of the process and consumers should be engaged, but stakeholder engagement alone *cannot* be a substitute for processes run by policy/regulatory professionals based on evidence and analysis.

**Policy and regulatory
processes need to
be based on robust
evidence and analysis.**

Sometimes experts do propose solutions inappropriate for consumers. IEEFA has published a detailed critique of the Australian Energy Market Operator's (AEMO) poor engineering, economics and public policy process regarding the minimum system load in South Australia that lead to the imposition of solar cut-offs on households without the social licence to do so.⁶

The argument in this briefing note is not against consultation, but for rigorous evidence-based public policy making that uses consultation appropriately.

In its final advice paper, the ESB recommends a DER Implementation Plan where "A Maturity Plan approach will be used to consider and codesign solutions to key customer challenges, with insights informing activities and reforms."⁷

'The Maturity Plan will focus on key cross-cutting customer issues for each release (typically 6-months in length), that will be investigated alongside technical workstreams... The framework would involve active engagement with stakeholders four times a year, over a 2-week window of iterative co-

⁵ RPS and UTS Design Innovation Research Centre (DIRC). Co-Design Knowledge Share Report. July 2021.

⁶ IEEFA. [Blunt Instrument: Uncompensated Solar Cut-Off Isn't the Only Solution to the Minimum Demand 'Problem'](#). April 2021.

⁷ Energy Security Board. [Post-2025 Market Design Final advice to Energy Ministers. Part B](#). Page 65. 27 July 2021.

*design workshops.*⁸

Aside from all the clear issues with this approach, the final advice provides no clear governance or accountability as to how such a process would operate. Who would run the co-design, who they would report to, how they would be held accountable, and how it would integrate with existing energy market institutions, etc, is all undocumented. It is disturbing that Energy Ministers are being asked to sign off on such a vague proposal with so little clarity around it. The Maturity Plan approach is not even listed in the recommendation to Ministers (see final section of this briefing note). It is seemingly being put under the radar for approval despite its clear failures.

IEEFA notes such a vague approach is likely to provide much work for consultants while distracting from the real work of policy and regulatory analysis based on the evidence and drawing on expertise. IEEFA strongly opposes the inclusion of the Maturity Plan approach within the DER Integration Plan.

How DER Implementation Should Be Conducted Into the Future

All work on DER integration should be undertaken within the energy market institutions (AEMO, Australian Electricity Market Commission (AEMC), Australian Energy Regulator (AER)) and the industry processes (ARENA, ANU, UNSW, etc) with appropriate consultation processes. The DER integration work needs to be evidence-based, with detailed scoping and analysis of solutions, including cost-benefit analysis and success metrics where that is germane.

Table 2 shows the issues proposed to be examined by the Maturity Plan over 2022-23 and IEEFA recommendation's as to how these should be examined through existing or planned energy market institution (AEMC or AEMO) processes.

This DER integration work needs to be allocated significant additional resources within AEMO and AEMC given the slow pace of some technical and regulatory reform to date (see below on DER technical standards governance, for example).

In addition, where consultation and collaboration is best conducted outside the energy market institutions, the Distributed Energy Integration Program (DEIP) provides a well-established means of doing so. The DEIP 'is a collaboration of government agencies, market authorities, industry and consumer associations aimed at maximising the value of customers' distributed energy resources (DER) for all energy users'.⁹

⁸ Energy Security Board. [Post-2025 Market Design Final advice to Energy Ministers Part C](#). Pages 36-38. 27 July 2021.

⁹ ARENA. [Distributed Energy Integration Program \(DEIP\)](#). September 2021.

Table 2: How the Issues Proposed To Be Examined by the Maturity Plan Can Be Taken Forward

Initial Issues Proposed To Be Examined by the Maturity Plan	IEEFA Recommendations as to How These Should Be Taken Forward
<p>H1 2022: Maturity Plan Release 1: How do customers get rewarded for flexibility?</p> <p>Use cases: C&I turnup load + Residential Hot Water</p> <p>Related initiatives: direct load control, flexible trader model</p>	<p>Being examined under AEMO plans for a minimum system load mechanism.</p> <p>In addition, ARENA is undertaking a flexible demand program of work.¹⁰</p> <p>Could also be examined under possible future expansion of wholesale demand response mechanism to aggregated residential demand.</p>
<p>H2 2022: Maturity Plan Release 2: How do customers receive and give signals to the market?</p> <p>Use cases: Smart appliances + process automation</p> <p>Related initiatives: Scheduled lite + visibility, DOEs, Scheduled lite</p>	<p>Smart appliances should be managed through the expansion of the GEMS Act to include demand response. See IEEFA's report Mandating AS4755 Ignores Households and Widely Supported International Solutions.¹¹</p>
<p>H1 2023: Maturity Plan Release 3: How do customers want to use smart charging?</p> <p>Use cases: Smart charging infrastructure away from primary premises + EV home smart charging</p> <p>Related initiatives: interoperability standards, flexible trader models</p>	<p>Able to be included in the development of EV smart charging standards and ARENA funded EV charging studies.</p> <p>Also being pursued through a number of relevant Energy Consumers Australia (ECA) studies.¹²</p>
<p>H2 2023: Maturity Plan Release 4: How do customers choose and switch providers?</p> <p>Use cases: Enrolment in VPPs + Upgrading existing systems</p> <p>Related initiatives: Interoperability standards, retailer authorisation.</p>	<p>Being explored through Project Edge and Project Symphony.</p>

¹⁰ ARENA. [Demand Response](#). 2021.

¹¹ IEEFA. [Mandating AS4755 Ignores Households and Widely Supported International Solutions](#). August 2021.

¹² See: Mr Hugo Temby and Dr Hedda Ransan-Cooper. 'We want it to work': understanding household experiences with new energy technologies in Australia. [Final report of the VOICES project \(Victorian Energy and Water Ombudsman's Investigation of Consumer Experiences\)](#). 2021. Energy Consumers Australia. [Social Licence for Control of Distributed Energy Resources - Final Report](#). December 2020. Energy Consumers Australia and KPMG. [Australia's Energy Transition – A snapshot of the changing policy landscape](#). August 2021.

It is worth noting that the minimum system load (MSL) scheme proposal being taken forward by AEMO did not come out of the ESB's weeks of codesign, but instead out of thoughtful work by policy and technical professionals within the Victorian Government and AEMO.¹³

Technical Integration

Technical integration of DER needs to be the first priority. DER technical standards are needed to support system security, distribution network operation and the ability for DER owners to be rewarded for providing DER services.

Since the ESB final advice was released, the AEMC has released a consultation paper on the Governance of DER technical standards rule change.¹⁴ This is a vital step towards ensuring appropriate and up-to-date technical standards for DER are in place in the national electricity rules. Submissions to the consultation paper close on 7 October 2021.

The ESB's final advice sets out two specific deliverables on DER technical standards:

1. *The ESB is developing policy advice about interoperability to provide direction on technical standards (via relevant DEIP Interoperability, communications, Dynamic Operating Envelopes and EV workstreams). Initial policy advice to DEIP by December 2021 to support implementation of incoming standards by June 2022.*¹⁵

**Standards for
interoperability are
urgently needed.**

IEEFA notes policy advice to DEIP by the end of this year is very helpful as standards for interoperability are urgently needed, especially given their importance for DER to participate in current or future markets.

2. *ESB / Market bodies to confirm policy on EV smart charging standards, and timing for their introduction, based on advice from the DEIP interoperability and EV working groups, by June 2022.*¹⁶

IEEFA notes that as Australia is at a take-off point for EVs and state government

¹³ It was also proposed in a report by the author for IEEFA in March 2021 in this way: "While the AEMO control room needs to have the flexibility to operate the system in line with its responsibilities, it needs comparable levels of guidance and oversight to those that exist for the reliability standard and the RERT." See: IEEFA. [Blunt Instrument: Uncompensated Solar Cut-Off Isn't the Only Solution to the Minimum Demand 'Problem'](#). April 2021.

¹⁴ AEMC. [Governance of distributed energy resources technical standards](#). September 2021.

¹⁵ Energy Security Board, [Post-2025 Market Design Final advice to Energy Ministers Part B](#). Page 75. 27 July 2021.

¹⁶ Energy Security Board. [Post-2025 Market Design Final advice to Energy Ministers Part B](#). Page 75. 27 July 2021.

support for EV purchases and charging is increasing, it is also very important that we put smart EV charging standards in place as soon as possible.

While these two ESB deliverables are helpful, there are still relatively few resources at AEMC and AEMO devoted to the issue of DER technical standards. IEEFA recommends both organisations substantially increase their resourcing and prioritisation of DER technical standards and DER policy and regulation more generally.

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Likewise, on the implementation of Dynamic Operating Envelopes (DOEs), the most important action articulated by the ESB final advice is:

- *Based on outcomes from DEIP DOE workstream, ESB, AEMC and AER to fast-track best practice capacity allocation rules, monitoring and compliance arrangements and connection agreement terms and conditions to meet the enduring policy objectives and provide appropriate protections for consumers.*¹⁷

There are no dates or clear responsibilities about which organisation is doing what here, suggesting a lack of commitment and management oversight at the AEMC and AER. The words suggest 'fast-track' yet elsewhere in the advice 'phasing in of dynamic operating envelopes (DOEs)' is given as 'mandatory compliance for new solar PV and storage systems by 2025', still four years away.

IEEFA notes DOEs are important for:

1. The safety, security and reliability of the electricity system and local grid
2. Increasing DER customer access to enhanced import and export services
3. Optimising DER participation in markets, both on the supply and demand side.

Yet there are almost no energy market institution resources devoted to assisting their nationally consistent implementation.

Still Pushing Emergency Backstop

AEMO is now proposing a tiered approach to periods of extreme minimum system load¹⁸, a protocol equivalent to the lack of reserve (LOR) notices used for the

¹⁷ Energy Security Board. [Post-2025 Market Design Final advice to Energy Ministers Part B](#). Page 76. 27 July 2021.

¹⁸ One Step off the Grid. [AEMO looks to smarter ways of managing abundant rooftop solar](#). 30 June 2021.

Reliability and Emergency Reserve Trader (RERT) scheme for periods of extreme peak demand. CEO Daniel Westerman even promoted this approach in his July speech to CEDA.¹⁹

Despite this fact and some softening of language, the ESB is still recommending in Recommendation 8 that 'Energy Ministers adopt a jurisdictional Ministerial lever for emergency backstop measures, as an *immediate reform*'.

For all the reasons set out in IEEFA's previous critique of the blunt instrument being used in South Australia that is household solar cut-offs, immediate implementation of emergency backstop measures is opposed by IEEFA.²⁰ The reasons include the lack of analysis or trials of alternative measures, the lack of cost-benefit analysis of backstops, and the lack of social licence for solar cut-offs.

**Market development
and trials of 'turn-up'
solutions are vital here.**

Instead, IEEFA recommends that in order to support system security and improved transparency at times of minimum system load, AEMO and the AEMC be tasked with prioritising the development of a low minimum system load scheme by mid-2022 for trial implementation in priority jurisdictions by spring 2022.

Market development and trials of 'turn-up' solutions are vital here. As the South Australian Government has noted:

*Appliances with demand response (DR) capabilities can be used **to increase daytime operational demand** in response to commercial financial incentives or in an emergency circumstance. In addition, DR capable appliances, particularly air conditioners, can be used to address periods of peak summer demand. [emphasis added].²¹*

To this end, Energy Ministers should consider agreeing to legislate 'a demand response capability' requirement for priority household appliances under the Commonwealth *Greenhouse and Energy Minimum Standards (GEMS) Act 2012*. In doing so, Ministers should ensure offered solutions allow consumers to retain control (override), are certified to be interoperable, and support verification and validation over secure two-way communications. IEEFA has detailed this issue in a previous paper, *Mandating AS4755 Ignores Households and Widely Supported*

¹⁹ Renew Economy. [From coal to inverters, AEMO's engineering vision is ambitious and necessary](#). 15 July 2021.

²⁰ IEEFA. [Blunt Instrument: Uncompensated Solar Cut-Off Isn't the Only Solution to the Minimum Demand 'Problem'](#). April 2021.

²¹ Government of South Australia. [Consultation on: Proposed Demand Response Capabilities for Selected Appliances in South Australia and Proposed Amendments to Local Energy Performance Requirements for Water Heaters](#). April 2021.

International Solutions.²²

Without a requirement for priority household appliances to have smart demand response capability, households' ability to participate in wholesale, Frequency Control Ancillary Services (FCAS), or future demand-response or two-sided markets will be limited. Effectively only households with inverter-connected devices (such as rooftop solar or batteries) will be able to participate.

Regulatory Integration

Roles and Responsibilities

It is good to see the ESB finally providing an outline of roles and responsibilities of the various parties in DER integration, a year after it was first promised. However, the descriptions are high level and contain nothing unexpected. For example, traders will manage DER device compliance with DOEs, and two-way tariffs may be possible in future. Distribution System Operator (DSO – a new term for Distribution Network Service Providers or DNSPs) responsibilities include publishing DOEs, developing dynamic network tariffs, regulating and sharing DER connection metadata, and coordinating local and whole of system issues with AEMO. AEMO will develop enhanced visibility of DER, do forecasting, register traders and manage two-sided markets.

How this discussion about roles and responsibilities will be progressed from here is unclear, with the exception that AEMO is leading two projects on DER marketplaces (Project Symphony with Western Power in West Australia and Project Edge with AusNet Services in Victoria) which are part funded by ARENA and will test DER integration information flows, including through platforms, and variations on roles and responsibilities.

Consumer Protections

IEEFA has little issue with the consumer protection risk assessment tool developed by the AEMC and included in the ESB's final advice under recommendation 9, with the exception that it is inadequate for an electricity system where so much supply, storage and demand response is and will be in household DER.

A comprehensive review of the NECF is required given that it was developed prior to the large scale investment in rooftop solar by Australia households and given the emerging investment in storage

**It's important for
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aggregators and retailers.**

²² IEEFA. [Mandating AS4755 Ignores Households and Widely Supported International Solutions](#). August 2021.

(stationary and mobile – that is, EVs), smart appliances and energy management systems, not to mention emerging and future virtual power plants and other means for consumers to participate in markets using their DER.

Such a review could encompass the ESB's advice that it is important for consumers to be able to switch between aggregators and retailers and the proposal for an AER and AEMC review of existing retailer authorisation process.

Experience with the Energy Comparator Code of Conduct (a voluntary code designed to guide the behaviour of energy comparison sites) shows voluntary codes are ineffective. The New Energy Tech Consumer Code²³ championed in the ESB's final advice is voluntary and it needs to have its fundamentals incorporated into law or regulations.

It will be a large, lengthy process to review the NECF, but it cannot be postponed indefinitely. Resources need to be committed given so much household electricity supply is already coming from rooftop solar, and this proportion will only continue to increase. The definition of what is an essential service and how it is regulated needs a thorough review and rethink.

**Energy Ministers
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Energy Ministers should task the AEMC with conducting a comprehensive review of the NECF to be completed by the end of 2022.

DER Provision of Network Services

A report commissioned by the ESB from consultants Baringa Partners suggests the value of network investment cost savings from cost reflective network tariffs and network targeted procurement of energy services will be \$9.9b to 2040, but all such modelling is highly speculative.

The ESB final advice documents a number of relevant processes underway on DER provision of network services, including the AER's preparation of a DER Integration expenditure guidance note and the distribution ring fencing guideline review.

There is also an ESB suggestion that distribution tariff reform will move to locational prices which continued to be highly controversial in transmission funding debates.

Unexpectedly, the ESB's final advice outlines there will be a broader AEMC review on regulatory frameworks connected to tariff reform, procurement of network services, community storage and Local Use of System (LUoS) charges, and ringfencing issues pertaining to responsibilities and obligations as the DSO. As part of this work, the advice states 'a study [is] to be undertaken by December 2021 into

²³ ACCC. [New Energy Tech Consumer Code](#). 2021.

the different business models for community storage, and potential models for LUoS tariffs that could facilitate better outcomes for consumers'.

It is unclear what the scope of the broader review is or what the terms of reference are for the study into community storage and Local Use of System (LUoS) charges. Ministers should ask for clarity on both these points, especially to ensure that the broader review encompasses the entire economic revenue regulation for electricity networks.

A comprehensive review of distribution network revenue regulation is well overdue given the changes already brought about by growth in consumer installations of DER. While the COAG Energy Council previously requested that the AEMC conduct the economic regulatory framework review to monitor market developments on an annual basis (ENERF), to '*consider whether the economic regulatory framework for electricity network is sufficiently robust and flexible to continue to support the long term interests of consumers in a future environment of increased decentralised energy supply*', these have to date been fairly cursory reviews. A major, well-resourced review rethinking the entire nature of network revenue regulation is overdue. It should include consideration of performance-based regulation.

The original CPI-X network revenue regulation model was developed a very long time ago in electricity market terms in completely different circumstances and is no longer fit-for-purpose. International jurisdictions have adopted performance-based regulation and Australia needs to rethink how distribution networks are funded from first principles for a high-DER present and future.

Market Integration

Scheduled Lite

AEMO and the ESB have been concerned about the lack of visibility and scheduling of generators between 5 and 30 megawatts (MW) and demand side resources such as commercial and industrial (C&I) loads and aggregations of household DER.

The concept of Scheduled Lite encompasses providing AEMO with visibility of its market intentions and being able to participate in dispatch with lighter telemetry. Fortunately, the ESB agreed with majority stakeholder sentiment that Scheduled Lite should be opt-in with consideration of barriers to participation before making it mandatory.

There is significant risk of regulatory overreach seeking to control DER.

The ESB is proposing phased implementation with an 'initial visibility model' by 2022/23 and then rule changes submitted in the second half of 2022 for

both the full Visibility and Dispatchability Models with implementation in 2024/25.

At this stage Ministers are only being asked to agree to this work being undertaken. There is significant risk of regulatory overreach seeking to control DER through mandatory dispatchability, but there are many years of rule changes with associated consultation to follow.

Flexible Trading Relationships

The ESB's approach to flexible trading relationships seems to have changed very little from its April options paper. It outlines the same two possible models for separating controllable from uncontrollable resources, with the idea that controllable resources (such as EVs, batteries or smart appliances) will be able to participate in markets, while the uncontrollable resources will continue through standard retail contracts.

**The ESB's approach
to flexible trading
relationships seems to
have changed very little.**

The first model is SGA+ which extends the existing Small Generator Aggregator (SGA) market participant category to include bidirectional flows and participation in FCAS markets. Two National Metering Identifiers (NMIs – electricity meters) would be required at each connection point, with one or both being bidirectional.

The second model is for a sub-meter connection point – a private metering arrangement which would be cheaper and allow greater innovation but requires amendments to the National Electricity Rules and National Electricity Retail Rules (NERR).

There are lots of issues involved in the choice of model including allocation of consumer protection responsibilities, linking of connection points for wholesale settlement, application of network charges, data access for market participations, and de-energisation rights and responsibilities.

The AEMC is currently considering Model 1 (SGA+) within the 'Integrating energy storage systems into the NEM' rule change.²⁴ The draft rule introduces a new category, the Integrated Resource Provider (IRP) for storage and hybrids (generation, load and/or storage) which would replace the SGA category and allow aggregators registered as IRPs to provide market ancillary services from generation and load (as well as participate in the wholesale market).

Submissions on the draft rule change close soon and essentially the issue of flexible trading will follow through this rule change and the AEMC's metering review, also

²⁴ AEMC. [Integrating energy storage systems into the NEM](#). 15 July 2021.

currently underway.²⁵

There is no decision required of Energy Ministers on this issue at this time. However, Ministers should consider agreeing to legislate 'a demand response capability' requirement for priority household appliances, as detailed above. Smart appliances will facilitate households participating in future flexible trading relationships, earning revenue from flexibility (especially turn-up and turn-down services).

Responses to the ESB DER Recommendations on 'Enabling the Integration of Distributed Energy Resources (DER) and Flexible Demand Pathway'

Recommendation 7: *To enable the effective integration of high volumes of DER and flexible demand into the NEM the ESB recommends Energy Ministers support the DER Implementation Plan (see Section 5). The Plan sequences immediate and initial regulatory, technical and market reforms that address emerging risks and builds capability to deliver benefits to all consumers from high levels of distributed energy resources and new energy services. The ESB will provide Energy Ministers with advice on additional reforms that will be developed in customer focussed stakeholder co-design and consultation processes as part of the Plan. The Plan will deliver the following outcomes:*

- a) *Consumers are rewarded for their flexible demand and generation, have options for how they want to engage (including being able to switch between DER service providers), and are protected by a fit-for-purpose consumer protections framework.*
- b) *The wholesale market supports innovation, the integration of new business models and has a more efficient supply and demand balance.*
- c) *Networks are able to accommodate the continued uptake of DER and two-way flows and are able to manage the security of the network in a cost-effective way.*
- d) *AEMO has the visibility and tools it needs to continue to operate a safe, secure and reliable system, including maintaining system security associated with minimum load conditions.*

IEEFA Advice on Recommendation 7

Support, with amendments. Ministers should reject the failed Maturity Plan approach.

²⁵ AEMC. Review of the regulatory framework for metering services. 2021.

The recommendation should be amended to remove this sentence:

The ESB will provide Energy Ministers with advice on additional reforms that will be developed in customer focussed stakeholder co-design and consultation processes as part of the Plan.

And add the following text:

All the DER integration work will be undertaken in an evidence-based manner within the relevant energy market institutions with appropriate consumer-focussed stakeholder consultation processes. DER integration work should be allocated significant additional resources from within in the AEMO and AEMC.

As part of the DER integration work, the AEMC should consult with jurisdictions on terms for major, well-resourced review of distribution network revenue regulation and the preliminary study into community storage and Local Use of System (LUoS) charges.

Recommendation 8: To support system security and improved transparency at times of minimum system load, the ESB recommends Energy Ministers adopt a jurisdictional Ministerial lever for emergency backstop measures, as an *immediate reform*. Enduring measures to address system security challenges associated with low minimum system load are being prepared as part of the Plan.

IEEFA Advice on Recommendation 8

Reject. Instead, recommend adding:

To support system security and improved transparency at times of minimum system load, the AEMO and the AEMC be tasked with prioritising the development of low minimum system load scheme by mid 2022 for trial implementation in priority jurisdictions by spring 2022.

And:

Ministers agree to legislate 'a demand response capability' requirement for priority household appliances under the under the Commonwealth Greenhouse and Energy Minimum Standards (GEMS) Act 2012. This capability should be defined in such a way as to allow consumers to retain control (override), ensure devices are certified to be interoperable, and support verification and validation over secure two-way communications.

Recommendation 9: To support ongoing fit for purpose consumer protection, the ESB recommends Energy Ministers note the ESB has developed a Consumer Risk Assessment tool as an *immediate reform*. The tool will be used by the ESB and market bodies in work identified in the Plan.

IEEFA Advice on Recommendation 9

Noted. And in addition, add:

That Energy Ministers task the AEMC with conducting a comprehensive review of the National Energy Consumer Framework (NECF) in light of the provision of energy services from Distributed Energy Resources, including electric vehicles to be completed by the end of 2022.

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