Managing the transition from type 5 and type 6 metering to smart metering

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Contents

1 Introduction

Residential and smaller commercial users have traditionally been metered for electricity use through accumulation meters, or more recently interval meters. Accumulation meters, known as type 6 meters, measure the total volume of consumption at a metered premises but must be manually read and do not record the time of consumption, making it difficult to use tariff structures that vary tariffs with the time of the day (either peak or time-of-use tariffs). Interval meters, known as type 5 meters, record the amount of electricity used every 30 minutes. Type 5 meters support the introduction of peak or time-of-use tariff arrangements.[1]

This report examines the issues arising from the proposed arrangements for residential and smaller commercial users to transition from type 5 and 6 meters to smart meters. Smart meters, known as type 4 meters, record electricity use in 30 minute intervals but also allow meter readings to be performed via remote communications systems.[2]

There are proposals to encourage the roll-out of smart meters in National Electricity Market (NEM) jurisdictions other than Victoria, which has already rolled out smart meters to all users.[3] The Australian Energy Market Commission (AEMC) as the rule-making body within the NEM is progressing a change to the National Electricity Rules (NER) to open up competition in the provision of metering services and to remove barriers to the installation of smart meters.[4] The impetus for the transition is the range of benefits provided by smart meters to consumers, distributors, and retailers, which include time-of-use pricing, easy access to data usage, real time consumption information, better energy management, more control over appliances, and rapid fault location.[5]

While residential and commercial users are not obliged under the draft rule to switch from existing meters to smart meters, nonetheless the draft rule provides a strong push to do so through its default arrangements.[6]

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[1] Peak tariffs charge higher tariffs at times which typically represent times of peak use, such as late afternoon weekdays. Time-of-use arrangements charge higher tariffs at times of actual peak use, whatever that time might be. These tariff structures encourage users to shift use from peak to off-peak times, reducing pressure to expand the network or generation capacity to meet peak use.

[2] For the functionality of different meter sets, refer to Ausgrid's website at http://www.ausgrid.com.au/Common/Customer-Services/Homes/Meters/Types-of-meters.aspx#.VcszUE1-_cs

[3] Victoria transitioned 2.8 million homes to smart meters through a compulsory smart meter rollout from 2009 to 2014: http://www.smartmeters.vic.gov.au/. The estimated cost of the rollout was $2billion: Victorian Audit-Generals' Office website: http://www.audit.vic.gov.au/audits_in_progress/audit_details.aspx#meters

[4] AEMC published a draft rule in March 2015 and plans to publish a final rule in November 2015.

[5] See for example, AEMC Draft Determination, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, March.

[6] The AEMC draft rule provides that retailers can elect to install smart meters as part of a 'new meter deployment', in which case the metering installation will proceed unless the customer explicitly opts out. The customer will lose the right to opt-out in certain circumstances, including for example where a faulty meter requires replacement, or where testing results indicate that it is necessary or appropriate in accordance with good electricity industry practice for the meter to be replaced to ensure compliance with the NER: AEMC Draft Determination 2015, p. vii.

1.1 About this report

This report analyses the consumer issues arising in the transition from type 5 and 6 meters to smart meters, and in particular the regulatory treatment of the existing metering stock of type 5 and 6 meters.

This report is set out as follows:

- Section 1 provides an introduction and limited context to the impetus for this report.
- Section 2 defines the terminology with reference to smart meters.
- Section 3 looks more closely at proposed changes to metering arrangements and the move towards greater competition in service offerings.
- Section 4 examines the current regulatory arrangements with respect to metering in the NEM.
- Section 5 provides a brief summary of experiences with rolling-out smart meters in Victoria, New Zealand (NZ) and Great Britain. Appendix 1 provides a more extensive overview of this experience.
- Section 6 examines more closely some inconsistencies that have arisen in the regulatory treatment of metering costs. These regulatory inconsistencies have implications for proposed exit costs when switching to smart meters.
- Section 7 notes some further consumer protection issues that arise in the context of the transition to smart meters.
- Section 8 provides a summary of the key regulatory issues.
- Section 9 offers some concluding comments and issues for further consideration.

2 Smart meter definition

A smart meter is an electronic device that records consumption of electric energy in intervals of an hour or less and communicates that information at least daily back to the utility for monitoring and billing.[7] Smart meters differ from traditional type 5 or 6 metering in that they enable two-way communication between the meter and the central system. Smart metering is part of advanced metering infrastructure (AMI), which also includes enabling infrastructure such as network control, data management and other back-end systems.[8]

Smart meters have a number of identified benefits, as listed in table 1 below. These benefits are spread among the retailer, distributor, and user. Views on the overall value of smart meters to each group differ, but many of the cost-benefit analyses done in Australia of smart meters assign most of the benefits to retailers and distributors.[9]

[7] Federal Energy Regulatory Commission, *Assessment of Demand Response and Advanced Metering: Staff Report*, December 2008, p. 5.

[8] Compare Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure,* 2009-10:3, November 2009, p. 35

[9] For example, compare Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure,* 2009-10:3, November 2009, p. 29 discussing the cost-benefit study by the Ministerial Council on Energy in 2008.

Table 1: Smart meter benefits

Benefit	Beneficiary
Reduce meter reading costs	Retailer
Enable remote connection and disconnection	Retailer
Eliminate estimated bills and provide flexible billing options	Retailer
Reduce costs of load research and tariff sculpting	Retailer
Decrease losses due to theft, fraud, and vacant premises consumption	Retailer
Provide increased and relevant information to electricity users	Retailer
Increase accuracy of the settlement process	Retailer
Improve cash flow	Retailer
Provide ability to offer more products and services	Retailer
Improve quality and reliability of electricity network	Distributor
Better management of network and reduced capex and opex	Distributor
Better management of energy use and costs	Customer
Quicker switching among retailers	Customer

Smart meter services may also include load control. In the draft AEMC rule, load control is not part of the required minimum functionality.

Load control (or ripple control) involves superimposing a higher-frequency signal (usually between 100 and 1600 Hz) onto the standard 50 Hz of the main power signal. When a receiver meter attached to non-essential residential or industrial loads receive this signal, it shuts down the load until the signal is disabled or another frequency signal is received.

Load control can be used to offer off-peak pricing.

Load control does not require a smart meters and can be offered by existing type 5 or 6 meters. Currently, NSW, Victoria, Queensland, Tasmania, and SA offer off-peak tariffs. For example, in Queensland, the local distributors Energex and Ergon offer both off-peak and super off-peak tariffs. The variable consumption charge for off-peak tariffs is 85 per cent of the standard tariff, while for the super off-peak tariff, the variable consumption charge is 56 per cent of the standard tariff.[10] Tariff 31 guarantees supply for 8 hours per day while Tariff 33 guarantees supply for 18 hours per day.[11]

3 AEMC Expanding competition in metering rule-change

The AEMC *Expanding competition in metering and related services* rule change commenced in 2014 following a rule change request from the Council of Australian Governments (COAG) in late 2013. At present, the AEMC has released a draft determination and rule (in March 2015). AEMC planned to

[10] Comparing tariff 33 (off-peak) and tariff 31 (super off-peak) to tariff 11 (standard tariff): Department of Energy and Water Supply (Qld) at DEWS's website https://www.dews.qld.gov.au/energy-water-home/electricity/prices/current-prices.

[11] DEWS's website at https://www.dews.qld.gov.au/energy-water-home/electricity/prices/tariffs-explained.

announce the final rule in July 2015 but has extended the announcement of the final rule until late November 2015 to "consider complex issues raised in stakeholder submissions around the details of implementing a competitive framework for metering".[12]

The rule change is part of the Power of Choice program which aims to provide users with greater control and choice over their use of electricity while at the same time exposing them more directly to the costs of their choices. The Power of Choice program includes greater demand side participation in wholesale markets, better pricing of embedded generation, and signals to move consumption from peak to off-peak times.[13]

Smart metering enables many of the initiatives within the Power of Choice program, as illustrated in table 2 below. The move to encourage smart metering supports a range of Power of Choice program elements, in particular to enable users to gain a greater understanding of the wholesale and distribution costs in the delivery of electricity, to support a change in the structure of tariffs to a more cost-reflective basis, and to enable demand side participation and responses by users.

Table 2: Summary of Power of Choice program elements and possible supporting role of smart meters[14]

Power of Choice program element	Possible smart meter role
Reform distribution network pricing principles to improve consumer understanding of cost reflective network tariffs and give people more opportunity to be rewarded for changing their consumption patterns.	Need smart meters to measure use on a half hourly basis and apply relevant peak, shoulder, or off-peak charges to move peak use to shoulder to off-peak (but only where peak and off-peak times are not set in advance)
Expand competition in metering and related services to all consumers, putting greater discipline on competitive metering suppliers to provide services at efficient cost and consistent with consumer preferences.	Enable competition in metering, which paves the way for consumer choice of meter, including the choice of smart meters
Clarify existing provisions regarding the ability of the market operator, AEMO, to collect information on demand side participation to make its market operational functions more efficient.	Smart meters assist demand-side (DS) participation by enabling users to set the maximum wholesale price they will be willing to face, or enabling users facing wholesale prices to reduce use at times of peak wholesale prices.
Give consumers better access to their electricity consumption data.	Smart meters enable better understanding of cost of consumption at various times of the day and various wholesale market conditions (subject to added complexity).
Establish a framework for open access and common communication standards to support contestability in demand side participation end user services enabled by smart meters. This will support consumer choice.	As above, smart meters enable better understanding of cost of consumption at various times of the day and various wholesale market conditions (subject to added complexity).
Introduce a new category of market participant for non-energy services in the National Electricity Rules to facilitate the entry of innovative products for consumers.	Smart meters may support certain types of innovative services, e.g. automation of home use to move it to shoulder and off-peak times and shave peaks

[12] See AEMC website at http://www.aemc.gov.au/Rule-Changes/Expanding-competition-in-metering-and-related-serv

[13] An overview of the Power of Choice program can be found at the AEMC's website at http://www.aemc.gov.au/Major-Pages/Power-of-choice.

[14] Power of Choice actions drawn from http://www.aemc.gov.au/Major-Pages/Power-of-choice.

Power of Choice program element	Possible smart meter role
Reform the application of the current demand management and embedded generation connection incentive scheme to provide an appropriate incentive scheme to provide an appropriate incentive for distribution businesses to pursue demand side participation projects which deliver a net cost saving to consumers.	Interpreted as: Send signals when to use embedded generation. Could use smart meters to control PV and battery set to enable automated lowest cost use – use batteries at times of high prices.
Establish a new demand response mechanism in the wholesale market - option for demand side resources to participate in the wholesale market for electricity.	As above, smart meters can enable DS participation

4 Current arrangements for regulation of metering

Metering costs and services are currently regulated by the Australian Energy Regulator (AER). Until recently, meters were generally owned by distributors and the costs of their provision and reading were regulated as part of distribution tariffs. The AER is currently moving to separate regulation of metering from regulation of distribution services to pave the way for competition in provision of metering services as part of distribution regulation determinations for different distributors.

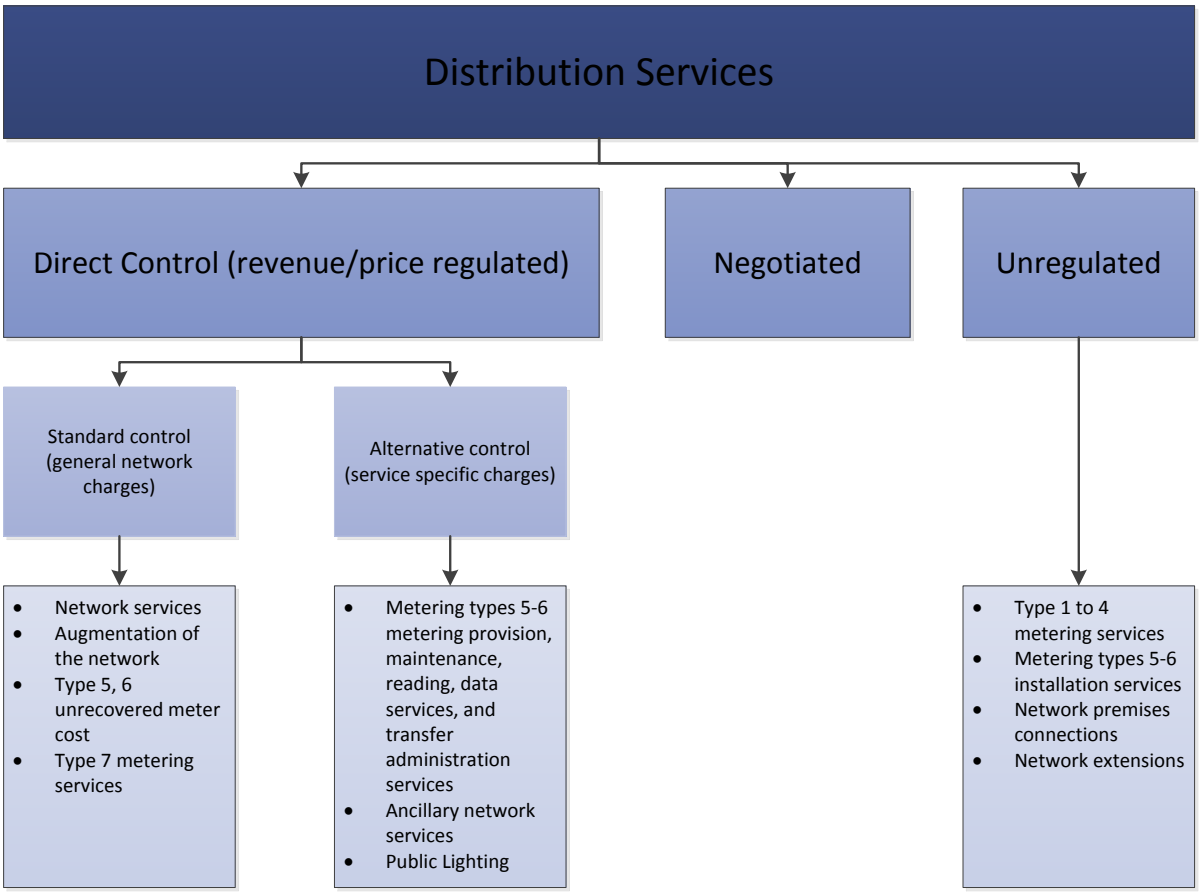
The AER is currently part of the way through its most recent round of electricity distribution determinations. It has announced its final determinations in NSW and the ACT (2014), preliminary determinations in Queensland and SA, and has commenced the process for making a determination in Tasmania (due in 2017).

Previously, the AER had generally classified metering services as part of standard control services along with network services in its electricity distribution determinations. However, in its recent distribution decisions, the AER has classified metering services as alternative control services.[15]

The AER's approach to classification of services is illustrated in Figure 1 below, using NSW as a representative example.

[15] For example, AER 2015, *Ausgrid Final Decision - Overview*, p. 44.

Figure 1: Representative classification of network and metering services



In reclassifying metering services as alternative control services, the AER states that it has taken notice of the AEMC's draft rule on expanding competition in metering by seeking to "create a regulatory framework robust enough to handle the transition to competition once the rule change takes effect". This "involves having transparent standalone prices for all new/upgraded meter connections and annual charges".[16]

The AER's decision is to regulate alternative control services such as metering with a price cap arrangement. Under the price cap arrangement, the AER has developed a revenue requirement for type 5 and 6 metering based on the metering asset base and annual operating and capital expenditure converted into an annual price cap for metering services. Distributors must demonstrate compliance with the price cap through annual pricing proposals.[17]

The AER has classified load control services provided by type 5 or 6 meters[18] as part of the alternative control services. Load control services provided by equipment located outside a type 5 or 6 meter are grouped with network services and classified as part of standard control services.

[16] AER 2015, *Ausgrid Final Decision - Overview*, p. 46.
[17] AER 2015, *Ausgrid Final Decision - Overview*, pp. 44-45.
[18] This includes the functionality within the type 5 and 6 meters that enables a ripple control signal to turn on or off the meter.

The AER rejected the distributors' proposals in NSW, the ACT, Queensland, and SA to set upfront metering transfer or exit fees for users wishing to switch from an existing type 5 or 6 meter to a smart meter. The AER considered this would have created a barrier to competitive entry by raising the upfront cost of the switch. Instead, the AER has provided that when a customer switches to a smart meter, the customer continues to pay a regulated annual charge for their existing type 5 or 6 meter that recovers the fixed capital costs associated with the type 5 or 6 meter, but not its operating costs. The annual charge is intended to allow the distributor to recover the residual capital costs of the existing meter.[19] The AER has accepted it is not possible to determine the age of individual meters and so has set the residual capital cost based on an average meter value.[20]

5 Experience in Victoria, New Zealand, and Great Britain

Victoria, New Zealand, and Great Britain are at different stages of smart meter rollout. Their experiences and differing institutional and corporate arrangements help shed some light on the proposed transition to smart meters in the remaining NEM jurisdictions. A brief summary is provided below, which is expanded upon in Appendix 1.

The mandatory rollout of smart meters to residential and small business users in complete in **Victoria**. Users have the choice of existing tariff arrangements or demand-based tariff arrangements. It is difficult to obtain clear public information on the increase in tariffs based on the rollout of smart meters, but from AER forecasts it is understood that the average cost increase in metering charges from 2005 (pre-smart meters) to 2015 is understood to be around $100 per meter per annum.[21]

The Victorian Auditor-General's Office (VAGO) reviewed the Victorian smart meter rollout in 2009 just after the start of the rollout. It provided a further review in September 2015 on completion of the rollout.[22] In its 2009 report VAGO noted that:[23]

> *In order for consumers to benefit from the cost savings incurred by the distributors through AMI, the distributors will need to pass on the savings through to retailers who will need to pass on the savings subsequently to consumers. If this doesn't happen, then the benefits may not accrue to consumers who then ultimately fund the implementation costs of AMI.*
>
> *Achieving full pass-through of AMI's 'bankable benefits' to consumers will require significant effort from the regulators. This is because, unlike many network investments, the expected benefits of the AMI project apply across many distribution business functions and services, ranging from meter reading to connection and disconnection*

[19] AER 2015, *Ausgrid Final Decision - Overview*, pp. 44-45.
[20] This means that, for example, if the metering asset base is $10million, and there are 100,000 meters, the residual meter value is taken to be $100 irrespective of the actual age of the individual meter.
[21] Compare the AER's website at http://www.aer.gov.au/node/2256 and http://www.aer.gov.au/node/2292.
[22] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, which can be found at VAGO's website at http://www.audit.vic.gov.au/reports_and_publications/latest_reports/2015-16/20150916-smart-meters.aspx.
[23] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. 17

costs. Also, the full realisation of AMI benefits related to improved industry efficiency could potentially take several years to become apparent.

VAGO's 2015 post-implementation review found that the costs of the smart meter roll-out significantly exceeded the benefits, that the costs increased significantly from initial estimates, and that many of the benefits were slow to be realised.[24] For example, it found that by 2014 when the roll-out was substantially complete, only 0.27 per cent of users had switched to flexible electricity price offers.[25] VAGO (2015) noted the actual transfer of a number of benefits to consumers (e.g. savings in meter reading costs) accrued to retailers and distributors and the passing on of these benefits to consumers depended on strong competition in retail electricity markets.[26]

New Zealand installed the first smart meters in 2005 and the latest estimates of smart meters installations vary between 800,000[27] and 900,000[28] out of approximately 1.9 million installation points.

The rollout occurred as a result of market forces without mandating by regulators or government. Retailers have voluntarily rolled out smart meters based on the savings in their operating costs.

The Electricity Commission established voluntary AMI guidelines on smart meter functionality in the 2008,[29] which provide, inter alia, that the meters should support load control.[30]

In 2009, the Electricity Commission (the then regulator in NZ) reviewed the rollout of smart meters to consider whether it was necessary to regulate or mandate the process. The regulator noted that the roll-out of AMI was being undertaken by the industry voluntarily, and at no additional direct cost to consumers. It noted this is different from the roll-out of AMI internationally, which was largely regulated. One key factor that has been identified as assisting in the rollout in NZ was that the Electricity Governance Rules make retailers solely responsible for metering.[31] The Electricity Commission report found the cost of smart meters was not much above the cost of traditional meters under a scenario where the retailer engaged in a substantial deployment.[32] As such, the regulator decided not to regulate the rollout of AMI.[33]

[24] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, pp. vii - viii.
[25] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xiii.
[26] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xiii.
[27] See Arc Innovation's website at http://www.arcinnovations.com/about-us
[28] See Vector AMS website at http://vectorams.co.nz/about-us;jsessionid=91B71C005732F04CBAFDCC306771AEC3
[29] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. 5 at https://www.ea.govt.nz/dmsdocument/6080
[30] Electricity Authority, *Guidelines on Advanced Metering Infrastructure*, Version 3.1, November 2010, p. 8
[31] Aurora Energy and other electricity distribution companies, '*Smarter' Meters in New Zealand Is the NZ Electricity Industry's rollout as 'smart' as it needs to be?* 28th January 2010, p. 3 at http://www.auroraenergy.co.nz/userfiles/file/20100215%20Smarter%20Meters%20in%20New%20Zealand%20Rev%201.pdf
[32] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. 13 at https://www.ea.govt.nz/dmsdocument/6080
[33] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. B at https://www.ea.govt.nz/dmsdocument/6080

Great Britain has recently mandated the rollout of smart meters to residences and small businesses for both electricity and gas. The obligation applies to retailers with more than 250,000 customers. In practice, these retailers must recover the costs of the rollout from retail charges smeared across their entire customer base as part of their general tariffs.

The rollout started around 2015 (with some trials prior to that) and is due to be completed by 2020 with the rollout of about 50 million smart electricity and gas meters to 30 million premises.[34] At the end of March 2015, around 1.65 million smart meters (comprising both electricity and gas smart meters) had been installed in domestic and small business premises.[35]

The rollout is required as a licence condition in retail licences.[36] Under the rollout, users do not have to pay upfront for the rollout. Instead, the cost of the rollout will be included in the users' energy bill.[37]

Smart meters must meet the Smart Meter Equipment Technical Specification (SMETS) and have functionality such as being able to transmit meter readings to energy suppliers and receive data remotely, and load control capability.[38]

The regulator (Ofgem) in December 2014 stated that it was working on regulating distribution tariffs to ensure the savings to distributors were taken into account and passed on to consumers from the *start* of the rollout in 2015.[39]

6 Inconsistencies in regulatory approach to existing type 5 and type 6 metering

As noted above, there is a fundamental difference in approach between the AER and distribution businesses with respect to the cost recovery of meters. The AER has proposed to manage the transitional costs of existing meters through an annual charge designed to recoup the residual capital value of the existing meter stock. This differs from the proposal by distributors to recoup this residual cost as an upfront cost.

Whether the charge for existing meter is collected through an upfront or annual charge, it can still be thought of as an exit cost.

It is important to recognise that exit costs are driven by factors such as the value of the metering asset base (MAB) and new capex entering the MAB. Thus the valuation of the MAB and new capex

[34] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 p. 23
[35] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 pp. 4-5
[36] Department of Energy and Climate Change website at https://www.gov.uk/guidance/smart-meters-information-for-industry-and-other-stakeholders
[37] UK Government website at https://www.gov.uk/smart-meters
[38] Department of Energy and Climate Change website at https://www.gov.uk/guidance/smart-meters-information-for-industry-and-other-stakeholders
[39] Department of Energy and Climate Change-Ofgem joint letter, 12 December 2014 p. 3, at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386482/DECC_Ofgem_open_letter_on_smart_metering.pdf

allowed by the regulator to enter the MAB of the existing stock of type 5 and 6 meters are key drivers for the exit cost.

The AER recently examined exit costs in NSW, the ACT, Queensland, and SA as part of the five year regulatory control periods starting in those jurisdictions in 2014 and 2015. Distributors in those jurisdictions proposed opening MABs and forecast operating and capital costs for type 5 and 6 metering, and the AER has responded with final and preliminary determinations, as well as a determination of the method for recouping exit costs.

Examining both the approaches proposed by distributors and in the regulatory determinations reached by the AER, it can be observed that there are a number of inconsistencies in relation to the:

- Valuation of the metering asset base (MAB);
- Capex allowances; and
- Opex allowances.

To begin with, the AER did not start with agreed rules on the process for valuation of the MAB[40] and distributors took divergent approaches in their regulatory proposals. The distributors' valuation methodologies for the MAB have varied among:[41]

- Depreciated actual cost or DAC (e.g. Energex);
- Optimised depreciated replacement cost or ODRC (e.g. Ergon); and
- RAB carve-out (e.g. Essential).

The resulting strikingly different valuations proposed among distributors and set by the regulator can be observed in table 3.

Table 3: Average meter values ($2014-15)

	Ergon*	Essential	SAPN*	Endeavour	Energex*	Ausgrid	Average
Average meter value proposed by distributors	48	81	101	20	200	111	93
Average meter value set by AER	47	65	101	14	206	114	91

Source: AER regulatory decisions
* Preliminary decisions

It can be observed that:

- Energex's average meter value is almost twice as much as any other distributor. In fact, Energex's MAB as set by the regulator in the preliminary decision of $448.8m is almost as high as the total MAB for all the NSW and SA distributors combined ($465.9m).[42]

[40] Ausgrid – Attachment 8.21 - Energeia Review of Ausgrid Metering Tariff Arrangements, p. 3
[41] Energex regulatory proposal 2014, p. 274; Ergon Regulatory Proposal 2014, *05.03.01 Default Metering Services Summary*, p. 37; Ausgrid Regulatory Proposal *Attachment 8.21 - Energeia review of Ausgrid's metering tariffs*, p. 44
[42] The NSW MABs are in $2013-14 while the SA and Qld MABs are in $2014-15.

- The variation in average meter value (comparing the values set by the regulator) is a factor of almost 15.[43]
- The only distributor to receive a significant cut in the value of their MAB was Endeavour, which had proposed by far the lowest average value for its MAB.

These inconsistencies seem implausible given the valuations relate to meters using similar technologies. It could be argued that one MAB was significantly older than another or that one MAB contained significantly more interval meters than another. However, in the context of whether, for example, Energex's MAB as the most expensive is younger or contains more interval meters, it is noted that Energex's MAB contains a high proportion of old meters.[44]

Commentary

The AEMC draft rule change does not currently specify that the AER must adopt a consistent valuation methodology for the MAB. The final rule could specify among a range of consistent valuation methodologies. For example, one feasible valuation methodology would be depreciated actual cost or DAC, which measures the metering assets based on their actual cost of installation adjusted for depreciation. DAC may be an appropriate methodology given that the MAB is intended to have a finite life (until depreciation of the existing asset base with few new assets being added to the MAB). Alternatively, the final rule could use optimised depreciated replacement cost or ODRC, which measures the cost of installing the lowest cost meter that meets functional requirements, adjusted for depreciation. The ODRC methodology may be appropriate where the existing stock of type 5 or 6 meters is above necessary requirements, and in particular where distributors have chosen to install higher cost type 5 or interval meters when lower cost type 6 meters would have met historical metering requirements. This would set a lower value on MABs with a high number of interval meters given such the functionality of such meters has not traditionally been required.

A key issue in setting the MAB is whether the AER has the power to examine and determine the MAB. In the context of the large variation in Energex's and Ergon's MAB, the AER argued that:[45]

> *There are various reasons why the MABs of Energex and Ergon Energy can differ. For example, the amount of past capex and depreciation differs across both service providers. We do not currently have powers to review past capex on meters. This means a key driver behind Energex's relatively higher opening MAB cannot be reviewed as part of our regulatory processes.*

This raises the question whether the AER has adequate power to determine the MAB under the current rules. Based on the AER's position in relation to Energex, it may lack sufficient power to amend the MAB proposed by a distributor. The AEMC could consider amending the rules to clarify the AER's powers and to specify a valuation methodology for determining the MAB.

[43] Energex meters at an average value of $206 per meter compared to Endeavour meters at an average value of $14 per meter.
[44] Energex provides information that 298,163 of its meters or almost 14% of its meters are 35 years of age or older: AER, *Energex determination 2015–20, Attachment 16 – Alternative control services*, p. 16-45, table 16.16.
[45] AER, *Energex determination 2015–20, Attachment 16 – Alternative control services*, pp. 16-37 to 16-38.

6.1 Capital spending on existing meters

Table 4 below shows that new capex approved by the regulator in NSW, South Australia, and Queensland is high as a proportion of the MAB. The new capex ranges from a low of 7 per cent for Energex to a high of 85 per cent of the existing MAB for Ergon. As Energex's MAB and to a lesser extent Ausgrid's MABs are unusually high as discussed earlier, this may have the effect of making the capex spending as a percentage appear unusually low. Accordingly, the new capex programs have also been expressed as a percentage of the average meter value across the six networks ($91), i.e. as a levelised capex/MAB, which may be a fairer way of comparing relative capex among distributors. On the levelised capex/MAB measure, capital expenditure ranges between a low of 12 per cent for Endeavour and a high of 55 per cent for Ausgrid.

Table 4: New capital spending on accumulation and interval meters by distributors ($2014-15)

	Ergon	Essential	SAPN	Endeavour	Energex	Ausgrid
Capex accepted by regulator	51.3	46.6	10.6	14.6	29.4	117.8
MAB set by AER	60.7	94.6	85.3	18.8	448.8	267.2
Capex/MAB (%)	85	49	12	78	7	44
Levelised capex/MAB (%)	44	35	14	12	15	55

Source: Distributor Regulatory Proposals and AER decisions.

Commentary

The proposed capital expenditure by Ausgrid is particularly notable as:[46]

- The approved capex program over the 2014-2019 regulatory control period is $117.8m compared with a MAB of $267.2m (44 percent);
- Of this new capex, about $80m is in *new* type 5 and 6 meters ($25.6 for replacement of meters and $53.2m for the rollout of new meters); and
- The approved capex for new metering represents a 97 per cent increase in new capex on metering from the 2010-2015 regulatory control period.

The proposed capex program by Ergon is also notable as the capex program is $51.3m compared with an approved MAB of $60.7m (or 85 per cent of the MAB).[47]

The major forward capex programs for type 5 and 6 meters is surprising given that the AER has provided that after the start of the next regulatory control period, customers must pay upfront for any new meter (whether type 4, 5, or 6) and this cost will not be allowed for in forecast capex. For example, the AER's decision in respect of Energex provides that:[48]

[46] AER 2014, *Ausgrid Final decision 2015–19: Attachment 16 – Alternative control services*, p. 16-33, and Ausgrid Regulatory Proposal *Attachment 8.21 - Energeia review of Ausgrid's metering tariffs*, pp. 5, 22, 35. Expressed in $2014-15.

[47] AER 2014, *Ergon Preliminary decision 2015–20: Attachment 16 – Alternative control services*, p. 16-23. Expressed in $2014-15.

[48] AER, Energex Preliminary Decision, Attachment 16 – Alternative control services, p. 16-21.

For regulated new [type 5 or 6] meter connections installed after 1 July 2015, the capital costs will be paid upfront by the customer. As such, no capital expenditure related to new meter connections installed after this date will be added to the metering asset base.

This would indicate that:

- The distributors, some more so than others, expect to continue to spend strongly on expansion of their MAB;
- Depending on depreciation profiles, and the proportion of spending on new metering assets compared to the existing MAB, some MABs could be expected to continue *expanding* rather than shrinking over time, particularly over the course of the next regulatory control period in some distribution areas in NSW and Queensland;
- Over time rising MABs may drive exit costs *higher* rather than lower, with implications for users who have switched to smart meters. These users may find that their annual residual capital cost associated with paying off their old accumulation meter *rise* from year to year, and thus their initial private cost-benefit analysis of the net benefits of switching to a smart meter is wrong;
- Exit costs are unlikely to be clear and transparent as recommended by the AEMC in their Power of Choice review, reasonable, or less than three times the annual metering charge; and
- It may be difficult for new entrants to metering provision and servicing to compete with distributors in the provision of new meters given distributors have large forward capex budgets for provision and installation of new meters.

6.2 Operating expenditure on existing meters

Table 5 below sets out the approved operating expenditure for each of the distributors, the approved opex as a percentage of the MAB, and a levelised opex as a percentage of an average MAB.[49]

Table 5: Approved operating expenditure to maintain existing metering asset base ($m, 2014-15)

	Ergon	Essential	SAPN	Endeavour	Energex	Ausgrid
Forecast opex approved by AER	118.6	124.7	34.9	71.7	78.6	111.0
MAB set by AER	60.7	94.6	85.3	18.8	448.8	267.2
Opex/MAB (%)	195	132	41	381	18	42
Levelised opex/MAB (%)	102	93	46	58	40	52

Source: Distributor Regulatory Proposals, 2014.

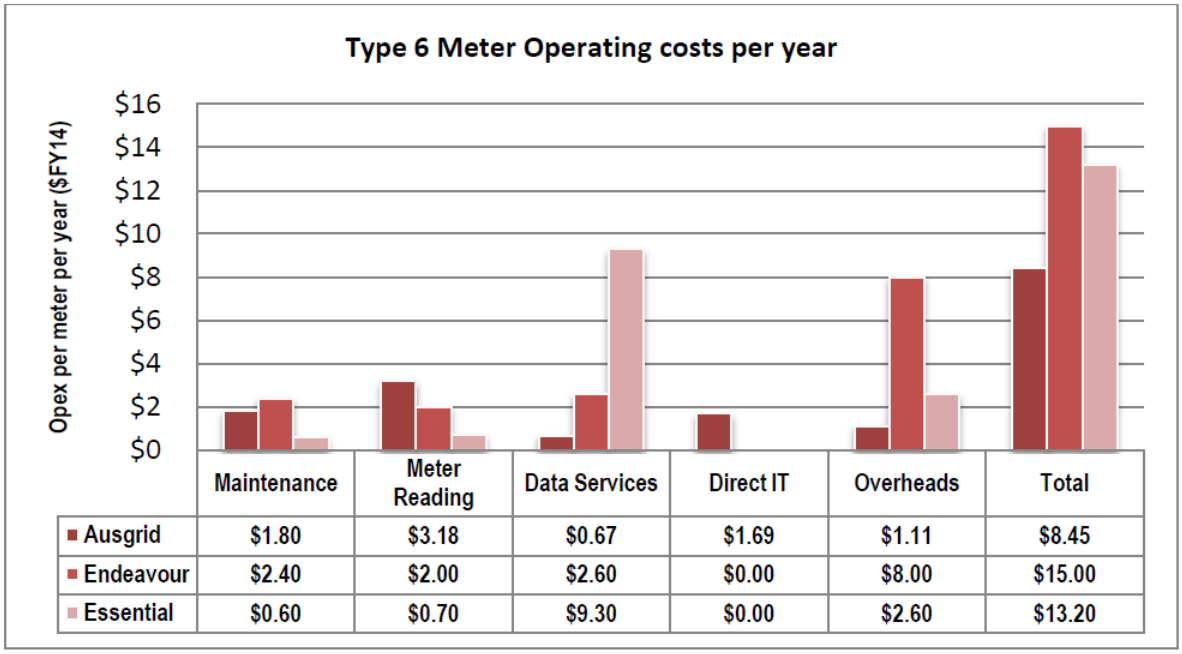
Commentary

As with the MAB and proposed capital spending, there are big variations in proposed opex. While it could be expected that rural-based distributor opex costs would be higher than urban-based distributor opex, the unusual aspect of the opex proposals is that the components vary very considerably among the distributors. This is illustrated in Ausgrid's regulatory proposal. Ausgrid set

[49] Similar to levelised capex, levelised opex is calculated by adjusting for the average opex per meter across the six distributors.

out the variations in the component costs that make up the operating costs per year in their regulatory proposal. This is extracted as Figure 2 below.

Figure 2: Components of opex costs for NSW distributors

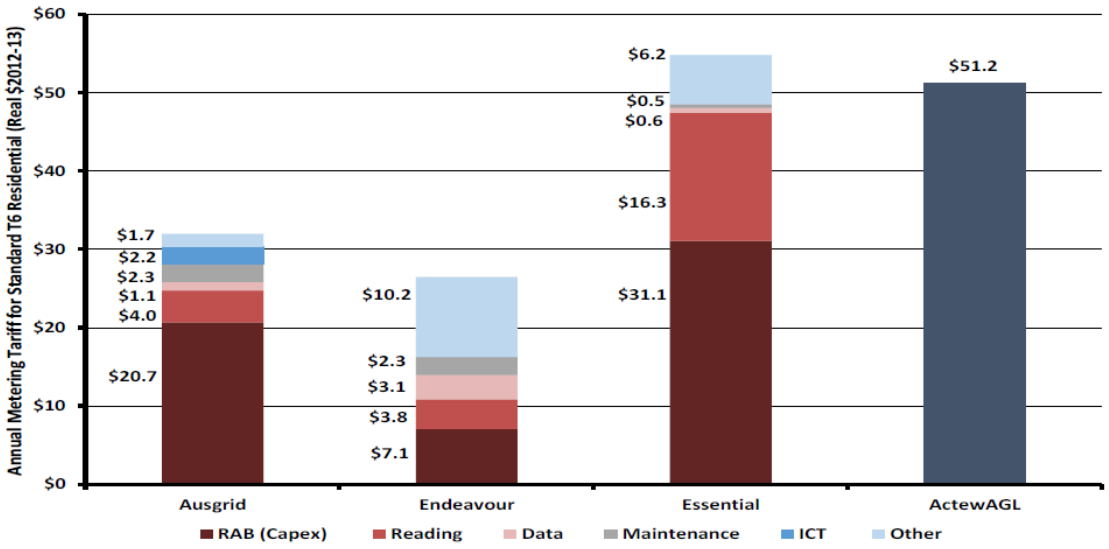


	Maintenance	Meter Reading	Data Services	Direct IT	Overheads	Total
Ausgrid	$1.80	$3.18	$0.67	$1.69	$1.11	$8.45
Endeavour	$2.40	$2.00	$2.60	$0.00	$8.00	$15.00
Essential	$0.60	$0.70	$9.30	$0.00	$2.60	$13.20

Source: Ausgrid Regulatory Proposal 2014, *Attachment 8.15 Type 5 & 6 metering services proposal*, p.27

Figure 3 illustrates in another way for NSW and ACT distributors the wide variation in annual costs (across all cost drivers).

Figure 3: Variations in proposed annual costs of provision of type 5 and 6 meters



Source: Ausgrid Regulatory Proposal, Attachment 8.21: Energeia review of Ausgrid's metering tariffs, May 2014, p. 61

These variations in operating and annual costs seem irreconcilable.

The AER needs to explain and account for these large variations in its regulatory determinations, which it has not done to date.

There may be a role for the new AEMC rule to clarify the AER's approach to setting the allowed opex and capex for the existing metering base in order to ensure metering charges are not too high and the costs of exiting existing meters (which is partly driven by the MAB and forward capex allowance) do not present a barrier to expanding competition in metering services.

6.3 Recognition of opex and capex savings from the installation of smart meters

One of the benefits of the introduction of smart meters identified in the draft rule is the saving in opex and capex to the distributors. These savings come in a number of forms, including savings in meter reading, connection and disconnection costs, quicker fault detection, and capital and operating expenditure savings arising from shifting demand from peak to shoulder or off-peak times. As has been noted by past studies, a substantial portion of the benefits identified through cost-benefit analyses of smart meter rolls outs accrue to distributors.[50]

The AER has not recognised any capex or opex savings in the forthcoming NSW, South Australian, or Queensland regulatory control periods arising from installation of smart meters. Thus consumers do not receive any benefit, at least for the next regulatory control period, from the savings arising to distributors from the installation of smart meters. This is in contrast to the situation in Great Britain, where Ofgem has promised to start recognising the savings flowing from the smart meter rollout from the *start* of the rollout program.

6.4 Fees for installation of new meters

Table 6 lists estimated fees for installation of new accumulation meters across the NSW, South Australian, and Queensland distribution networks. The fees vary widely. While rural-based distributors might be expected to pay higher fees, the Essential fees are the lowest among the cohort at $35.5, while the Ergon fees are the highest at around ten times this amount or $339.[51]

Table 6: Upfront meter installation fees

	Ergon	Essential	SAPN	Endeavour	Energex	Ausgrid
Upfront meter installation fees	339.0	35.5	295.0	41.9	273.9	47.7

Source: Distributor Regulatory Proposals, 2014. $2014-15

As before, the wide variation in fees appears difficult to explain and a concern in relation to its impact on competition, particularly for those customers who are accustomed to dealing with the incumbent distributor in relation to meter supply and who might assume that their offer represents the best value offer in the market.

[50] NERA 2008, *Cost Benefit Analysis of Smart Metering and Direct Load Control: Overview Report for Consultation* (Report for the Ministerial Council on Energy Smart Meter Working Group). NERA estimated $2.1 to $2.9b out of total net benefits of $4.5 to $6.7b, or roughly half the total net benefits accrued to distributors.
[51] In some cases the fees are the basis for calculating the cost of meter installation rather than proposed upfront fees for meter replacement.

6.5 Exit costs

Distributors have proposed to charge exit fees for users switching from existing accumulation or interval meters to smart meters.

The exit fees are said to reflect the residual capital costs of accumulation and interval meters that are written off when such meters are replaced with a smart meter. The distributors also proposed that the exit fee include a component for administration costs associated with transfer of the user to a smart meter.

The AEMC set out recommended criteria for the AER in setting exit costs in its 2012 Power of Choice (stage 3) report. As summarised by Ausgrid, these were:[52]

> *The AEMC considers that the exit fee be determined by the AER in order to provide sufficient transparency for all parties regarding fees, and certainty to networks that they are able to recover costs appropriately. The AEMC proposed a set of criteria for the AER to have regard to when making an exit fee determination. Among other things, these included:*
>
> - *the exit fee must be reasonable;*
> - *the exit fee must be based on the average remaining asset life of the existing meter type and operating costs;*
> - *the exit fee may include efficient and reasonable costs of processing the consumer transfer to another Responsible Person;*
> - *a cap must be placed on the exit fee. We consider that this should be, at a maximum, no more than three times the annual metering charge. This is to provide consumer confidence that costs will not be exceedingly high when willing to change their meter;*
> - *the DNSP must remove the cost of the replaced metering installation from its asset base and reduce the DUOS tariff to the retailer accordingly; and*
> - *the existing contribution that consumers have already paid towards the existing metering stock.*

The exit fees proposed by distributors in the current round of electricity distribution reviews reflect a wide variation, as evidenced in table 7 below. The exit fees, including administration fees, vary widely in a range from $65.70 for Endeavour to a high of $290 for Energex. When compared with the proposed annual fees for metering, the exit fees vary from a multiple of 1.6 for Ergon to 7.4 for Energex, with three of the multiples being in excess of the AEMC recommendation of a maximum multiple of 3 times.

[52] Ausgrid Regulatory Proposal 2014, *Attachment 8.15 Type 5 & 6 metering services proposal*, p.25 citing AEMC 2012, *Final Report Power of choice review – giving consumers options in the way they use electricity*, November, Sydney, p. 87.

Table 7: Proposed exit fees

	Ergon	Essential	SAPN	Endeavour	Energex	Ausgrid
Proposed exit fee	137.0	131.6	212.0	65.7	290.0	195.2
Annual fee	85.3	48.7	33.0	26.2	39.2	34.7
Exit fee as a multiple of annual fee	1.6	2.7	6.4	2.5	7.4	5.6

Source: Distributor regulatory proposals for 2014 and 2015 resets, stated in $2014 and $2015

The AER has proposed[53] that instead of exit fees, users replacing meters would continue to pay residual capital costs (although not operating costs). It is understood that users would continue to pay the residual capital cost until the MAB depreciates to zero. The AER disallowed the administrative component of the exit fee.

The AER's approach avoids the need for the user to pay an upfront exit fee. However, in essence it provides for a similar approach in that the residual fee is based on the average meter cost under the MAB. Thus the suitability of the AER's approach depends on whether the MAB is appropriately valued, as the MAB drives the calculation of the residual fee paid by users migrating to smart meters. As noted above, the valuation of the MAB has been problematic in that a wide variety of valuation methodologies and values have been proposed and accepted by the AER.

As noted above, given the significant approved capex inflows to the MABs for the next regulatory control periods in some distribution areas in NSW and Queensland (although not in South Australia where the capex proposal is more modest) exit costs may rise over the course of the regulatory control period. This may cause confusion for consumers, change the terms of their private cost-benefit equation, and move the exit arrangements and costs away from those recommended by the AEMC in 2012.

6.6 Summary of disparities in meter costs among distributors

As indicated above, there are major disparities among the group of six distributors across a number of measures of the cost of existing metering. Comparing the highest cost distributor to the lowest cost distributor on a range of measures finds that:

- The most expensive meters in the distributor group cost 10 times the least expensive;
- The most expensive annual fee for a meter is 3 times the least expensive;
- The most expensive cost of installation for a new meter is 10 times the least expensive; and
- The most expensive exit fee is 4 times the least expensive.

The full set of multiples reflecting the relative disparities among the six distributors is listed in table 8 below.

[53] The AER has made a final decision in NSW and a preliminary decision in Queensland and South Australia.

Table 8: Multiples in cost from most expensive to cheapest distributor

Measure	Multiple	Most expensive to least expensive distributor
Average meter value	10	Energex compared to Endeavour
Opex per meter	3	Ergon compared to Energex
Capex per meter	4	Ausgrid compared to SAPN
Installation fees	10	Ergon compared to Essential
Exit fee	4	Energex compared to Endeavour
Annual fee	3	Ergon compared to Endeavour

Source: Distributor regulatory proposals for 2014 and 2015 resets, stated in $2014 and $2015 and private analysis

6.7 Opt-out approach in the AEMC draft rule

The AEMC draft rule is expressed as supporting consumer choice of smart meters. However, as designed, it provides that "if a retailer proposes to undertake a "new meter deployment" (as defined in the draft rule), the draft rule requires the retailer to allow a small customer to opt-out of having their meter replaced as a part of that deployment".[54]

In determining the balance of opt in or opt-out provisions, it is important to recognise that the benefits to individual users from migration to smart meters will vary considerably and will in some cases be negative. Thus, there are significant dangers in implementing an opt-out approach to the adoption of smart meters. Where a user is not fully engaged with a retailer, or misunderstands his or her choices, then his or her meter may be changed to a smart meter in circumstances where this is not to his or her benefit. QCOSS's submission provides a description of circumstances where the opt-out rule may impose net costs on users.

Further, the draft rule provides for a number of exceptions to the opt-out rule, effectively providing for compulsory migration to a smart meter in a range of circumstances discussed in Appendix C2 to the draft rule determination.

Where the user is not engaged or under the exceptions to the opt-out provisions, users may have to pay two sets of fees – for a smart meter that they did not want and for a new smart meter – in circumstances where they may not derive a benefit from switching to a smart meter. Noting above, that the MABs could be expected to grow with the approved new capex arrangements, consumers may be caught by surprise at increasing residual charges for their previous accumulation meters.

A further problem may arise from the fact that the minimum functional specifications for smart meters do not include load control. Where a user with existing load control and load control tariffs switches to a smart meter without load control functionality, he or she may unintentionally lose access to existing load control tariffs. Load control tariffs are at a major discount to standard domestic tariffs.

This might mean a loss of load control functionality for users with existing load control tariffs if new smarts are installed without load control functionality. It is noted that load control is part of the

[54] AEMC 2015, *Expanding competition in metering and related services, Draft Rule Determination*, 26 March 2015, Sydney p.vii.

minimum functionality in the NZ voluntary technical guidelines and the Great Britain mandatory technical guidelines.

6.8 Upfront payment for new meters

The draft AEMC rule provides for users to pay upfront for new meters, whether type 4, 5, or 6. This compares with the historical arrangement where meters have been paid for through the DUOS component of electricity tariffs.

The draft rule needs to deal with the following issues:

- *Tenancy agreements*: Meters become a fixture of the dwelling that they are attached to and provide benefits to that dwelling. Those benefits remain for the standard life of the meter (15 years for smart meters), which is likely to be well past the life of a tenancy agreement. Accordingly, the rules could provide that landlords rather than tenants should have to pay the upfront costs of meter installation. It may however be reasonable for tenants to pay for the operating costs of meters;
- *Affordability*: Some users may struggle to afford to pay upfront for meters. This may be exacerbated by the fact that concession arrangements may not cover payment for meters. There should be some mechanism to enable meters to be paid for over time.

7 Consumer protection issues identified in previous work

The draft AEMC rule specifies some consumer protections. Specifically, the draft rule protects data privacy and provides for opt-out provisions.[55]

While these provisions are not criticised, there remains the question whether they go far enough to protect consumer's rights. Some consumer protection issues have been highlighted earlier, including tenancy and affordability issues.

Consumer protections may be more important in these markets compared to other markets in view of consumer inexperience with paying for metering and the functionality of smart meters, and consumer confusion over exit arrangements where consumers switching to smart meters may have to pay off the capital costs of existing meters.

[55] See AEMC 2015, E*xpanding competition in metering and related services, Draft Rule Determination*, 26 March 2015, Sydney pp. 31-32. Under the opt-out provisions, "retailers must provide their small customers with prior written notice of a proposed replacement of the customer's working metering installation, which must include (amongst other things) details regarding the customer's ability to opt-out of having its metering installation replaced and the upfront charges the customer will incur under its retail contract as a result of the replacement".

NERA (2008) identified a range of consumer protection issues as part of its cost-benefit analysis of the introduction of smart meters. These are:[56]

- *The underlying regulatory framework for the introduction of smart metering should consider whether hardship policies and other consumer protections and assistance programs should be modified to ensure that existing protections are not eroded;*
- *Designing education programs about the introduction of smart metering and associated innovative tariff products to ensure that demand responses are maximised;*
- *New mechanisms for ensuring that households facing financial stress are identified and provided with information on assistance available prior to utilising remote disconnection functionalities;*
- *Providing an opportunity for households to readily shift between tariff products if they discover that they are actually financially worse off from the new tariff product offering;*
- *The need to consider the relationship between network businesses (offering TOU network tariffs and/or CPP) and the customer, given that most customers only receive a bill from a retailer and the retailer will not have an obligation to pass these new tariff structures onto customers. Alternatively an incentive mechanism could be designed to ensure that TOU tariffs and/or CPP are transparently conveyed by retailers to customers; and*
- *Ensuring that there is sufficient notice of critical peak events to provide the opportunity for a household to respond appropriately to pricing signals.*

In addition, in line with the arrangements in Great Britain (presented in Appendix 1), it may be worth reviewing the operation of remote disconnection to avoid as far as possible the possibility of accidental or premature disconnection.

8 Summary of issues

The benefits of smart meters accrue to a range of parties, including retailers, distributors, users, and generators.

This means that to provide its full potential benefits the technology has to be able to be in a format or use a protocol that can be accessed by all three groups. In particular, the smart meters will need to be able to support retail and billing functions, distribution functions (such as fault detection and load control) and provide useable information for users to make decisions.

This also means that some way has to be found for the investing party to be rewarded for sharing the benefits with the other parties.[57]

Sometimes the benefits are not seen as benefits. For example, if distributors earn a high rate of return on their assets then the benefit of needing to make lower future capital investments may not be seen as a benefit, particularly when set against the risk of stranding of the existing metering asset base. Generators benefit from having to invest lower capex, but from the perspective of individual

[56] NERA 2008, *Cost Benefit Analysis of Smart Metering and Direct Load Control: Overview Report for Consultation* (Report for the Ministerial Council on Energy Smart Meter Working Group), p. xxiii (footnotes omitted)

[57] Unless the investing party obtains sufficient direct benefits that they do not need to

generators, this is seen as a cost rather than a benefit. To the extent that smart meters enable demand-side participation by users, they are likely to lower the wholesale price, which individual generators are likely to see as a cost rather than a benefit.

In contrast, where meter owners are retailers, such as in NZ and Great Britain, a rollout of new meters has been easier to progress as retailers have been able to obtain sufficient benefits from smart meters to justify their rollout even at the cost of stranding their existing (depreciated) metering asset base. Moreover, there may be strong competitive tensions among retailers in rolling out smart meters. For example, in NZ there was strong competition from one retailer (Vector) which drove a competitive reaction from the other retailers reacting to the threat that Vector may take over metering for premises to which the other retailers were retailing.

Distributors have focussed primarily on protecting the value of their residual metering asset base. This means they have not welcomed the rollout of smart meters. As the owners of meters, this has made the rollout program more difficult in Australia, particularly where the rollout has focussed on requiring the rollout to be undertaken by the distributors rather than competitively or by retailers.

Some distributors have created barriers to the introduction of smart meters by raising the value of the metering asset base to make exit more costly. In addition, some distributors have proposed significant investment in *new* type 5 and type 6 meters to increase the metering asset base in the next regulatory control period. Another strategy some distributors have proposed is to accelerate depreciation of the existing which reduces future stranding risk (sometimes in conjunction with significant re-investment programs in new type 5 and 6 meters).

Distributors have also responded by already making major investments in smart-ready interval meters (e.g. Energex).[58] It is interesting to note that distributors have been able to recover these metering investments from the current regulatory control period even though the costs are higher than for type 5 or type 6 meters and the meters are yet to operate in smart mode.

Other issues include:

- Stakeholder engagement. A well-planned stakeholder engagement process is recommended as part of the initiation of any rollout, with stakeholders having a genuine opportunity to influence the direction of the program.[59]
- Transmission of the benefits of smart meters to users. In deregulated retail markets, competition is the mechanism for transmission of the savings accruing to retailers from smart meters. Thus, where competition is weak, users may not benefit from smart meters. Where retail markets are subject to price regulation, the transmission of benefits to users depends on the effectiveness of regulators in identifying the benefits to the retailer and adjusting tariffs accordingly.[60] Experience in Victoria and Great Britain has shown the

[58] It is understood that one of the reasons for Energex's high metering asset base is the high number of smart-ready meters in its asset base.

[59] Compare the recommendations in the Victorian Auditor-General report: Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure,* 2009-10:3, November 2009

[60] Where tariffs are subsidised, such as in regional areas within Queensland, the tariff is likely to be set below competitive levels in any case.

importance of the regulator allowing for savings from the rollout of smart meters in in the opex and capex allowances awarded to distributors. It is of concern that while the rollout of smart meters is expected to be underway by 2017, the AER has not made specific allowances for opex and capex savings[61] from their installation in regulatory control periods significantly overlapping the period after 2017, for example the NSW 2014-2019 regulatory control period, or the Queensland and South Australian 2015-2020 regulatory control period.[62]

- Implementation issues. It is important to settle questions such as who bears the technology and implementation risks and who bears the risks associated with higher than forecast costs.
- Explanation of major variations in metering asset bases. There are major, unexplained variations among the distributors' metering asset bases, as well as major variations in their forecast opex, and major variations in forecast capex (referring to NSW, Queensland, and SA distributors in the 2014-19 and 2015-20 regulatory control periods). The variations are not consistent with the concept that the cost of provision should be set at a benchmark level adjusted for significant variations in the operating environment. The AER has not explained the reasons for these variations. Consistent with its approach of moving towards efficient benchmarks for delivery of standard control services, the AER should account for these major variations.
- Compatibility of forecast capex on metering with change in policy towards competition and rollout of smart meters. A number of distributors are forecasting and have had accepted (at final or preliminary stage) major forward capex in respect of installation of *type 5 and type 6 meters* (in particular Ausgrid, Ergon, and to a lesser extent Essential). It is difficult to reconcile major new capex programs with the expectation that customers will pay upfront for any new type 5 and 6 meters installed after the start of the new regulatory control period.
- AER position that users switching to smart meters must pay an annual charge to recoup the average residual capital cost of their existing type 5 or type 6 meter. While the AER decision avoids the imposition of an upfront charge on users, it may be confusing for users. Users may be surprised to find after switching to a smart meter that they must continue to pay for their old type 5 or 6 meter. This is particularly likely to be true where the old meter failed or came to the end of its life.[63] Users may make a decision to switch to a smart meter without realising the full costs that they are incurring including annual capital charges in respect of their old meter.
- AEMC Expanding competition in metering rule change. This paper has identified a range of inconsistencies in the regulatory treatment of existing metering costs that could be the subject of clarification in the final rule due in November. In addition, the AEMC could consider modifying the opt-out provisions and consider the identified consumer issues involved in the transition to smart meters.

[61] For example, compare the step changes made by the AER in respect of Energex: Energex preliminary determination 2015–20, Attachment 7 – Operating expenditure, Table 7.6 at 7-29 to 7-30.

[62] It is noted that the AEMC rule change to expand competition in metering services is still in draft form as at August 2015.

[63] As the AEMC accepted it was not possible to determine the age of specific meters, it was accepted that users would have to pay a residual charge based on the average age of the meter stock.

In view of the success and lower cost of the rollout of smart meters in NZ, there may be virtue in considering alternatives to the AEMC rule change under which the AEMC simply forbids distributors from rolling out any type of meters in the future and provides that all new meters shall be installed and operated by retailers, users, or the third party agents of retailers or users. Retailers, distributors or users could elect to switch to smart meters at an earlier stage (with user agreement), but the electing party would pay the cost of the election.[64] There would be no barriers to retailers, distributors, or users agreeing to some early switching arrangement and sharing of the benefits.[65] This could be combined with an approach where management (but not ownership) of existing meters is transferred from distributors to retailers, users, or their agents after a short transitional period. Under this approach, all new meters would be smart meters and they would be installed at the end of the standard or natural life of existing type 5 or type 6 meters. The AEMC could enact a rule change to specify technical standards for smart metering, including a requirement for smart meters to have load control functionality. This approach might result in a simpler, lower cost, and less cumbersome approach than that proposed in the AEMC draft rule.

9 Conclusion

Expanding competition in metering and removing barriers to the introduction of smart meters for smaller users could provide net benefits for smaller users consistent with the National Electricity Objective. However, these benefits depend critically on the interaction between the rule and NER provisions for regulation of existing metering services.

Inconsistencies in regulatory approach could reduce the benefits for users from the rule change, both in respect of the provisions expanding competition in metering services and the provisions enabling the introduction of smart meters. The inconsistencies relate to the setting of the MAB and related exit cost, opex, capex, and upfront fees for new meters. These are matters for the AEMC to consider in determining the final rule.

The proposed consumer protection framework for users currently only covers data privacy and opt-out rights and could be strengthened to cover unanswered issues such as affordability and landlord and tenancy issues. The opt-out provisions may not be sufficient to protect the rights of consumers in a newly emerging market where the level of consumer knowledge and experience is very low.

From a user perspective, the adoption of smart meters will only be judged a success if the benefits accruing to distributors and retailers are passed through to users. These benefits will be passed through to users through effective regulation of distribution tariffs and through strong competition among retailers.

[64] If distributors elected to switch to smart meters, the new owner and operator would be the retailer, user, or third party agent of the retailer or user.

[65] There may need to be consumer protections to ensure residential and small business users are fully informed of costs and rights.

Appendix 1: Victorian and international experience with smart metering rollout

A1 Victorian experience

The experience with the rollout of smart meters in Victoria provides guidance on the assessment of costs and benefits. In Victoria:[66]

- The State Government has mandated that all residential and small business electricity customers in Melbourne and throughout the state must have a smart meter installed to ensure that the most benefits can be realised with the least cost to the community.
- For the small number of customers who continue to refuse a smart meter, from March 2015 distributors will be able to recover the cost of running a separate metering service. The meter-reading fee will need to be approved by the AER, which will determine if it is reasonable and cost reflective.
- Electricity customers now have a choice between flat rates and new flexible electricity pricing. Changing to flexible pricing is voluntary.
- The smart meters are owned by the distributors, who are responsible for their rollout.[67]
- The cost of the smart meter rollout is borne by the distributors and passed on to users through regulated tariffs.[68]

The process for determining the smart meter or advance metering infrastructure (AMI) charges is set out in the AMI Order in Council (the AMI OIC) made under the *Electricity Industry Act 2000 (Vic)*. This process involves the AER establishing a budget for the rollout of smart meters to Victorians.[69]

The AER periodically sets the budget for the rollout. For example, the AER set the 2012-2015 budgets for each of the five Victorian distributors in 2011.

Currently, for Victorian residential users the cost of smart meters is estimated to be a little below 10 per cent of their total average tariff.[70] The Victorian Auditor-General estimated the cost of smart meters for the average household at $760 (nominal undiscounted) from 2009 to 2015 in rollout installation and maintenance costs and related infrastructure.[71]

As costs are set on the basis of forecasts, distributors are required to revise the charges to apply in the next year based on actual expenditures incurred and any forecast expenditure updates. The AER must undertake an annual review of the distributors' actual costs and accept the actual costs as long as they have been audited and are within a specified range (either 10 or 20 per cent depending on the year) of the forecast.[72]

[66] http://www.smartmeters.vic.gov.au/
[67] AER, *Determination: Advanced Metering Infrastructure 2013 revised charges*, October 2012, p. 2
[68] AER, *Determination: Advanced Metering Infrastructure 2013 revised charges*, October 2012, p. 2
[69] AER, *Determination: Advanced Metering Infrastructure 2013 revised charges*, October 2012, p. 2
[70] ENA, Electricity Prices and Network Costs, April 2014, p. 1
[71] Victorian Auditor-General, Realising the benefits of smart meters, 2015-16:8, September 2015, p. xi.
[72] AER, *Determination: Advanced Metering Infrastructure 2013 revised charges*, October 2012, p. 2

The requirement for the AER to accept actual costs so long as they are within 110 or 120 per cent of forecast has been criticised by the Victorian Auditor-General's Office for reducing incentives on distributors to manage costs.[73] The Victorian Government later removed the provision for automatic allowance of cost overruns of 10 to 20 per cent.[74]

The cost of the rollout to users varies by distributor. The AER made a final decision on the distribution businesses' initial budgets and charges on 30 October 2009, and confirmed that 'on average, customers will pay $67.97 more in 2010 for metering services than in 2009'.[75] In 2010 there was an average increase of $53 on 2009 metering charges, with a further $25 increase in 2011.[76] The increase from 2005 to 2015 metering charges is understood to be around $100 per meter.

A1.1 Victorian Auditor-General reviews in 2009 and 2015

The Victorian Auditor-General's Office (VAGO) reviewed the Victorian smart meter rollout in 2009 prior to it getting properly underway. After completion of the roll-out of smart meters in Victoria,[77] VAGO then provided a post-implementation review in September 2015.[78] These two reports provide useful book-ends on the issues arising at the start of the roll-out program and of the likely realised costs and benefits of smart meters after roll-out.

The 2009 VAGO report found that the cost-benefit study behind the AMI decision was flawed and failed to offer a comprehensive view of the economic case for the project. There are significant unexplained discrepancies between the industry's economic estimates and the studies done in Victoria and at the national level. These discrepancies suggested a high degree of uncertainty about the economic case for the project.[79]

VAGO (2009) noted that the AMI project had significant implementation risks that have been underestimated in advice to government. It noted that these risks, which relate to technology and relationships with national systems and processes, have started to materialise and are likely to erode the projected net benefits. VAGO (2009) considered that the regulatory regime does not give the

[73] The Victorian Auditor-General's report notes that The revised OIC allows the distributors to incur actual expenditure of their approved budget plus a cost overrun of 20 per cent for the initial budget period (1 January 2009 to 31 December 2011) and 10 per cent for the next budget period (1 January 2012 to 31 December 2015) before the regulator examines the prudence of the expenditure incurred: Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure,* 2009-10:3, November 2009, pp. 16-17.
[74] http://www.smartmeters.vic.gov.au/about-smart-meters/government-review
[75] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure,* 2009-10:3, November 2009, p. 18
[76] AER website at http://www.aer.gov.au/node/2252.
[77] VAGO (2015) reports that, "By June 2014, the installation was 98.62 per cent complete": Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xi.
[78] VAGO website at http://www.audit.vic.gov.au/reports_and_publications/latest_reports/2015-16/20150916-smart-meters.aspx
[79] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. ix.

industry enough incentive to manage risks and associated costs that consumers are likely to pay. The project risks are therefore very likely to directly affect consumer prices.[80]

VAGO (2009) noted the regulator had recently determined that 'on average, customers will pay $67.97 more in 2010 for metering services than in 2009, with a further increase of $8.42 in 2011.' This was at odds with earlier cost-benefit estimates within DPI which had estimated that consumers would pay $40–50 a year for meter costs. Retailers could also pass their costs on to consumers, with one retailer recently indicating in a public statement that consumers may have to pay an extra $100–150 each year. If the project's emerging risks delay the installation of smart meters it is likely that consumers will face further cost increases and gain fewer benefits.[81]

VAGO (2009) criticised the rollout for not engaging in a program of stakeholder engagement: [82]

> *Project success relies heavily upon the engagement of stakeholders. Effective stakeholder consultation provides a fair opportunity to engage and influence project design. A stakeholder consultation plan identifies the stakeholders, their interests and the approaches to engage them in the project.*

VAGO (2009) noted that:[83]

> *In order for consumers to benefit from the cost savings incurred by the distributors through AMI, the distributors will need to pass on the savings through to retailers who will need to pass on the savings subsequently to consumers. If this doesn't happen, then the benefits may not accrue to consumers who then ultimately fund the implementation costs of AMI.*
>
> *Achieving full pass-through of AMI's 'bankable benefits' to consumers will require significant effort from the regulators. This is because, unlike many network investments, the expected benefits of the AMI project apply across many distribution business functions and services, ranging from meter reading to connection and disconnection costs. Also, the full realisation of AMI benefits related to improved industry efficiency could potentially take several years to become apparent.*

This highlights the important point that in order for consumers to benefit from the savings to distributors from the smart meter rollout, the AER will need to anticipate savings from the rollout and incorporate them into the distributors' capex and opex budgets.

[80] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 200, p. ix.
[81] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. ix.
[82] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. 23.
[83] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. 17.

VAGO (2009) report's recommendations included:[84]

- Develop, appropriately resource and implement a stakeholder engagement plan with a particular focus on addressing consumer issues arising from the AMI project
- Re-assess the economic viability of the AMI project
- Obtain assurance from Victoria's electricity distributors that their candidate technologies for AMI are capable of achieving the expected functionality and service specification prior to the further installation of these technologies in customer premises.
- Adopt the Department of Treasury and Finance's risk management guidelines as a basis for monitoring and managing the risks that threaten the economic viability of the AMI project.

Following the VAGO 2009 and other government reviews of the smart meter program, major changes were made to the program to ensure consumers receive the benefits and to continue with an improved rollout, which made delivery of consumer benefits the top priority.[85]

In September 2015, VAGO conducted a post-implementation review of the smart meter roll-out shortly after its completion. VAGO (2015) found that only about "80 per cent of original benefits are forecast to be realised, and consumers may experience a higher net cost than the most recent $319 million estimate".[86] VAGO 2015 found that "By the end of 2015, Victoria's electricity consumers will have paid an estimated $2.239 billion (nominal dollars, undiscounted) for metering services, including the rollout and connection of smart meters" and that "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".[87]

As noted above, the cost per average household was assessed at "$760 (nominal, undiscounted)" which was "11.4 per cent over distributors' original forecasts".[88]

Of the benefits realised, VAGO 2015 found that the:

- "benefits associated with the uptake of innovative tariffs and demand management—which has achieved only 2.5 per cent of expected benefits to be realised by 2014
- benefits that come from network operational efficiencies—which have achieved 49.32 per cent of expected benefits to be realised by 2014".[89]

VAGO 2015 noted the actual transfer of a number of types of benefits to consumers is unclear as these actions cannot be fully determined in advance. In essence these benefits (such as savings in

[84] Victorian Auditor-General, *Towards a 'smart grid'—the roll-out of Advanced Metering Infrastructure*, 2009-10:3, November 2009, p. x.
[85] See Victorian Government website at http://www.smartmeters.vic.gov.au/about-smart-meters/government-review. Also see VAGO website at http://www.audit.vic.gov.au/audits_in_progress/audit_details.aspx.
[86] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. iii, emphasis added.
[87] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. x (footnote incorporated into quote).
[88] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xi, footnote incorporated into quote.
[89] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xii.

the cost of meter reading) accrue to retailers and distributors and the passage of benefits to consumers depend on strong competition in retail electricity markets.[90] VAGO noted that only 0.27 per cent of consumers have taken up flexible electricity price offers.[91] This slow take-up is likely to result in slow realisation of benefits to distributors from savings in construction of network assets to cover peak demand.

VAGO 2015 also found that "… despite the work to date [to educate Victorian residential electricity users], market research conducted in early 2014 found that two-thirds of Victorians did not understand what the benefits of smart meters were and many were still unaware of the link between their smart meter and saving money on their electricity bills".[92]

VAGO also noted that "…, the impact that network tariff reforms will have on different community groups is not yet well understood, and for some consumers network costs could increase. DEDJTR [the responsible Victorian Department] should focus on developing a customer engagement program to explain the reasons behind these reforms, but also to protect vulnerable consumers from potential adverse impacts".[93]

VAGO recommended among other recommendations that DEDJTR effectively influence the AER as the regulator to pass on the benefits of network efficiency benefits from smart meters as part of distribution price reviews.[94]

A2 New Zealand experience

New Zealand installed the first smart meters in 2005 Central Hawkes Bay. Since then, smart meters have been rolled out in Auckland, Christchurch and Hawkes Bay among other cities.[95]

The latest estimates of smart meters installations vary between 800,000[96] and 900,000[97] out of approximately 1.9 million installation points. Smart meter suppliers and installers include VectorAMS and Arc Innovations, which were both set up by vertically integrated generator-retailer companies.

The rollout occurred as a result of market forces without mandating by regulators or government. However, the Electricity Commission (the then regulator in NZ) established voluntary AMI guidelines

[90] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xiii.
[91] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xiii.
[92] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xiv.
[93] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xv.
[94] Victorian Auditor-General, *Realising the benefits of smart meters*, 2015-16:8, September 2015, p. xvi.
[95] Aurora Energy and other electricity distribution companies, '*Smarter' Meters in New Zealand - Is the NZ Electricity Industry's rollout as 'smart' as it needs to be?* 28th January 2010, at http://www.auroraenergy.co.nz/userfiles/file/20100215%20Smarter%20Meters%20in%20New%20Zealand%20Rev%201.pdf.
[96] See Arc Innovation's website at http://www.arcinnovations.com/about-us
[97] See Vector AMS website at http://vectorams.co.nz/about-us;jsessionid=91B71C005732F04CBAFDCC306771AEC3.

on smart meter functionality in the 2008.[98] The guidelines provide that smart meters should, inter alia, support load control.[99]

Consultancy group Strata considered that the rollout of smart meters in New Zealand was affected by a number of factors including the deregulated ownership of metering components which meant that there were a large number of meter owners who were not bound to geographic areas or networks, and whose businesses involved investing in and maintaining meters.[100]

In 2009, the Electricity Commission (the then regulator in NZ) reviewed the rollout of smart meters to consider whether it was necessary to regulate or mandate the process.

The regulator noted that the roll-out of Advanced metering Infrastructure (AMI or smart meters and associated infrastructure) was being undertaken by the industry voluntarily, and at no additional direct cost to consumers. It noted this is different from the roll-out of AMI internationally, which is largely regulated. One key factor that has been identified as assisting in the rollout has been Electricity Governance Rules Part D Rule 3.1, which make retailers solely responsible for metering.[101] Retailers have been able to justify the rollout of smart meters based on the savings in their operating costs.

The Electricity Commission report found the cost of smart meters was not much above the cost of traditional meters under a scenario where the retailer engaged in a substantial deployment:[102]

> *In a 2008 report,18 LECG noted that the market rate for leasing an advanced meter in New Zealand was approximately $75 per annum where a retailer was prepared to enter into a long term, high volume contract (e.g. for several hundred thousand meters). That is reasonably close to the $55-$60 p.a. cost of leasing a basic meter.*

The regulator decided not to regulate the rollout of AMI as it was being successfully rolled out at no additional direct cost to consumers, whereas regulation is likely to create costs for consumers.[103] Other reasons why the regulator recommended that it was not necessary to mandate a roll-out of AMI were that:[104]

- The current roll-out of AMI is happening within an acceptable timeframe;

[98] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. 5 at https://www.ea.govt.nz/dmsdocument/6080
[99] Electricity Authority, *Guidelines on Advanced Metering Infrastructure*, Version 3.1, November 2010, p. 8
[100] Strata Group (Robert Reilly), NZ metering arrangements - lessons for Australia? AEMC Public Forum Melbourne 3 October 2012 at http://www.aemc.gov.au/getattachment/760a0c35-a460-404d-9f56-dc43c7e36b1a/Strata-Energy-Consulting.aspx
[101] Aurora Energy and other electricity distribution companies, '*Smarter' Meters in New Zealand Is the NZ Electricity Industry's rollout as 'smart' as it needs to be?* 28th January 2010, p. 3 at http://www.auroraenergy.co.nz/userfiles/file/20100215%20Smarter%20Meters%20in%20New%20Zealand%20Rev%201.pdf
[102] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. 13 at https://www.ea.govt.nz/dmsdocument/6080
[103] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. B at https://www.ea.govt.nz/dmsdocument/6080
[104] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, p. B at https://www.ea.govt.nz/dmsdocument/6080

- Competition means that the full potential of AMI systems being rolled out is being realised where it is economic to do so, and the financial risk of investment in AMI systems is not currently being met by consumers;
- AMI technology is not fully developed, creating a risk that regulating now may create additional costs and result in AMI systems becoming obsolete;
- There is a high level of compliance with the voluntary Guidelines.

Submissions to the regulator noted that some retailers had bought stripped down meter and communications hardware which met their functionality requirements but which does not fully comply with the Electricity Commission's voluntary Advance Meter Infrastructure (AMI) guidelines, and which may not have support use by distributors.[105] Accordingly, the regulator decided to regulate some technical aspects of AMI systems including:[106]

- Requirements to use for common information exchange formats and protocols specified by the Electricity Commission (to make it easier for participants to efficiently communicate with AMI systems);
- Information access and privacy rules; and
- Limits on the operation of AMI systems in pre-pay mode to avoid disconnection due to communication errors.

Today the features of the New Zealand smart metering market are:[107]

- Split between Vector AMS (45%), retailers (40%) and distributors (15%);
- Metering is a contestable service;
- Retailers can choose with whom they contract;
- Prices are unregulated;
- Access to metering data is unregulated;
- The NZ High Court confirmed that metering is not a local monopoly because meters are "sufficiently substitutable".

A3 Great Britain experience

In Great Britain, metering is the responsibility of retailers.

Great Britain has mandated the rollout of smart meters to residences and small businesses for both electricity and gas. The obligation applies to all retailers that have more than 250,000 customers.

[105] Aurora Energy and other electricity distribution companies, '*Smarter' Meters in New Zealand Is the NZ Electricity Industry's rollout as 'smart' as it needs to be?* 28th January 2010, p. 3 at http://www.auroraenergy.co.nz/userfiles/file/20100215%20Smarter%20Meters%20in%20New%20Zealand%20Rev%201.pdf

[106] Electricity Commission, *Advanced Metering Infrastructure in New Zealand: Roll-out and Requirements*, December 2009, pp. B-C at https://www.ea.govt.nz/dmsdocument/6080.

[107] Strata Group (Robert Reilly), NZ metering arrangements - lessons for Australia? AEMC Public Forum Melbourne 3 October 2012 at http://www.aemc.gov.au/getattachment/760a0c35-a460-404d-9f56-dc43c7e36b1a/Strata-Energy-Consulting.aspx

The rollout started around 2015 (with some trials prior to that) and is due to be completed by 2020 with the rollout of about 50 million smart electricity and gas meters to 30 million premises.[108] At the end of March 2015, around 1.65 million smart meters (comprising both electricity and gas smart meters) had been installed in domestic and small business premises.[109] Smart meters are operating in smart mode in about 2 per cent of domestic premises and 20 per cent of small business premises.[110]

The rollout is required as a licence condition in retail licences.[111] Under the rollout, users do not have to pay for their smart meter or digital display upfront. Instead the cost will be included in the users' energy bill.[112] The roll-out and installation of smart meters across Great Britain is supplier-led and energy suppliers are free to plan their own installation strategy and schedule.[113] However, from 2016 the larger suppliers must submit rollout plans which will include binding and enforceable annual milestones, and the regulator may take enforcement action should suppliers fail to meet their own targets.[114]

Smart meters must meet the Smart Meter Equipment Technical Specification (SMETS) and have functionality such as being able to transmit meter readings to energy suppliers and receive data remotely, and load control functionality.[115]

The Government has also legislated for:[116]

- the introduction of a new licensable activity relating to communications between suppliers and other parties and smart meters in consumer premises and the appointment of a Data and Communications Company to carry out this licensed activity; and
- the introduction of a new Smart Energy Code which sets out the rules, rights and obligations for all parties for the new smart metering arrangements in Great Britain

The responsible Department (Department of Energy and Climate Change) and the regulator (Ofgem) released a joint letter in December 2014 outlining their respective responsibilities and powers, and their expectations from the rollout. The letter has stated that:[117]

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[108] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 p. 23

[109] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 pp. 4-5

[110] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 pp. 4-5

[111] Department of Energy and Climate Change website at https://www.gov.uk/guidance/smart-meters-information-for-industry-and-other-stakeholders

[112] UK Government website at https://www.gov.uk/smart-meters

[113] Department of Energy and Climate Change, *Smart Meters, Great Britain, Quarterly report to end March 2015 - Statistical Release: Experimental National Statistics*, June 2015 p. 6

[114] Department of Energy and Climate Change Ofgem joint letter, 12 December 2014 p. 3, at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386482/DECC_Ofgem_open_letter_on_smart_metering.pdf

[115] Department of Energy and Climate Change website at https://www.gov.uk/guidance/smart-meters-information-for-industry-and-other-stakeholders

[116] Department of Energy and Climate Change website at https://www.gov.uk/guidance/smart-meters-information-for-industry-and-other-stakeholders.

> *As part of the RIIO ED1 network price control, Ofgem expects electricity distribution network operators to deliver operational efficiencies and direct consumer benefits through their use of smart metering data. Ofgem will approve electricity distribution network operators' plans for obtaining smart meter consumption data from 2015.*

The letter also provided that:[118]

> *DECC and Ofgem are working further to ensure that consumers receive the full benefits of the rollout of smart meters.*
>
> *These initiatives include centralising registration as part of Ofgem's initiatives to introduce reliable next-day switching and to introduce half-hourly settlement using data from smart meters.*

Ofgem has released a separate letter on how retailers can recover the costs of smart meters.[119] It provides that in practice, the cost of smart meters provided to domestic and small business users must be recovered across their entire customer base as part of their general tariffs. This presumably means that competition is relied upon to keep in check any moves by retailers to charge excessive amounts for the installation of meters.

[117] Department of Energy and Climate Change-Ofgem joint letter, 12 December 2014 p. 3, at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386482/DECC_Ofgem_open_letter_on_smart_metering.pdf.

[118] Department of Energy and Climate Change-Ofgem joint letter, 12 December 2014 p. 4, at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386482/DECC_Ofgem_open_letter_on_smart_metering.pdf.

[119] Ofgem website at https://www.ofgem.gov.uk/publications-and-updates/suppliers-responsibilites-and-restrictions-domestic-smart-meter-installation-costs.