

**Network of Illawarra Consumers of Energy  
Metering Review  
February 2021**

## Network of Illawarra Consumers of Energy

### Submission in Response to the AEMC's Review of the Regulatory Framework for Metering Services: Consultation Paper

#### Summary

This submission is made by the Network of Illawarra Consumers of Energy (NICE), an informal network advocating for the energy transition to a net-zero carbon future to be managed with the interests of consumers at the heart.

We argue that a review of the regulatory framework for metering services is an incomplete, and largely pointless, exercise. The metering framework was developed as part of a package of reforms designed to increase demand side participation under the banner of *Power of Choice*. All the elements of that reform have failed.

We argue that it is necessary for the AEMC to develop a consumer-centric view of demand side participation. Such a view results in five steps for reform.

- Step 1: Harmonise the regulatory framework
- Step 2: Create the category of Smart Energy System Service Provider
- Step 3: Redefine metering
- Step 4: Create a data and communications eco-system
- Step 5: Make cost reflective tariffs work

These steps are explained in greater detail in the body of the submission. This is a body of work that should be central to the work stream on demand side participation in the Energy Security Board's Post 2025 Market Design project.

Unfortunately, current market participants (vested interests) and some consumer advocates are wedded to aspects of the existing framework simply because it is what they know (or bounded rationality). The energy transition requires expansive thinking of how a totally different electricity system will operate, not how the existing system can be simply tweaked. Distributed energy resources and demand side participation are fundamental to that change, they are not a simple add on at the edge of a bulk power system.

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## Introduction

### NICE and Consumer Advocacy

The Network of Illawarra Consumers of Energy (NICE) is a newly formed informal network advocating for the energy transition to a net-zero carbon future to be managed with the interests of consumers at the heart.<sup>1</sup> This necessary transition needs to occur at least cost to consumers while maintaining reliability and security of energy services, appropriate consumer protections for essential services and a just transition for affected workforces.

We believe there is a role for regionally based advocacy within the context of nationally consistent energy policy. The choice and options for energy supply differ by geographic region having regard to different climatic conditions affecting demand and supply options, and different risk factors impacting on resilience planning. This submission has been prepared by David Havyatt who is the sole author.

The objective of the Australian Energy Market Agreement and the objectives in the three National Energy Laws are the promotion of the long-term interests of consumers with respect to price, quality and reliability (though using more words in the laws). Despite this centrality of the consumer interest regulatory and policy proceedings frequently start with an engineering or an economic mindset, rather than a consumer mindset.

There is a tendency for consumer advocacy to be marginalised to the issues that directly impact consumers, issues such as retail markets and consumer protections, network price determinations and increasingly the functioning of Distributed Energy Resources. The operation of the wholesale market has significant impact on price and reliability but gain less attention by advocates. Market bodies sometimes make a requirement for technical expertise a barrier to advocate participation. For the energy transition to occur at least cost to consumers, advocates need to be active in all parts of system design and operation.

### Background to the Metering Review

We appreciate the opportunity to comment on the AEMC's *Review of the Regulatory Framework for Metering Services: Consultation Paper* of December 2020 (the Report). The AEMC has self-commissioned this review of arrangements that were incorporated in rule changes in 2015 to introduce a competitive framework for metering services.<sup>2</sup> The rule change request was sent to the AEMC by the collective of energy Ministers then called the Standing Council on Energy and Resources (SCER). In submitting the rule change SCER noted:

This rule change request has been developed on recommendations contained in the AEMC Power of Choice Review and is in line with the broad energy reform package to support investment and market outcomes in the long term interests of consumers agreed by the Council of Australian Governments and SCER in December 2012.

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<sup>1</sup> The network has not yet started actively recruiting participants.

<sup>2</sup> <https://www.aemc.gov.au/rule-changes/expanding-competition-in-metering-and-related-serv>

The Power of Choice Review<sup>3</sup> constituted a package of reforms designed to increase demand side participation in the energy market. The three elements were the introduction of demand side participation in the wholesale market, introducing flexible pricing options based on introducing cost reflective distribution network tariff structures<sup>4</sup>, and the introduction of competition in metering services.

The first of these proposed rules was initially considered by the AEMC in 2016 but the resultant mechanism only dealt with demand side participation in the ancillary services market.<sup>5</sup> A wholesale demand response mechanism was introduced by rule changes made in June 2020, but is limited to large customers.<sup>6</sup>

The revision to network pricing arrangements were introduced with a rule change in November 2014.<sup>7</sup> As noted the metering changes followed in 2015, and these were accompanied by rule changes to the B2B framework in 2016.<sup>8</sup>

The contestability arrangements finally commenced on 1 December 2017.

While the current review of metering arrangements is welcomed, it ignores the context of the initial proposals. The Power of Choice was a package of reforms to promote demand side participation. The wholesale demand response mechanism and the network tariff reform were meant to create the platform for consumers to be rewarded for choosing to consume energy when it was cheap to generate and distribute and to be rewarded for reducing consumption when it was dear. The contestability in metering services only had meaning within the context of facilitating the deployment of **communicating interval meters**<sup>9</sup> so that this consumer reward could occur.

The need for a framework for introducing communicating interval meters arose because the collective of Ministers had failed to implement a 2006 decision of COAG. In the Communique from its February 2006 meeting COAG noted:

*In recognition that past energy market reform has focussed on improving supply efficiency, COAG has agreed to improve price signals for energy consumers and investors. Actions include committing to the progressive national roll out of 'smart' electricity meters from 2007 to allow the introduction of time of day pricing and to allow users to better manage their demand for peak power only where benefits outweigh*

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<sup>3</sup> <https://www.aemc.gov.au/markets-reviews-advice/power-of-choice-stage-3-dsp-review>

<sup>4</sup> We try to use the term 'price' to refer to the charges consumers face and 'tariff' as the charges DNSPs impose on retailers.

<sup>5</sup> <https://www.aemc.gov.au/rule-changes/demand-response-mechanism>

<sup>6</sup> <https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism>

<sup>7</sup> <https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements>

<sup>8</sup> <https://www.aemc.gov.au/rule-changes/updating-the-electricity-b2b-framework>

<sup>9</sup> This submission uses the term 'communicating interval meters' in preference to the more common usage of 'smart meters'. 'Smart' is an inaccurate and misleading description of what remains a relatively simple device.

*costs for residential users and in accordance with an implementation plan that has regard to costs and benefits and takes account of different market circumstances in each State and Territory.<sup>10</sup>*

In its statement on smart meters for small consumers of June 2012, SCER noted that in June 2008 the MCE reviewed the second stage of the smart meter cost benefit analysis (CBA) and noted a wide range of potential net benefits, but that benefits and costs were not certain in all jurisdictions. On this basis, the MCE supported Victoria's accelerated roll-out, proposed extensive pilots and business cases in other jurisdictions and agreed to further consider timelines by June 2012.

The Cost Benefit Analysis reveals that the major sources of the differences between the CBA outcome in different jurisdictions was differences in consumption patterns and differences between jurisdictional regulations. As an example, the CBA notes:

*Current safety regulations in South Australia may inhibit the realisation of some potential benefits from smart metering, in particular remote connect/disconnect, as a representative from ETSA Utilities needs to be present when a premise is connected.<sup>11</sup>*

There is no evidence available on whether COAG or the Ministerial collective contemplated the benefits of harmonised safety regulations that would have reduced the differences in benefits. The issue of inter-jurisdictional variation has been one of the issues impeding the success of the contestability arrangements, an issue we will return to.

The ESB as part of its Post 2025 has focussed discussion on the creation of a 'two-sided market' as a means to facilitate greater demand side participation. The author has written elsewhere an analysis of this approach that includes noting that the ESB and AEMC are both misusing the term two-sided market.<sup>12</sup> The consideration of metering arrangements should ideally be part of that broader review.

## This submission

In this submission we briefly survey the purpose of 'meters' and draw a distinction between meter data and meter reading data. We then follow this with a summary of criticisms of previous and current metering arrangements. This is followed by a what we describe as an 'engaged' work program that recognises consumers are partners in the development of the electricity system. This details the work program to promote Demand Side Participation (DSP). This is followed by responses to the consultation questions that mostly draw on the first sections of the submission. We end with a short conclusion.

Nothing in the submission is confidential.

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<sup>10</sup> <http://ncp.ncc.gov.au/docs/Council%20of%20Australian%20Governments%20Meeting%20-%202010%20February%202006.pdf>

<sup>11</sup> <https://apo.org.au/sites/default/files/resource-files/2008-03/apo-nid2985.pdf>

<sup>12</sup> [https://www.researchgate.net/publication/342276396\\_Two-sided\\_markets\\_application\\_to\\_electricity\\_A\\_working\\_paper\\_on\\_market\\_design\\_in\\_the\\_Australian\\_electricity\\_market](https://www.researchgate.net/publication/342276396_Two-sided_markets_application_to_electricity_A_working_paper_on_market_design_in_the_Australian_electricity_market)

## The purpose of meters

### Meters prior to the NEM

In the era before the 1990s reform, it was common to have a single meter at the premises of a small consumer. But it had not always been so.

When the only service obtained from electricity was illumination some supply companies simply charged on the basis of the number of rooms that were being lit. In other areas two meters made an early appearance because light and power were charged differently. Some jurisdictions included separate meters for peak and off-peak power while others provided a flat rate for the service provided by off-peak power.

But the sole function of the customer meter in this period was determining how much the consumer owed the supply company. Meter readings were therefore required to align with billing cycles and special readings required when the lessee at the premises changed.

### Meters and the NEM

With the introduction of a wholesale market, the separation of retail and distribution network functions and retail contestability meters provided three functions. The first was the ongoing ability for the retailer to prepare the bill for the consumer. The second was for the distribution network to charge the retailer for the use of the network. The third was for the settlement between retailers and AEMO for electricity consumed in servicing customers.

Given that the majority of customers initially stayed with the retailer that had been separated out from the previous supply company for an area the local retailer was effectively billed for all the electricity in the area and the retailers who had acquired customers then settled with the local retailer a process known as settlement by difference.

The wholesale market settles on a half-hourly basis and all the load in a distribution area that is not on interval metering is settled on the load profile for the aggregate of non-interval metered load. Rules have been made to move to 5 minute settlement<sup>13</sup> and global settlement.<sup>14</sup>

Like the pre-NEM meters these meters only need to be read periodically to support billing and settlement and ideally when there is a change of lessee or retailer. In practice change of retailer has been aligned with scheduled meter readings.

### The Victorian AMI roll-out

As noted above Victoria proceeded with an accelerated mandated roll-out of. In 2004 the Essential Services Commission in Victoria mandated the replacement of traditional accumulation meters throughout Victoria and following a Cost Benefit Analysis of the benefit of adding two-way communication the Victorian Government in 2006 announced the Advanced Metering Infrastructure program which mandated the rollout of smart meters over an accelerated period

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<sup>13</sup> <https://www.aemc.gov.au/rule-changes/five-minute-settlement>

<sup>14</sup> <https://www.aemc.gov.au/rule-changes/global-settlement-and-market-reconciliation>

from 2009 to 2012 (later changed to 2013). A 2009 report by the Victorian Auditor-General concluded that there were significant inadequacies in the advice and recommendations provided to government and that the CBA around the AMI decision was flawed and failed to offer a comprehensive view of the economic case for the program.<sup>15</sup>

The 2015 report by the Victorian Auditor General observed<sup>16</sup>:

*By the end of 2015, Victoria's electricity consumers will have paid an estimated \$2.239 billion<sup>2</sup> for metering services, including the rollout and connection of smart meters. The net position of the program has changed significantly since its inception, and there is now expected to be a substantially increased net cost to consumers over the life of the program.*

*In contrast, while a few benefits have accrued to consumers, benefits realisation is behind schedule and most benefits are yet to be realised. Current estimates suggest that approximately 80 per cent of the expected benefits could be achieved. However, there are significant uncertainties and risks associated with achieving these benefits, which are not within the control of the state...*

*The 2011 CBA is the fourth time that the costs and benefits of the AMI program have been analysed in just 10 years. In each analysis since our 2009 audit the estimated costs have increased and the benefits have diminished. This continual change highlights the serious flaws in the program's original business case which we identified in our 2009 audit, as well as the unrealistic assumptions around the achievability of the costs and benefits which were beyond the control of the state.*

Part of the failure to realise benefits was an incorrect assumption by the Victorian Government that retailers should only be exposed to cost-reflective network tariffs if consumers also faced prices constructed in similar terms. This has resulted in an 'opt-in' policy where consumers first opt-in to a retail price that uses the time of use or demand tariffs and then the retailer instructs the network to change the tariff charged.

## Distinguishing between meter data and meter reading data

The Victorian AMI program specified a meter that provided information to the network about the current state of the connection point. An important capability has been voltage data that has enabled the Victorian Distribution Network Service Providers (DNSPs) to have greater visibility of their low voltage network than DNSPs in other states. The use of this data has not, however, extended to the provision of new and innovative services for the control of customer Distributed Energy Resources (DER)<sup>17</sup>.

This data – which is 'real time' in nature – is different to the meter reading data that is gathered periodically (daily) by the Meter Data Provider and shared with the retailer, DNSP and AEMO.

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<sup>15</sup> Auditor-General, Victorian 2009. Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure. Melbourne.

<sup>16</sup> Auditor-General, Victorian 2015. Realising the Benefits of Smart Meters. Melbourne.

<sup>17</sup> We define DER, consistent with the AEMC, as including generation and storage together load that can be dynamically varied in response to external data (either specific instructions or responding to network conditions).



The rules and procedures for accessing meter reading data are necessarily different to the rules and procedures for accessing meter data. In particular, the AEMC did not mandate that contestable meters were to provide the meter data specified in the AMI standard. This was a logical decision given one of the perceptions about the AMI rollout was that the meters had been over-specified at significant cost to consumers, and that the AEMC's interest was exclusively on the ability of communicating interval meters to enable innovation in retail pricing.

## Criticisms of metering

### The Principal-Agent Problem

In 2014 Tim Nelson and Paul Simshauser (both working for AGL at the time) published a study that identified a principal-agent problem in metering. Noting that logic dictates it is more efficient to have meters being part of the monopoly business, they note that examining service quality and costs arising from the interaction between agent (monopoly distribution networks) and principal (energy retailers) results in poor service quality with one-in-13 meter reads being estimated or erroneous. They found NEM wide agency costs of \$16 million per annum and deadweight losses of \$118 million per annum being accumulated by principals, let alone what must be a much higher cost of consumer inconvenience.<sup>18</sup>

The move to a retailer led roll-out has simply reversed the principal-agent problem. Now it is the networks that claim the agent (the MC appointed by retailers) isn't meeting their needs well.

### New Procedures

Since the change in the Rules additional concerns have emerged around the timeliness of meter installation for new premises. Previously the meter could be arranged by the builder with the network well in advance of occupancy, now the process only begins once the initial owner makes a choice of retailer – not something traditionally thought about much in advance of intending occupancy.

Finalising the new procedures was fraught with difficulty, primarily because different state safety regulator requirements necessitated state-based variances. The most significant variance remains between Victoria and other states where Victoria has derogated from the contestability requirements. There are two fundamental reasons for this derogation. The first is that it could have resulted in meter replacement with less capable meters with no benefit to consumers. The second is the communication choice made by the Victorians where the meters provide a communications mesh; meter change out could have rendered the communications for remaining meters inoperative.

### Retailer Strategies

Retailers expressed a preference for the metering contestability model, arguing that the model would enable them to provide new and innovative service offerings without being constrained by network metering approaches. In hindsight it is hard to believe the AEMC could have accepted this argument, as Australia's dominant retailers have demonstrated that innovation isn't part of their strategic playbook.

The evidence as we approached the implementation of contestability was that each retailer had developed a strategy of an 'in house' metering co-ordinator. It seems the strategy was to use

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<sup>18</sup> Nelson, Tim & Simshauser, Paul 2014. Metering and the principal-agent problem in restructured energy markets. *Economic Analysis and Policy*, 44, 169-183.

metering contestability as an additional barrier to switching, creating an additional cost as change of retailer would necessitate change of meter.

Thankfully the retailers (very late in the piece) realised this was a very dumb strategy. But we still rolled into metering contestability with no strategies by retailers on how to capitalise on communicating interval meters to gain market share or margin (or both).

One reason why retailers have not identified the benefits is because of the way the related reform of cost reflective tariffs has been applied. As we have seen, in Victoria retailers have been insulated from tariff reform by a requirement of consumer driven opt-in arrangements. In NSW the situation is that the networks determine that connection points with communicating interval meters are on cost reflective tariffs while accumulation meters are not. While we can find no explicit authorisation of the conduct, retailers in NSW determine whether a consumer is on a time of use price based on the network tariff categorisation.

The only other cost pressure retailers might want to use price innovation to manage is wholesale spot price variation. However, retailers manage this through hedging and are thus left with no incentive to move consumers to different price structures. Indeed, because the major retailers are vertically integrated they want high volatility in wholesale prices as periods of high spot prices is technically how they fund their fixed costs while their bidding is at short run marginal cost.

### Smart meters are dumb

So-called 'smart meters' only provide additional information; for cost reflective network tariffs, innovative pricing, and markets for new services to assist in the management of low voltage networks to work there needs to be the ability for DER to respond to information. That information may be contained in the meter (e.g. voltage) but is more likely to come from external sources (information on wholesale prices, network constraints).

This control does not occur through meters. The meter as part of the NEM design only provides the function of meter reading data to support retailers billing consumers, AEMO billing retailers for energy and DNSPs billing retailers.

## Redesigning Demand Side Participation Starting with the Consumer

### Three views of consumers

Slightly cynically there are three different mindsets that can be identified as the way consumers are viewed in electricity system design<sup>19</sup>:

- Engineering view – consumers are pariahs, the system would work perfectly well if they just did what we tell them to.
- Economics view – consumers are pawns, the system will work so long as consumers are given the right price signals.
- Engaged views – consumers are partners in managing the electricity system, especially as we manage the transition to net-zero.

The first two views can be broadly identified with AEMO and the AEMC respectively. AEMO's response to concerns about solar PV generation resulting in insufficient minimum demand to keep thermal plant operating in the middle of the day is to be given the possibility of turning off the connection. The AEMC response to the issue of the 'duck curve' is to impose a set of price signals that merely penalise consumers without creating any means to respond.

The engaged view begins by recognising that households differ in their motivation, ability and opportunity to manage their energy bills or aid in the energy transition. (These are the dimensions identified by ACIL Allen *Supporting Households Framework* prepared for Energy Consumers Australia under the Power Shift project).<sup>20</sup> Those that have high motivation, ability and opportunity will be the early adopters of services designed to bring prices down through demand side participation.

Nevertheless, these consumers will need to be rewarded for their active participation. But rewarding consumers is a very different concept to sending price signals. Amongst other things rewards can take the form of the consumer knowing that their actions have contributed to the transition, they can take the form of better quality services at the same price or they can take the form of reduced prices.

Partly as an 'if all you have is a hammer, everything looks like a nail' approach, the assumption of market bodies has been that this assistance will come from retailers. As we have seen, retailers' motivations do not align with helping consumers manage bills. This has been recognised in the concept of 'aggregator' that appears in the wholesale demand response environment. In the

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<sup>19</sup> This categorisation was originally developed by Rosemary Sinclair and colleagues at Energy Consumers Australia.

<sup>20</sup> <https://energyconsumersaustralia.com.au/wp-content/uploads/Supporting-Households-Framework.pdf>

author's paper on two-sided markets the smart energy services market was identified as the genuine opportunity for a two-sided market in electricity.<sup>21</sup>

The next step in the engaged view is to identify what needs to be done to facilitate the development of the smart energy services market, which is different to the 'aggregator' market. The latter is a supply side view of one of the functions the smart energy service providers will perform, either directly or by contract with another party.

There are 5 steps that need to be taken:

1. Harmonise regulatory arrangements.
2. Create the concept of Smart Energy System Service Providers.
3. Redefining metering.
4. Create a data and communication eco-system
5. Make cost reflective tariffs work

## Step 1: Harmonise the regulatory framework

As noted above the Cost Benefit Analysis on smart meters in 2008 found that the benefits varied between states, in part, because of differing state connection standards and regulations. As also noted above a hurdle in achieving the contestability arrangements has been inter-jurisdictional variations.

The 2006 amendments to the Australian Energy Market Agreement (AEMA) to introduce the National Energy Market Framework (NECF)<sup>22</sup> introduced a new Annexure 2 to the agreement to 'set out the activities which will form part of the national distribution and retail regulatory framework for electricity and gas.' A copy of the Annexure as it appears in the current (2013) version of the AEMA is attached to this submission. The 'functional allocations' preserve for jurisdictions the issue of 'Distributor technical/safety business authorisation.' This is the area that covers the issues referred to in relation to the metering CBA and procedures.

In its 2017 report on Consumer Law Enforcement and Administration the Productivity Commission recommended 'State and territory governments should move to agree on nationally consistent laws on electrical goods safety.'<sup>23</sup> In this the PC referred to its earlier 2008 review of Australia's Consumer Policy Framework. The earlier report stated:

***A national consumer regime for energy services should be the goal***

*The process of creating national energy markets and laws to overcome the costly fragmentation of the previous jurisdictionally separate frameworks is now underway. But some key consumer policy measures — including retail price regulation, alternative dispute resolution and service performance standards — will not be covered by a new 'national' consumer policy framework scheduled for introduction around 2010. Moreover, detailed implementation of some of the measures that are encompassed by that*

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<sup>21</sup> *Op. cit.*

<sup>22</sup> Source <https://www.energy.vic.gov.au/legislation/national-energy-customer-framework/the-national-energy-customer-framework-in-victoria>

<sup>23</sup> <https://www.pc.gov.au/inquiries/completed/consumer-law/report/consumer-law.pdf>

*framework will be left to individual States and Territories. And though not explicitly a consumer protection measure, renewable energy requirements designed to shift consumers' spending patterns, also vary considerably across the States and Territories.*

*The continuation of such divergent arrangements will add to regulatory compliance costs for national energy suppliers and thereby to the price of energy, and can also be expected to lead to different levels of protection for consumers depending on where they live.*

*Within a national energy market, the specific consumer protection regime should also be nationally-based. However, for several reasons, this may not be feasible in the short term:*

- *In the face of evident opposition from some jurisdictions, seeking to move in this direction now could undermine support for, and further slow progress in implementing, national energy market arrangements in the broad.*
- *Differences in supply arrangements across jurisdictions, and in the extent to which electricity and gas supply have been deregulated, could make it difficult to develop a workable set of national arrangements that went much beyond enunciation of desired outcomes.*

*Accordingly, Australian Governments should agree to the longer term goal of a single set of consumer protection measures for energy services to apply across Australia, but leave their development and implementation until the process of creating national energy markets is further progressed. In the meantime, State and Territory Governments should agree to implement the new non-price regulatory requirements for retail energy services with minimal jurisdictional variations so as to enable a smooth transition to a uniform national regime at a later date.*

The specification of 'policies on the type of meters required for specific customer classes, accredited service provider arrangements, and load profile arrangements' also remains the preserve of jurisdictions. Notwithstanding this the collective of energy ministers referred the metering contestability rule change to the AEMC, even though it technically fell outside the remit of the AEMC under the AEMA.

The NECF is, of course, the exemplar case of massive jurisdictional derogation. The extent of derogation has been commented on in both the Vertigan *Review of Governance Arrangements for Australian Energy Markets*<sup>24</sup> and the Finkel *Independent Review into the Future Security of the National Electricity Market*.<sup>25</sup>

The Vertigan review recommended (2.9) that:

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<http://www.coenergyCouncil.gov.au/sites/prod.energyCouncil/files/publications/documents/Review%20of%20Governance%20Arrangements%20for%20Australian%20Energy%20Markets%20-%20Final%20Report%20-%20Oct%202015.pdf>

<sup>25</sup> <https://www.energy.gov.au/sites/default/files/independent-review-future-nem-blueprint-for-the-future-2017.pdf>

*That jurisdictions be permitted to implement derogations from otherwise nationally agreed agreements only if the derogation is targeted and time-limited and contains a commitment for re-evaluation against a 'necessity principle'.*

The COAG Energy Council response<sup>26</sup> to this recommendation read:

**Noted** – *The COAG Energy Council recognises the importance of consistent national arrangements in terms of reduced regulatory compliance costs. evaluation against a 'necessity principle'.*

*The COAG Energy Council is committed to a national energy framework. Harmonisation of nationally agreed arrangements should be pursued where possible.*

The Finkel review recommended (7.3) that:

*By mid-2018, COAG leaders should agree to a new Australian Energy Market Agreement that re-commits all parties to:*

- *Taking a nationally consistent approach to energy policy that recognises Australia's commitment in Paris to reduce emissions and governments' commitment to align efforts to meet this target with energy market frameworks.*
- *Notifying the COAG Energy Council if they propose to take a unilateral action that falls within the scope of Australian Energy Market Agreement prior to taking the action.*
- *Within 28 days of notification, the Energy Security Board will provide advice to the COAG Energy Council on the impacts of the proposed action taking into account the objectives of Australian Energy Market Agreement.*

In the *Report to the Council of Australian Governments: Implementation Plan for the Independent Review into the Future Security of the National Electricity Market* of 25 August 2017<sup>27</sup> in the list of 'Measures to be implemented within 12 months' the then COAG Energy Council wrote:

### ***Improving how governments work together***

*By mid-2018, the Council will propose a new Australian Energy Market Agreement (AEMA) to COAG, to reaffirm Australian governments' commitment to the NEM and a national, integrated approach to energy and emissions reduction policy.*

*The AEMA is an inter-governmental agreement established with the objectives of promoting the long-term interests of consumers with regard to the price, quality and reliability of electricity and gas services; and the establishment of a framework for further reform.*

*The process of reaching and signing a new intergovernmental agreement reinforces the importance of taking a uniform approach to energy markets and emissions reduction.*

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<sup>26</sup> <http://www.coagenergycouncil.gov.au/publications/review-governance-arrangements-australian-energy-markets-final-report>

<sup>27</sup>

<http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/Report%20to%20Leaders%20signed.pdf>

*The Council will consider a draft AEMA by the end of 2017.*

The Energy Security Board *Health of the NEM Report 2020* provides an update on Finkel Review Progress. Recommendation 7.3 ‘Agree to a new AEMA’ is flagged as ‘Under consideration/hold.’<sup>28</sup> Clearly it is not within the ESB’s remit to prosecute the new AEMA, and the important difference between the recommendation being under consideration (an active state) or on hold (a passive state) can only be provided by the collective of energy ministers.

What is clear is that five years after acknowledging the issue in response to the Vertigan review and three and a half years after the date at which the collective told COAG leaders they would take action, it appears no progress has been made.

This is indicative of the overall failure of the progress of national energy policy since the middle of the first decade of this century. That COAG leaders have not inquired once on the progress of the Finkel recommendations or the failure of the collective of energy ministers to follow through on their commitments needs to be addressed.

There is no point in the AEMC as a consequence of this review reminding the collective of energy ministers again of the need, as Finkel wrote, to take “a nationally consistent approach to energy policy that recognises Australia’s commitment in Paris to reduce emissions and governments’ commitment to align efforts to meet this target with energy market frameworks.” There is also no point in the AEMC informing the collective of energy ministers of the need to harmonise electrical safety regulation as this is not usually a part of the energy minister’s portfolio.

There is equally no point in the AEMC making any changes to any of the retail market or metering regimes until the nationally consistent approach to these markets and to electrical safety is firmly embedded in new governance arrangements. Consequently, the AEMC needs to write to the Prime Minister, Premiers and Chief Ministers to impress upon them the need for new governance arrangements so that demand side participation can be realised. If the Commonwealth cannot get the National Cabinet to agree to a new energy governance framework, then the Commonwealth should consider all its options to take full responsibility for energy market regulation.<sup>29</sup>

## Step 2: Create the category of Smart Energy System Service Provider

The second step in the context of reformed governance is to create the concept of a Smart Energy Systems Service Provider (SESSP) in the market arrangements. This category of provider

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[http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/The%20Health%20of%20the%20National%20Electricity%20Market\\_V01\\_Final%20.pdf](http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/The%20Health%20of%20the%20National%20Electricity%20Market_V01_Final%20.pdf)

<sup>29</sup> NICE made a submission to the House of Representatives Environment and Energy Committee inquiry into the two Climate Change Bills proposed by Zali Steggall [https://www.aph.gov.au/Parliamentary\\_Business/Committees/House/Environment\\_and\\_Energy/Clim ateBills2020/Submissions](https://www.aph.gov.au/Parliamentary_Business/Committees/House/Environment_and_Energy/Clim ateBills2020/Submissions) (No 338) that detailed three heads of power in the Constitution that could be used.



would be covered by some industry specific consumer protections similar to the protections that apply to retailers. The term ‘consumer protections’ is used here with the meaning developed in Energy Consumers Australia’s *Contemporary Energy Consumer Protections: Framing Paper*, which identified four categories of protection:<sup>30</sup>

1. Transactional: Consumer protections that address the consumer/provider interface
2. Affordability: Consumer protection for affordability
3. Reliability: The regulation of the electricity system to guarantee availability of supply (which includes quality and reliability)
4. Market Power: The regulation of firms with market power

There are aspects of all of these that need to be dealt with in the framework for Smart Energy Systems Service Providers. It is appropriate to include additional transactional protections beyond those in the Australian Consumer Law, especially access to alternative dispute resolution and obligations about the way information is required to be presented. The appointment of a SESSP must not result in a consumer facing affordability problems, this specifically needs to include ongoing access to concession schemes where relevant. Similarly, the SESSP can agree with the consumer to disconnect appliances or reduce power, but nothing should be done to affect reliability that has not been expressly agreed with the consumer. Finally, the SESSP must not be put in a position where they could misuse market power (noting that the limitation on the misuse of market power in the *Competition and Consumer Act* is both poorly defined and difficult to prosecute).

The consumer should be able to delegate to their SESSP the choice of retailer and plan for their connection, though the financial responsibility would entirely rest with the consumer. Hence the barriers to entry to the SESSP market would be much lower than the entry to the retail market as they would not include prudential requirements. The protection for the consumer in the circumstance of the failure of the SESSP would be to fall into a direct contractual relationship with the retailer, and the loss of their SESSP benefits.

One final twist is that an entity should not be prevented from participating in the market as both a retailer and as an SESSP, but an entity (and its associates) should be prohibited from participating as a retailer, and SESSP and as a generator (defined as operating any transmission connected generation facility over 5MW of capacity). Put more simply, the gentailers need to be kept out of the SESSP market.

### Step 3: Redefine metering

There are two elements to this. The first is to recognise that metering is a function not a device. Any device that is capable of providing the meter reading data required for market operation (retailer to consumer and network to retailer, and market settlement) should be able to be identified as the meter for the connection point. As an example most inverters can provide all this data, and already have communications to upload the data to the cloud. It would be cheaper

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<sup>30</sup> <https://energyconsumersaustralia.com.au/publications/contemporary-energy-consumer-protections-framing-paper>

and simpler to increase the functionality of inverters than to insist on ‘smart’ meters where there is an inverter installed.

As an example the consumer response to AEMO’s proposition that meters should be reconfigured to enable the system operator to disconnect solar panels in periods of low system demand was to suggest that consumers should be rewarded for turning off their PV (or diverting the output to their own or community storage). The Smart Energy Systems Service Provider in the latter case has the incentive to provide the functionality to remotely disconnect the solar panels or change the charging arrangements.

Secondly consumers should be able to nominate their SESSP as the party responsible for appointing the Metering Coordinator for their connection. Technically this would be achieved as part of the consumer engaging their Smart Energy System Service Provider.

#### Step 4: Create a data and communications eco-system

The Smart Energy Systems Service Provider market is primarily a market in information and control. The SESSP has an incentive to provide data to both DNSPs and the market operator that will in turn enable the DNSP or market operator to acquire a response from the SESSP. As an example, the SESSP has an incentive to make voltage information available to the DNSP as the DNSP will then be able to decide whether to procure services from SESSPs to respond to the voltage events.

To provide full visibility of capability the DER register should be expanded to include information on any device that could be utilised by an SESSP whether one has been appointed or not. The register needs to be expanded to include a second database of the capabilities of these devices.

A particular issue with the roll-out of communicating interval meters has been how to enable communications. As noted above the issue was addressed in Victoria with a meshed network that is now creating challenges for moving forward. In an Internet of Things world for energy it is appropriate to develop a communications strategy. Most inverters utilise household WiFi networks to connect to the ‘cloud’, which creates some limitations in operation.

One feature of 5G networks is their ability to cost effectively support large numbers of low data throughput connections (previous generations had much lower limits on the number of sessions a cell could conduct concurrently). 5G also utilises large numbers of much smaller cells that could be efficiently deployed on power poles, but we understand that the DNSPs are trying to extract as much rent as possible from the telcos (notwithstanding that revenue earned from the infrastructure ultimately should just be deducted from allowed DNSP revenue and the use for telecommunications should not result in increased profitability). Alternatively, the DNSPs could facilitate the access of 5G to power poles in return for IoT connectivity for electricity system communication requirements. There is, however, a split incentives problem as the DNSPs are not the entire beneficiaries from this solution.

Alternatively, electricity market participants could collectively engage businesses offering the LoRaWAN technology to provide support for electricity metering and control applications. Energy Queensland has trialled the use of LoRaWAN<sup>31</sup> with NNN Co.<sup>32</sup>

The second element of this step is to further develop the ability of application providers to access the data held by all devices and services. This is the focus of the MyEnergyMarketplace being developed by WattWatchers<sup>33</sup> with funding from ARENA.<sup>34</sup>

The development of this eco-system requires the market bodies to do something they have not historically been good at, that is managing a project with industry participants with defined goals but to be achieved by collaboration rather than the prescription of rules. An authorisation from the ACCC for the collaboration should be easy to obtain given the very clear public benefit of an effective data and communications eco-system.

## Step 5: Make cost reflective tariffs work

As noted at the start increasing the price signals about the cost of network services was another component of the Power of Choice reforms. From the very start the policy got confused about the relationship between network tariffs and retail prices.

In part this was the fault of the networks collectively who asserted that the impact of cost reflective tariffs would be muted if the retailers did not pass on the cost reflective component in retail prices. This then became incorporated in the Rules by the inclusion of the requirement for network tariff design to consider the impact on consumers. Managing the impact on consumers has then resulted in tariffs being ‘muted’, with full cost effects not included because of concern about the impact on consumers.

However, the muting of the price signal also means that those who could benefit most don’t receive full reward. Consequently, those who could adjust their usage patterns (and thus reduce cost drivers and the average prices that all consumers pay) are not doing so.

The solution is simple. Retailers should face the cost reflective network tariff for all connections, but whether a consumer faces anything other than a flat rate two part tariff should be entirely the choice of the consumer.<sup>35</sup> Cost reflective tariffs should be charged for all connections. Where the connection point has an accumulation meter the charge for that point should be constructed by the network assuming that all the connection points have the same net consumption profile as the zone sub-station to which they are connected (i.e. after subtracting all the load associated

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<sup>31</sup> [https://www.youtube.com/watch?v=GWXnYBhJid0&feature=emb\\_logo](https://www.youtube.com/watch?v=GWXnYBhJid0&feature=emb_logo)

<sup>32</sup> Note the author is a Government Relations adviser to NNN Co.

<sup>33</sup> <https://wattwatchers.com.au/my-energy-marketplace/>

<sup>34</sup> <https://arena.gov.au/news/smart-energy-devices-to-empower-consumers/>

<sup>35</sup> In NSW at least the default position seems to be that if the network charges the retailer a time of use tariff then the retailer charges the consumer a time of use tariff. Limited studies by the author suggest that more consumers are worse off under the ToU prices of the retailer versus a flat price compared to the number of connection points for which the retailer faces a higher network charge from a ToU tariff than a flat rate tariff.

with interval meters). This would require networks to instal metering at all zone sub-stations rather than merely utilising SCADA data.

In this way retailers will see the full impact of consumption patterns in their network charges and will be able to reward consumers either directly or via SESSPs for behaviour that reduces network costs. Note that the retailer is able to reduce costs more by dynamic control of load than through simple price structures.

## Response to Consultation Questions

In this section the questions posed in the Paper are responded to in the context of the proposals in this submission.

### QUESTION 1: CONSIDERATION OF OTHER MARKET REFORMS AND RELATED WORK

1. Are there other significant market reforms that are likely to impact the metering framework that the Commission has not identified?
2. Is there additional related work that the Commission should consider in this metering review?

The important reforms are those included in the ESB's *Post 2025 Market Design Directions Paper* of January 2021<sup>36</sup>. That paper pleasingly collapsed the seven market design initiatives included in the *Post 2025 Market Design Consultation Paper*<sup>37</sup> into four work areas. However, the Directions Paper does not resolve the inherent inconsistency between the first and third work areas. The design of resource adequacy mechanisms needs to be constructed in the light of how the effective development of demand side participation can reduce the need for resource adequacy mechanisms. Instead, the ESB approach starts by considering resource adequacy first irrespective of the development of demand side participation.

In short, the ESB's highest priority in the Post 2025 design work should be the development of Demand Side Participation (DSP). Development of DSP was the intent of the Power of Choice review. Nine years later the ESB and AEMC need to reflect on the failure of that package of reform. This submission has laid out an approach that identifies the five steps that need to be taken to revitalise DSP.

### QUESTION 2: ASSESSMENT FRAMEWORK

Do you agree with the Commission's proposed Assessment Framework for this Review? Are there any additional criteria we should consider as a part of this framework?

The only appropriate test for the AEMC are the objectives of the energy laws, which all equate to the specification used in the Australian Energy Market Agreement of the promotion of the long-term interests of consumers with respect to price, quality and reliability.<sup>38</sup>

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<http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/P2025%20Market%20Design%20Directions%20Paper.pdf>

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[http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/P2025%20Market%20Design%20Consultation%20paper.Final\\_.pdf](http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/P2025%20Market%20Design%20Consultation%20paper.Final_.pdf)

<sup>38</sup> The Energy Consumers Australia paper *Operationalising the Long Term Interests of Consumers* <https://energyconsumersaustralia.com.au/wp-content/uploads/Operationalising-the-Long-Term-Interests-of-Consumers.pdf> explains how the various objectives in the legislation are essentially supply-side descriptions, while the AEMA is the consumer view.

In the context of Australia's commitment to the Paris Agreement<sup>39</sup> an important constraint is added to security of supply that fossil fuels will be phased out of use in the system. There is no need for the objectives of the laws to be augmented – the external constraint of climate policy is as if there simply is no coal, natural gas or oil available post 2050 (or earlier).

#### QUESTION 3: EXPECTATIONS OF METER ROLL OUT

Although the numbers are steadily increasing, whether the rate of the roll out meets expectations and current requirements is a key question for this review.

1. How does the roll out of smart meters to date compare with your expectations?
2. Is the current pace of smart meter deployment appropriate? What should be the appropriate pace of rollout?
3. What benefits are smart meters providing consumers? Have the benefits changed or improved over time?
4. Have the prices of smart meters plus the costs of associated products and services changed from the introduction of Competition in metering? If so, how?

The question of the pace of roll out of 'smart meters' is the wrong question. The smart meter policy was intended as an enabler of DSP. A faster roll-out of meters would have minimal impact on DSP because of the other flaws in market design.

QUESTION 4: ARE INCENTIVES IN THE RIGHT PLACE? As well as understanding more about stakeholder expectations around the roll out of smart meters, and whether those expectations have been met, the Commission is additionally interested in stakeholder views on whether incentives are in the right place.

1. Are the incentives in relation to smart meter roll out correct? Please provide details on why/why not.
2. Is the current market structure financially viable? If not, for whom is it not financially viable?

As detailed in the submission the principal-agent problem has simply been restructured. Retailers have no incentive under current policy settings to accelerate DSP and hence have no incentive to accelerate smart meter deployment.

The incentives can only be addressed by the creation of a new type of entity, the Smart Energy System Service Provider, and the ability for the consumer to nominate the SESSP as the party that will appoint the MC for the connection point.

#### QUESTION 5: DRIVERS OF SMART METER ROLL OUTS

1. What were your expectations regarding the drivers of smart meter roll outs?

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<sup>39</sup> [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf)

2. Has there been any changes in the overall reasons for installing smart meters since the Competition in metering rule commenced?
3. Which parties should be responsible for driving the roll out of smart meters?
4. Do consumers have clear information on the benefits of smart meters and their rights relating requesting a smart meter?

There is no consumer benefit from a smart meter. There are only consumer benefits from the services enabled by smart meters.

#### QUESTION 6: CONSUMER EXPERIENCE

1. What are your views on the customer experience in relation to smart meter roll out and installation?

There are two major deficiencies with the contestability framework for smart meters. The first is the issue of connections to new dwellings where a meter can't be provided until a retailer has been selected. It should be relatively simple to require the Local Retailer as the FRMP for new premises to provide a meter in advance of occupancy.

The second and more important issue is the nightmare of differing jurisdictional safety standards making national procedures difficult (or impossible) to design. This is a threshold governance issue that needs to be addressed by Leaders of Governments.

#### QUESTION 7: INDUSTRY COOPERATION

1. Do you have any suggestions on how industry cooperation can be improved?
2. Are changes to the market structure or roles and responsibilities needed to improve the consumer experience?

The Information Exchange Committee managed by AEMO under the B2B procedures has worked effectively as an industry cooperative mechanism. The DEIP Steering Group which is more informal has been moderately effective.

The first step in cooperation is creating the means to cooperate. This is made particularly difficult when market participants and market bodies have developed a fear of transgressing the cartel provisions of competition law. The clearest and simplest way to resolve this is to create a formal structure that obtains appropriate authorisation from the ACCC.

The submission proposes a body be established for this purpose to facilitate the data and communications eco-system necessary to develop DSP.

#### QUESTION 8: EXPECTATIONS OF METERING SERVICES

1. What expectations did you have around the services that smart meters would provide? Were your expectations met?
2. What services are being provided by smart meters currently? Are these services widely available?

3. What services did you expect from smart meters which have not eventuated?
4. Are there any services being provided by smart meters which were not anticipated at the time of the Competition in metering rule change?

‘Smart meters’ aren’t smart. Meters exist to perform a function of providing data required for retailers to bill consumers, networks to bill retailers and for retailers to settle with the wholesale market. Communicating interval meters provide a greater level of granularity of this data and more frequent delivery of meter reading services.

The device by necessity also measures other things and the communication infrastructure can make this data available. Additionally by design the ‘smart meters’ enable remote energisation and de-energisation.

These capabilities can in some cases be provided by other devices on the consumer side of the connection point and the approach to metering should make it possible for these devices to provide the meter reading service. Additionally the proposed data and communications ecosystem should facilitate the any-to-any flow of data.

#### QUESTION 9: COLLECTION AND USE OF METERING DATA

1. In relation to metering data, what data should be captured by smart meters and why?
2. In relation to metering data, who should be able to access metering data, and how? What protections should be in place?
3. What impact do you think the Consumer Data Rights may have on the access to, and use of, metering data?

The submission delineates between meter reading data and meter data. The Consumer Data Right currently only applies to the former.

The consumer should be able to authorise any third party to access any data that is available on any device, not just meters. Consumers need to be able to benefit from their provision of this access.

#### QUESTION 10: FUTURE METERING SERVICES

1. What is your understanding of other services that smart meters can provide?
2. What future services do you expect or want metering to facilitate?
3. If additional services are to be provided by smart meters, how should the costs of providing these services be allocated?

See answers above.

#### QUESTION 11: PENETRATION OF SMART METERS REQUIRED

1. Are particular metering services only cost effective when a particular penetration is achieved? If so, what services and what penetration is required?



2. What other factors are important in determining whether the provision of particular services are efficient or effective (e.g. geographic spread)?

For their primary function of providing meter reading data there is no particular penetration level required. As the submission outlines retailers can be faced with cost reflective tariffs for premises with accumulation meters by using a net load profile for the zone sub-station.

If meter data is being used by DNSPs to manage their LV network there may be minimum numbers, but these are highly geographically specific. DNSPs need to reward consumers who make devices accessible that can supply LV data.

#### QUESTION 12: ENCOURAGING THE ADOPTION OF SMART METERS AND FUTURE SERVICES

1. Is the current regulatory framework appropriate for the current needs of metering and the market? Is it flexible enough to provide encouragement for the development of future services in metering?

2. To encourage higher adoption of smart meters:

- a. What changes, if any, need to be made to the current regulatory framework for future services?
- b. What changes, if any, need to be made to other instruments? (e.g. regulatory instruments, guidelines, codes)

3. Are there other avenues of encouragement that are available that the Commission has not considered in this paper?

The current metering framework is entirely sufficient for the flawed DSP model introduced with Power of Choice. It is insufficient for the realisation of DSP as envisioned in the *Post 2025 Market Design Directions Paper*. The submission outlines five steps to advance the realisation of the DSP objective.

#### QUESTION 13: BARRIERS TO REALISING THE BENEFITS OF SMART METERS

1. Are there other barriers that were not identified by the Commission that you have found to prevent the realisation of benefits of smart meters and/or slowed the rollout of smart meters in the NEM?

2. What changes, if any, need to be made to the current regulatory framework for current arrangements to improve deployment?

3. Are there other tools outside of the regulatory framework that may address some of the current barriers to realising the benefits of smart meters and/or the slower rollout of smart meters in the NEM?

The most important barrier outside the regulatory framework is the flawed governance model for retail markets and electrical safety. Despite recommendations from two reports commissioned by COAG and a Productivity Commission report, Australian Governments collectively have not been taking the actions recommended. Consumers should be angry about this situation, but State Energy Ministers have effectively conned consumers and consumer

advocates that the one-off actions of jurisdictions have benefit for consumers that is greater than the benefit from a harmonised system.

## Conclusion

The functionality of smart meters, especially for services other than the provision of meter reading data provision, is a distraction. The question of how to accelerate the roll-out is equally a distraction.

Certain metering functionality is a necessary but not sufficient condition for greater Demand Side Participation. There is no sense in which driving the roll-out of meters will drive DSP, it is the development of DSP and the market for Smart Energy Systems that will drive the change to metering.

This submission has detailed five steps to achieve this outcome. None of the steps can be effective until the first step – harmonising regulatory arrangements for retail and distribution services – is delivered. This must be the core conclusion of the AEMC's review and the AEMC and ESB need to find a way to impress the urgency of this change on jurisdictional leaders, not the energy ministers.

Any questions on this submission should be directed to David Havyatt at [eo@nice.org.au](mailto:eo@nice.org.au). There is nothing confidential in the submission.

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**Extract from AEMA 2013 - ANNEXURE 2**

**DISTRIBUTION AND RETAIL FUNCTIONAL ALLOCATION**

**National Functions**

This list sets out the activities which will form part of the national distribution and retail regulatory framework for electricity and gas, which is to be developed by the MCE in accordance with this agreement. The regulatory framework will be regulated through the AEMC and the AER.

1. **Distribution economic regulation** - services to be regulated, the form of regulation and tariff setting.
  2. **Service performance incentive scheme** – for network service performance standards (as set by the jurisdiction where elected), and customer service performance standards, linked to economic regulation.
  3. **Information disclosure** - information requirements for the AER to undertake its regulatory functions.
  4. **Connection and capital contribution requirements** - new connections charges and capital works contributions.
  5. **Distribution network expansion** - determining when extensions are part of a regulated service and how charges are levied.
  6. **Distributor connection service obligations** - provision of connection and related services to users and the contractual relationship with retailer and customer.
  7. **Distributor small customer disconnection/reconnection** - allowable disconnections or reconnections of small customers including those arranged by retailers.
  8. **Distributor interface with other market participants** - determining the nature of distributor-retailer and distributor-embedded generator relationships including use of system.
  9. **Metering** - obligations to install, maintain and read meters.
  10. **Retailer obligation to supply to small customers** - obligation on retailers to supply customers at a default tariff with minimum terms and conditions.
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11. **Retailer failure arrangements** - arrangements to ensure customer supply continuity and wholesale market financial integrity.
  12. **Retailer - small customer market contracts** - minimum contract terms and conditions.
  13. **Retailer - small customer marketing** - marketing conduct obligations.
  14. **Balancing regime, settlements, customer transfer** - balancing, settlement and contestable customer churn arrangements to ensure accurate financial reconciliation would be retained by independent market administrators.
  15. **Distributor and retailer general business authorisations** – where necessary for matters other than technical capability and safety.

**State and Territory Functions (current responsibility retained)**

16. **Distributor technical/safety business authorisation** - licensing and authorisation schemes that require demonstration of technical capability.
  17. **Small customer dispute resolution** - obligation for distributors and retailers to have internal dispute resolution schemes and participate in independent dispute resolution (Ombudsman) schemes.
  18. **Load shedding and curtailment** - customer supply reduction sequence to maintain system security.
  19. **Service reliability standards** – standards to ensure network security and reliability.
  20. **Metering** – policies on the type of meters required for specific customer classes, accredited service provider arrangements, and load profile arrangements.
  21. **Distribution and retail service areas** – specification of geographical areas in which responsibilities/obligations apply.
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