Australian Government

National Measurement Institute

REGULATION IMPACT STATEMENT
IMPLEMENTATION FOR ELECTRICITY METERS

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Contents

1. INTRODUCTION

This Regulation Impact Statement (RIS) has been prepared by the National Measurement Institute to address the implementation of metrological controls for a subset of electricity meters, including domestic meters, in use for trade.

It is a result of the Kean review 1995 which was a review of Australia's Standards and Conformance Infrastructure. It recommended a national system of trade measurement, and resulted in the Commonwealth amending the National Measurement Act 1960 in 1999 to take responsibility for trade measurement in utility meters.

An explanatory memorandum, attached in Appendix A, clearly explains the background to, and assessment of, the amendments to the National Measurement Act along with the accepted method of implementation. The method which is outlined is to initially exempt all utility meters so that controls can be introduced once the infrastructure has been put in place. The exemption for domestic class water meters has already been lifted, taking effect on 1 July 2004, and the infrastructure is now in place to lift the exemption for a subset of electricity meters, including domestic meters.

1.1 The National Measurement Institute (NMI)

The National Measurement Institute is Australia's peak measurement organisation, responsible for the national measurement infrastructure and for maintaining Australia's primary standards of measurement. With particular relevance to this RIS, NMI operates under the National Measurement Act 1960 (Cth), to ensure measuring instruments are accurate and suitable for their environment.

1.2 Definitions

1.2.1 Electricity Meter

An electricity meter is any meter that measures electrical energy flowing through the meter. For the purposes of this paper, only electricity meters intended for use for trade are considered.

1.2.2 Sub-meter

An electricity meter that lies downstream from a main electricity meter. For instance, a multi-tenant building may have a main meter for the building and individual sub-meters for each tenant.

1.2.3 Transformer

A device that transfers electrical energy from one electrical circuit to another and enables the voltage and/or current levels to be reduced (or increased). For electricity meters, external transformers are external to the electricity meter and produce a reduced level of current (or voltage), proportional to the actual level of current (or voltage).

1.2.4 Transformer-operated meter

An electricity meter used with an external transformer.

1.2.5 Direct-connected meter

An electricity meter that does not operate with an external transformer, but is directly connected to the electrical circuit being measured.

1.2.6 Pattern Approval

Pattern approval is the process of assessing the quality of the design or type of electricity meter. Refer to section 2.2.3 for more information.

1.2.7 Verification

Verification is the process of assessing whether an individual meter operates within specified limits of error. Refer to section 2.2.4.

1.2.8 National Electricity Market (NEM)

The NEM is a wholesale market for the supply of electricity to retailers and end-users. It covers Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and Tasmania.

1.2.9 International Organisation of Legal Metrology (OIML)

The International Organisation of Legal Metrology (OIML) is an intergovernmental treaty organisation to which Australia is a member, and it was established, in 1955, to promote the global harmonization of legal metrology procedures.

2. THE PROBLEM

2.1 What is the problem being addressed?

The problem being addressed is the accuracy and metrological performance of electricity meters used for trade in Australia. Inaccuracies in electricity meters lead to unfair and inequitable charges for the supply of electricity. With the price of electricity on the increase, the potential impact on consumers is becoming ever more important. There is evidence of meters producing very inaccurate readings with discrepancies in the order of 13-14%[1]. This is discussed in more detail in section 2.5.

An inaccurate meter would lead to either over-charging or under-charging the customer. In either case, this introduces an inequity into the trade, to the benefit of some consumers and the detriment of others.

2.2 Background

As outlined in the introduction, the National Measurement Act 1960 was amended in 1999 as a result of the Kean review 1995 to take responsibility for trade measurement for utility meters. An explanatory memorandum, attached in Appendix A, provides a clear assessment and implementation plan.

The National Measurement Institute has developed standards and infrastructure for the testing and approval of electricity meters. This has been developed with extensive industry consultation and is currently adopted by most manufacturers and electricity suppliers on a voluntary basis. The understanding that it is currently adopted by most manufacturers is assumed based on the extensive consultation undertaken by NMI directed at all known manufacturers as well as industry

[1] See the submissions at http://www.measurement.gov.au/Pages/consultationelectricitymeters.aspx.

groups including AiGroup. NMI is well aware of the manufactures that have adopted the standards and requirements as NMI (formerly the National Standards Commission (NSC) prior to 2005) has issued certificates of approval since 2001. At the time of writing there have been 58 certificates of approval issued[2], and in fact all of the manufacturers who responded to the consultation have pattern approved meters. The number of separate manufacturers[3] who have obtained approval is 21, with about 14 corresponding to currently active certificates[4]. Refer to section 2.2.3 for more information on pattern approval. Furthermore, NMI has appointed utility meter verifiers for the verification of utilty meters. At the time of writing, there are currently seven appointed utility meter verifiers[5]. Refer to section 2.2.4 for more information on verification.

There is currently an exemption in place for electricity meters in the National Trade Measurement Regulations 2009 (Cth), and one of the proposed options for addressing this problem is to lift this exemption.

2.2.1 The National Measurement Act

The National Measurement Act 1960 (Cth) contains, amongst other things, requirements for measuring instruments in use for trade. Common examples of measuring instruments used for trade include weighing scales, such as those at supermarket registers, and petrol pumps. However, the scope extends to all measuring instruments (other than instruments specifically exempted).

2.2.2 The exemption for electricity meters

The National Trade Measurement Regulations 2009 (Cth) contains an exemption (Regulation 5.6) for certain classes of utility meters, including electricity meters, from the operation of relevant sections of the National Measurement Act 1960 (Cth). The exemption for certain categories of water meters has already been lifted, and at this stage the exemption remains in place for electricity meters and gas meters. The exemption was put in place to allow adequate time for the necessary standards and infrastructure to be established. As discussed below, the standards for pattern approval and verification have now been established. The infrastructure, which enables pattern approvals and verifications testing to be performed and assessed, has also now been established.

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[2] Certificates of approval issued by the NMI are published on the NMI website here: http://www.measurement.gov.au/Publications/CertificateOfApproval/OtherInstruments/Electricity_utility_Meters/Pages/default.aspx.

[3] The actual number of manufacturers is somewhat variable as manufacturers have merged and changed names over time.

[4] Currently active certificates correspond to those not expired or cancelled. It should be noted that 16 of the 58 certificates have expired or been cancelled. An expired or cancelled certificate simply means that the particular approved meter type is no longer being manufactured. Meters manufactured prior to the certificate being cancelled are still pattern approved meters.

[5] Appointed utility meter verifiers are listed on the NMI website here: http://www.measurement.gov.au/measurementsystem/Pages/LegalMetrologyAuthoritiesAppointed.aspx.

2.2.3 Pattern Approval

Pattern approval is the process of assessing a type or model of electricity meter. The aim of pattern approval is to assess how the meter performs under various operating conditions and disturbances such as temperature variations, electrical interferences, voltage variations and harmonics. Pattern approval also involves assessment of the markings and display of measurement values. Meters should be marked with the specifications such as rated voltage, and accuracy class for which the meter is designed (and approved) to ensure that meters are used appropriately.

NMI has produced, through stakeholder consultation, a document titled, NMI M 6-1 Electricity Meters[6], that sets out requirements for pattern approval of electricity meters.

2.2.4 Verification

Verification is the process of assessing whether an individual meter operates within specified limits of error. In other words it ensures that individual meters are operating accurately, and therefore the amount of energy that a meter registers (and used to determine how much is to be paid for that energy usage) is known to be accurate.

NMI has produced, through industry consultation, a document titled, NITP 14 Utility Meters[7]. This is a national instrument test procedure (NITP) that prescribes the test procedures for the verification of electricity meters (and other utility meters).

Under the National Measurement Act, verification is assessed in accordance with the national instrument test procedures, and must be performed by an appointed utility meter verifier, appointed by NMI.

2.2.5 International Organisation of Legal Metrology (OIML)

Australia is a member of OIML and under Section 19A(7) of the National Measurement Act 1960 (Cth) regulations shall not be inconsistent with recommendations published by OIML, unless the inconsistency is in the national interest or it is not practicable to be consistent because of particular circumstances applying in Australia.

The relevant OIML recommendation for electricity meters (OIML R 46) is currently close to publication having been approved by the international OIML technical committee. The NMI publication NMI M 6-1 mentioned above is well-aligned with the draft OIML recommendation.

2.3 Current Situation

As discussed above, the National Measurement Act was amended following the Kean review 1995 to take responsibility for trade measurement of utility meters, and this was implemented by including an exemption under the Act ahead of establishing required standards and infrastructure.

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[6] The document NMI M 6-1 Electricity Meters is available for download at: http://www.measurement.gov.au/Publications/PARequirements/Pages/default.aspx.

[7] This is available at: http://www.measurement.gov.au/PUBLICATIONS/NMIVDOCUMENTS/Pages/default.aspx

In the meantime, other regulations related to electricity meters have come into effect under state and territory regulations. There are three different regulatory environments, each discussed below.

2.3.1 National Electricity Rules (NSW, Qld, Vic, SA and Tas)

The National Electricity Rules (NER)[8] apply to participants in the National Electricity Market (NEM). The NEM extends across New South Wales, Queensland, Victoria, South Australia and Tasmania[9].

The National Electricity Rules principally relate to the economic regulation of the National Electricity Market, covering topics such as registration, market rules, and settlements. However, Chapter 7 of the rules also includes requirements on metering which includes a section requiring valid pattern approval issued under the authority of the National Measurement Institute. Verification is slightly different. The term is defined in the National Measurement Act and has the meaning of complying with accuracy requirements when tested in accordance with certain test procedures known as National Instrument Test Procedures (NITPs). It is analogous to accuracy testing which is required under the National Electricity Rules, and the relevant procedures are in practice the same or very similar. Further information on verification is given below in section 5.2.2 including details of utility meter verifiers currently appointed and performing verifications in accordance with the National Measurement Act.

Most electricity meters within the region covered by the NEM are part of the NEM, but not all. In particular, some sub-meters are operated by a participant in the NEM while others are not. Sub-meters may be found in locations such as residential apartment blocks, strata residences, commercial or industrial complexes or caravan parks. The number of sub-meters that are not part of the NEM is not known, but is recognised as a category of meter that is not covered by existing regulation. The need to regulate sub-metering is further discussed below in section 2.4.

2.3.2 Electricity Industry Metering Code 2005 (Western Australia)

In Western Australia, the Electricity Industry Metering Code 2005[10], requires meters to comply with the applicable requirements specified by the National Measurement Institute under the National Measurement Act 1960 (Cth). Of course, at present this corresponds to no regulation in Western Australia because the National Measurement Act currently contains an exemption for electricity meters. However, it demonstrates that the Code recognises the importance and relevance of the requirements and is primed to complement the regulation that would be brought into effect by the National Measurement Act 1960 (Cth).

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[8] The Rules are made under the National Electricity (South Australia) Act 1996 which can be found at the South Australian Legislation website: http://www.legislation.sa.gov.au/index.aspx.

[9] The Australian Energy Market Operator (AEMO) operates the National Electricity market. The website is http://www.aemo.com.au/.

[10] The Electricity Industry Metering Code 2005 may be found at the State Law Publisher website of the government of Western Australia: http://www.slp.wa.gov.au/Index.html.

It should be noted the Western Australian Electricity Act 1945 does contain requirements around electricity metering, principally relating to the provision of meters and the rights of consumers to have them tested. Upon testing meters are required to register within 2%. However, this Act makes no provisions relating to the metrological properties of electricity meters at design or installation. Specifically, there is no requirement analogous to pattern approval or verification.

2.3.3 Northern Territory

In Northern Territory, there is currently no known applicable regulation covering the accuracy and performance of electricity meters.

2.4 Why is regulation needed?

As discussed in the introduction, the decision that there was a need to regulate utility meters (electricity, water and gas) was made following the Kean review 1995 with amendments made to the National Measurement Act 1960 in 1999. The background, assessment and implementation of this are detailed fully in the explanatory memorandum attached in Appendix A.

Regulation is needed to ensure that electricity meters are accurate and fit for purpose. Accurate means that the meter operates within limits of error (for example, the meter reads within 1% of what the meter should be reading). Fit for purpose means the meter is not affected (outside acceptable limits) by operational or environmental conditions such as voltage variations or temperature. Refer to the pattern approval and verification sections (2.2.3 and 2.2.4) for more information.

The existing regulations for electricity meters cover most meters in Australia, so the proposed regulatory change (see 4.2 Option 2) merely seeks to close the gap and create a level playing field for all consumers by ensuring that regardless of where one lives, they will be provided with nationally consistent and equitable levels of consumer protection for their supply of electricity.

Deregulation of the utility markets has enabled customers to have choice in their energy retailer, but utility distributors decide which type of meter to install, and customers do not have any choice in the selection of the meter. Whilst there are some incentives for distributors to want to use accurate and fit for purpose meters, there are competing incentives to choose lower cost meters and desirable features, and the resulting selection of meters is ultimately a business decision based on multiple factors, only one of which might be meter accuracy.

The accuracy of individual meters is far more important for individual consumers than the utility distributor. For the utility distributors, the total revenue across all meters may not be critically affected by the individual accuracy of each meter, but is more related to the average accuracy of the meters. In other words, there is some incentive for the utility distributors to have meters operating moderately close to accuracy, but if some are reading high and others are reading low, then it might be a reasonable assumption that they would cancel each other out – from the perspective of the utility distributor. However, the situation is vastly different for the individual consumer where one single meter determines the cost of their bill.

The same issue is even more apparent in the case is sub-metering. Sub-metering may be used to allocate a proportion of an energy bill amongst individual parties. There is little market incentive for the sub-metering provider to choose more accurate meters, as the total amount charged will not be affected; only the proportion that each party will be required to pay will change, and inaccurate meters will lead to unfair and inequitable charges.

For these reasons, it is considered that the accuracy and fitness for purpose of meters is not something that can be resolved by market forces, and regulation is considered to be necessary.

2.5 The Magnitude of the problem

There is evidence of meters with very high inaccuracies in the order of 13-14%. An example provided in response to the consultation is as follows. A sub-metering business attended a site where the building owner had installed a non-approved meter in series with an approved meter (where approved means pattern approved). The non-approved meter was installed for the purposes of checking the measurement. By being placed in series, the two meters would be expected to produce equivalent readings on energy usage.

It was found that there was a discrepancy between the two readings showing a 13-14% higher reading on the non-approved meter. The non-approved meter was then replaced with a second non-approved meter of the same type. It was then found that the second non-approved meter was showing a 9% lower reading than the approved meter.

Both of the non-approved meters were marked as complying with IEC standards as a class 1 (1% nominal accuracy) meter. IEC standards are discussed further in section 7.1.

The second non-approved meter was removed and replaced with another NMI pattern approved meter. It was then found that the two approved meters were reading within 0.43% of each other, which is within the nominal 1% accuracy.

This example illustrates the presence and magnitude of problems, particularly in the area of sub-metering, but does not in itself illustrate the scope of the problem.

A measure of consumer confidence, such as the number of consumer complaints, is often used as an indicator of the magnitude of a problem. However in the case of electricity meters, there are two principal reasons why this is not considered to be a relevant and achievable metric. Firstly, there is very little ability for the consumer to sense the actual amount of electrical energy consumed, and secondly significant data on consumer complaints is difficult to obtain. Each of these is discussed below.

Consumers generally have very little ability to determine or sense whether their electricity meter is accurate. There are several reasons for this. Firstly, unlike say buying apples, the amount of electrical energy being consumed cannot be seen or sensed directly. Furthermore, the measurement of energy is accumulative, and consumers are generally billed over an extended period (such as 3 months), making it extremely difficult to have a sense or recollection of the expected energy consumption. Energy bills commonly include graphs or comparisons to facilitate reconciliation with previous billing periods, but there could be various reasons for variations.

Variations in consumption may be attributed to leaving lights on or greater use of electric devices such as heaters, or newly purchased devices, so it is extremely difficult to assess what component of this is related to the accuracy of the meter.

The advent of smart meters has dramatically increased the complexity with a far greater level of abstraction from the comparatively simple traditional accumulation meter. Consumers with a smart meter may be billed by time of use, which means there is no longer a simple accumulated energy register that consumers can attempt to use to reconcile their bill. Instead, energy consumption at different times of day or different days of the week can be accumulated separately, with a different billing rate associated with each. The ability to sense whether your smart meter is operating accurately is all but impossible for even the most conscientious consumers.

The other reason why consumer complaints on meter accuracy are not considered as a viable indicator of the magnitude of the problem is that significant data is not easily obtainable. Utilities, retailers and sub-metering providers are understandably not willing to provide information on consumer complaints or details on detected meter inaccuracies. Similarly, meter manufacturers clearly have strong motivation to not share any information regarding meter inaccuracies.

Nevertheless, based on detailed but infrequent evidence such as the example given above which demonstrates the presence of wildly inaccurate meters, and an understanding of the lack of incentive to install accurate meters (particular in the area of sub-metering) the magnitude of the problem is reasonably assumed to be significant.

This is of course all in addition to the decision to regulate utility meters made back in 1999, fully explained in the explanatory memorandum attached in Appendix A.

Regulation of meters that achieves the aims of pattern approval and verification is in effect in all states and territories covered by the NEM, so that leaves Western Australia and Northern Territory. Based on the Australian Bureau of Statistics of June 2011, there are approximately 2.6 million people living in Western Australia and Northern Territory, which equates to about 11% of the population of Australia. The Australian Bureau of Statistics 2006 Census reports 8,426,559 private dwellings in Australia, and assuming 1 electricity meter per private dwelling, that equates to approximately 965,000 domestic electricity meters that are currently not regulated in Western Australia and Northern Territory.

Based on data to June 2011 from the Australian Bureau of Statistics Business Register, the total number of non-household businesses in Western Australia and Northern Territory is 94,650. It is assumed that the number of small business sites with applicable electricity meters would be approximately 50% of these, which equates to approximately 50,000 meters.

These figures do not include the additional sub-meters physically located within the NEM, but not operated by a participant in the NEM. The number of these meters is not accurately known because they are not regulated, but based on industry feedback and discussions with the Australian Energy Market Operator (AEMO), it is assumed to be in the order of 2% to 10% of all (domestic and small business) meters with the regions covered by the NEM. Assuming a middle estimate of 6%, the estimate of the total number of electricity meters that are not regulated is

approximately 1.4 million. This corresponds to 14% of the estimated total number of meters in Australia (10 million).

3. OBJECTIVE

The objective is to ensure that the measurement infrastructure for electricity meters in Australia is based on accurate measurements which are suitable for their environment. Currently some meters are regulated through state legislation (NER), so specifically the objective is to achieve nationally consistent application of standards to achieve this objective, so that all measurements of electricity for trade in Australia are accurate and nationally consistent.

4. OPTIONS

This section presents options for addressing the problem.

The option of self-regulation was considered and assessed as not feasible, because it has been observed that the problem is not something that can be fixed by the market itself. Aside from the evidence of meters producing significant errors in the measurement of energy usage, the structure of the market, particularly for sub-metering, does not provide adequate incentives for accurate metering.

The only options considered as feasible are presented below.

4.1 Option 1: Status Quo

One option would be to do nothing, leaving the existing situation as described above in section 2.3.

4.2 Option 2: Lift the Exemption under the National Measurement Act

Another option would be to lift the exemption under the National Measurement Act, to introduce uniform national regulations for electricity meters.

This option would mean that the requirements for using measuring instruments for trade in the National Measurement Act would apply to electricity meters with an annual throughput of less than 750 MWh. This corresponds to all domestic meters, as well as small business meters. More information on the selection of these categories is provided below in 4.2.1.

These requirements mean that electricity meters supplied, installed and used for trade would need to be of an approved pattern (see Pattern Approval, section 2.2.3) and that meters used for trade would need to be verified (see Verification, section 2.2.4).

4.2.1 Classes of Meter

The term class is used here to refer to the classification of a meter based on usage throughput. This descriptor was chosen as it corresponds to “installation types” established in the National Electricity Rules.

It is proposed to lift the exemption for meters with an annual throughput of less than 750 MWh. This would include all domestic-class meters (typical domestic usage is in the order of 5 to 10 MWh), as well as small business meters that fall under this limit. For meters with an annual volume greater than or equal to 750 MWh, the exemption would remain.

Table 1 below illustrates the installation types established under the National Electricity Rules along with a guide for the corresponding applications. Installation types 5 and 6 correspond to domestic meters, and the limiting values x and y vary between state and territory jurisdiction. Installation type 4 may also correspond to domestic meters, but also covers some small business applications. Domestic meters may be either type 4, 5, or 6, but do not correspond to any other higher types, so installation type 4 corresponds to the lowest annual throughput limit with a consistent value throughout the jurisdictions.

Installation type 3 corresponds to larger industrial applications. Installation type 2 corresponds to major high energy industries such as smelters. Installation type 1 is the rarest and corresponds to very high voltage metering applications.

There are several reasons for specifying a volume limit for lifting the exemption. The main reason is that high capacity meters are fewer in number and more specialised so the concept of pattern approval is not so directly applicable and economically justifiable because the lower economies of scale would result in greater unit costs.

Another consideration is that higher-capacity installations utilise transformer-operated meters and external transformers (refer to section 4.2.3 below). At present external transformers are not covered by the requirements but may have a significant affect on the accuracy of the metering system. All domestic meters are direct-connected[11]. Nevertheless, the proposal is to lift the exemption for all meters with an annual throughput of less than 750 MWh, regardless of whether or not the system incorporates external transformers. In others words, the proposal is to lift the exemption for all meters with an annual throughput of less than 750 MWh. In the vast majority of cases, certainly for all domestic metering, meters do not have external transformers. In the case where there is an external transformer, there are currently no requirements specifically for the transformer, but nevertheless the meter itself will need to comply with the requirements.

Table 1. Installation types established under the National Electricity Rules with indicative guide for applications.

Installation Type	Throughput limit per annum per connection point	General guide for possible use
1	Greater than 1000 GWh	Rare. Very high voltage.
2	100 to 1000 GWh	Major industry (eg: smelter)
3	0.75 to less than 100 GWh	Large industry
4	Less than 750 MWh	Domestic, small business (eg: supermarket, retail outlet)

[11] Transformer-operated meters are not required for the relatively low currents (and voltages) delivered to domestic residences.

Installation Type	Throughput limit per annum per connection point	General guide for possible use
5	Less than x MWh, where x varies by jurisdiction.	Domestic, small business
6	Less than y MWh, where y varies by jurisdiction	Domestic, small business

4.2.2 What about meters already installed?

The exemption would be lifted only for meters installed on or after the date the exemption is lifted. This means that meters installed prior to this date would not need to be removed or replaced.

4.2.3 What about transformers?

Transformers for electricity meters are devices that produce a reduced level of current (or voltage), proportional to the actual level of current (or voltage). As stated above, domestic meters are not used with external transformers.

Some electricity meters are designed to operate with external transformers whilst others are direct-connected. The performance and accuracy of external transformers are not covered by the current requirements simply because these have not yet been fully developed.

NMI intends to develop requirements for external transformers. This would involve further stakeholder consultation.

4.2.4 Active energy

Active energy is a measure of energy flow through a meter. It may be thought of as the usable component of the energy. Other measures of energy, such as reactive energy, relate to measures of energy loss. The currently established requirements apply only to the measurement of active electrical energy.

Domestic energy consumption, typically reported on energy invoices in units of kWh (kilowatt-hours), is a measure of active energy. Other measures of energy are important to energy suppliers and distributors as a measure of energy losses.

NMI intends to investigate and develop requirements for reactive or other appropriate measures of energy. This would be following the introduction of controls for active energy measurement and would involve further stakeholder consultation.

5. IMPACTS OF EACH OPTION

5.1 Impacts for option 1: Status Quo

This option would result in no additional regulatory costs for manufacturers. A large proportion of meters would be covered by the existing state regulation as described in section 2.3 above.

However, this option would not address the problem for all meters, leaving the potential for inaccurate measurement of electrical energy usage depending on the location and ownership of the meter. This option would perpetuate the partial and inequitable regulatory framework for the supply

of electricity. In addition, industry participants that have complied on a voluntary basis in the expectation of mandatory controls would begin to question their need to invest in pattern approval. So to do nothing would likely result in a gradual reduction of the existing voluntary compliance.

5.2 Impacts for option 2: Lifting the Exemption

This option would result in additional regulatory costs for those manufacturers that are not already complying voluntarily with the existing requirements of the National Electricity Rules. This would likely result in a small increase in the price of some electricity meters and place all meter manufacturers on the same footing. This additional cost would be expected to be passed on to consumers.

However, the benefit is a nationally consistent approach that provides a level playing field for all manufacturers and consumers. It addresses the great inequity of partial regulation where most consumers have regulated meters but a small proportion do not. It will provide confidence in the accuracy and suitability of electricity meters and of equity between consumers.

It should be noted that this option has been discussed with industry for many years and follows the Kean review 1995 and subsequent amendments to the National Measurement Act in 1999 to take responsibility for trade measurement of electricity meters. NMI has been issuing approvals for over 10 years. NMI also has appointed Utility Meter Verifiers who currently conduct verifications in compliance with the National Measurement Act.

It is also the agreed implementation plan as outlined in the Explanatory Memorandum in Attachment A.

In summary, this option proposes to close a small gap in the regulatory framework for electricity meters by lifting the of exemption for a subset of electricity meters as an implementation of trade measurement for utility meters following amendments to the National Measurement Act in 1999.

5.2.1 Pattern Approval

The fees for Pattern Approval are generally charged based on an hourly rate, so the specific costs depend on the complexity of the measuring instrument, and the level of preparation on the part of the submittor. A submittor is the party applying for pattern approval, and is typically the manufacturer. An estimate of the average fees charged by NMI for the assessment and approval of an electricity meter is $3,360. This is in addition to costs for external laboratory testing. Typically pattern approval testing is in the order of $15,000 to $35,000[12], and this varies with meter type and functionality.

It should be noted that pattern approval costs are applicable only once to approve the pattern of a meter. When amortised over the total number of production meters, the affect on the cost of a single meter becomes relatively small. For example, if the total cost of the approval (NMI fees plus laboratory testing) is $25,000, and the number of production meters is 100 000, that corresponds to 25 cents per meter.

[12] This is based on industry and laboratory feedback.

NMI (formerly the National Standards Commission (NSC) prior to 2005) has been approving electricity meters since 2001. All meters complying with the meter approval requirements under the National Electricity Rules would have been through this approval process, so there would be no additional regulatory costs here for these manufacturers.

5.2.2 Verification

Verification must be performed by an appointed utility meter verifier. Utility meter verifiers are appointed by NMI and there is a fee to establish and maintain the appointment from NMI. These fees are currently $1100 for three years, which is approximately $367 per year.

At the time of writing there are eight appointed utility meter verifiers for the verification of electricity meters. These appointments include meter manufacturers and utilities.

There would be no additional regulatory costs for the verification of meters performed by these appointed authorities. However there would be costs associated with the verification of additional meters to close the regulatory gap. These additional verifications may be covered by existing authorities or new additional authorities.

6. COST-BENEFIT ANALYSIS

Option 1 above is to maintain status quo and so there are neither direct costs, nor benefits associated with this option. However there are transaction costs associated with the provision of sub-standard meters for some consumers. Also there would be the cost to society of the gradual unravelling of existing voluntary controls once the prospect of mandatory controls was removed. It is not possible to estimate these costs.

Option 2 is to lift the exemption for electricity meters under the National Measurement Act. As stated above, this is not the introduction of new regulation, but rather the implementation of the trade measurement responsibilities under the National Measurement Act, to effectively close the gap in existing regulation. The National Electricity Rules cover most electricity meters in use for trade in Australia (estimated at approximately 86%, refer to section 2.5), and many manufacturers already comply with the proposed regulatory requirements (refer to section 2.2). For this reason, it is only necessary to consider the compliance costs for additional manufacturers in order create a level playing field with nationally consistent regulations.

6.1 Costs

Table 2 presents the compliance costs associated with the option 2. It covers both one-off costs and ongoing-costs, and includes lower, middle and upper estimates for the costs and expected numbers of additional approvals and utility meter verifier appointments required to close the regulatory gap.

These costs cover all meters covered under option 2: domestic meters and small industrial and commercial. In many cases, the same physical meter may be used in all applications. Similarly, the costs also cover meters and sub-meters.

The compliance costs do not include costs associated with the accuracy of a meter. There are several reasons for this. An NMI pattern approval is issued with an associated accuracy class (there are four accuracy classes: 0.2, 0.5, 1, and 1.5), but this option would not involve NMI specifying or regulating applications for accuracy classes. The accuracy classes reflect the nominal accuracy classes actually present in the market. More importantly, based on discussions with manufacturers and currently approved meters, the accuracy designation is not considered to be a major factor in the costs associated with this option. The actual cost impact is considered to be relatively independent of accuracy. As discussed above, the same physical meters are sometimes used in different applications and may be approved with multiple accuracy classes. For instance, a single pattern approval certificate may be for both class 0.2 and class 0.5, because the meters are physically the same or very similar. This is the case for some currently approved meters. Therefore no distinction is made between the costs related to the accuracy of meters.

Table 2. Compliance costs for option 2 (lifting the exemption for electricity meters under the National Measurement Act).

Compliance costs	Lower estimate	Middle estimate	Upper estimate
Laboratory testing	$15,000	$25,000	$35,000
NMI Approval Assessment	$2,560	$3,360	$4,160
Additional approvals	5	8	11
Total Compliance Cost (non-on-going)	$87,800	$226,880	$430,760
Number of meters per approval [1]	500,000	300,000	100,000
Compliance cost per meter (non-on-going)	$0.18	$0.76	$4.31
Utility Meter Verifier appointment costs for verification (per year)	$367		
Additional Utility Meter Verifier appointments	2	3	4
Total Compliance Cost (on-going per year)	$733	$1,100	$1,467
Number of meters verified per year [1]	100,000	50,000	10,000
Compliance cost per meter (on-going)	$0.01	$0.02	$0.15
Total Compliance cost per meter	**$0.18**	**$0.78**	**$4.45**

Note [1]: For the purposes of estimating best and worst case scenarios, the upper and lower estimate for the number of meters has been reversed in the table. That is, although the lower estimate of meters per approval is 100,000 it is presented in the 'upper' column as it is applied to the upper estimate of compliance cost to derive a 'worst case' compliance cost per meter.

Table 2 shows that the compliance cost per meter is in the range of $0.18 to $4.45, with a middle estimate of $0.78. So the one-off additionally cost for a meter installation is very small. It should

be noted that this cost is only related to meters that are currently not complying with existing regulations and would place those meters on an equal footing with meters that currently comply.

6.1.1 Basis for cost estimates

The estimates for laboratory testing are based on industry feedback. There is some variability depending on the meter type and this is reflected in the range of estimates.

The estimates for NMI approval assessment are based on actual costs for approvals issued by NMI over the last few years.

The estimates for "Additional approvals" are based on the existing number of approvals issued, which at the time of writing is 58 in total, with 42 still active, and the fact that existing regulation covers most meters. The current rate of approvals is approximately 6 per year, and the estimate for additional approvals has been set at a slightly higher number in order to adequately cover an expected increase in the number of approvals due to the introduction of the regulation.

The estimates for "Number of meters per approval" are based on feedback from industry and are supported by analysing the number of dwellings and meter types. The estimated total number of meters in Australia (see section 2.5) is approximately 10 million. With an estimated need for 50 (active) approvals, and assuming 1 meter per dwelling, this gives approximating 200,000 meters per approval. The actual number of meters per approval varies with manufacturer and model, so an estimated range of 100,000 to 500,000 has been assumed.

As stated in 5.2.2, the Utility Meter Verifier appointment cost is a prescribed value at $1100 for 3 years, or equivalently $367 per year.

The estimates for "Additional Utility Meter Verifier appointments" are based on the existing eight appointments, and the fact that existing regulations cover most meters. It is assumed that two to four additional appointments would be sought.

The estimates for "Number of meters verified per year" are based on feedback from the existing appointed Utility Meter Verifiers. A wide range has been chosen between the lower and upper estimates as there is some variability in the number of meters verified by different utility meter verifiers. However, it is noted that the affect on the compliance cost per meter is very small.

6.1.2 Community and competition impacts

The cost impacts associated with this implementation on community and competition are considered in this section. There is not considered to be any cost impact on the community aside from the compliance costs identified above which are estimated at approximately 78 cents per meter.

The impacts on competition have been assessed as very minor. As identified earlier in this RIS (in section 2.2), all of the meter manufacturers who responded to the consultation currently have pattern approved meters. It is recognised that this regulation will impose some costs on other manufacturers looking to enter the market, but given the quite small estimated compliance costs, this impact is considered to be very minor.

6.1.3 Other costs and factors considered

It should be noted that these costs are associated with metering and as stated in 4.2.3, external transformers are not currently covered. Whilst external transformers do affect the overall accuracy of the measurement system, this regulation (without requirements for transformers) is considered to achieve the objectives of being nationally consistent because transformers are used where current levels (and hence energy usage) is too high for direct-connection. Current levels for domestic metering enable direct-connected metering, and transformer-operated meters are not used for domestic metering. No such instances are known to NMI. Therefore, the regulations are certainly considered nationally consistent for domestic meters, and also considered as nationally consistent for consumers with equivalent energy usage.

Other costs associated with the implementation (refer to section 8.2), specifically the potential costs associated with meters held in stock were also considered. As specified in section 8.2, NMI has established provisions for grandfathering as a transitional means to address the issue of non-approved meters held in stock. These grandfathering provisions will enable manufacturers to use existing stocks, and is offered by NMI at no cost to industry. Therefore, the only expected costs associated with this transitional provision are minor administrative costs for industry associated with providing stock inventories and NMI processing and issuing grandfathering certificates. NMI considers the associated costs to be negligible.

6.1.4 Who bears these costs?

The relevant stakeholders identified in relation to this RIS are:

- Industry - Meter Manufacturers[13]
- Industry - Utilities[14]
- Consumers
- Government

All of the costs specified in Table 2 are borne by industry. No costs are directly borne by the consumer. Ultimately it is expected that all industry costs would be passed on to consumers, but only for those consumers affected by the small sub-set of utilities who currently are installing unapproved meters. Utilities who currently install approved and verified meters will bear no additional costs and there would be no costs to pass onto their consumers. No costs are borne by government.

Table 3. Compliance costs for option 2 categorised by stakeholder.

Stakeholder costs per meter [1]	Meter manufacturers	Utilities	Consumers	Government

[13] Meter manufacturers include agents or any party applying for pattern approval.

[14] Utilities include any party responsible for the installation and use of electricity meters for trade.

Laboratory testing and NMI approval	$0.76	-	-	-
Utility Meter Verifier appointment costs for verification [2]	$0.02		-	-
Note [1]: Costs are based on middle estimates from Table 2. Note [2]: Utility Meter Verifier appointment costs are borne by either the meter manufacturer or utility, depending who undertook the task of verification.				

Industry stakeholders are divided into meter manufacturers and utilities. Most of the costs will be directly borne by the meter manufacturers. Some costs are borne by utilities where the utility conducts verification as an appointed utility meter verifier. Table 3 summarises who bears the costs.

6.2 Benefits

The benefits for each category of stakeholder are listed in Table 4 below.

Table 4. Benefits for option 2 categorised by stakeholder.

Stakeholder	Benefits
Meter manufacturers	Meter manufacturers will benefit from a level playing field that ensures they will not need to compete with manufacturers of sub-standard meters. Furthermore, the requirements are well-aligned with the draft international standard (OIML R 46) making national requirements consistent with international standards.
Utilities	Utilities will benefit by having assurances that the meter they purchase and install complies with the expected standard of accuracy and expected performance under varying operational and environmental conditions.
Consumers	Consumers will benefit by having assurances that their particular meter is accurate and of a nationally consistent standard, and therefore providing assurance that the associated price is accurate and nationally consistent. With the increasing price of energy, and increasing consumer awareness of energy usage and energy efficiency, the benefits of accurate and nationally consistent measures of energy usage are correspondingly more important to consumers.
Government	No recognised economic benefit for government.

The regulations provide confidence in the accuracy and suitability of meters for the measurement of electrical energy. However, it is important to bear in mind that this option 2 is not introducing full regulation of the sector, but rather extending it to close the gap in almost complete regulation. So the actual benefits of this option are to provide accurate and suitable measurements for all manufacturers and purchasers of electricity meters. Measures of the economic benefits of providing accurate and suitable metering are difficult to quantify, and so they are instead presented

qualitatively. This regulation will additionally provide all consumers with nationally consistent consumer protection. The provision of fair and equitable regulatory systems for consumers is of fundamental importance.

7. CONSULTATION

NMI has conducted a number of consultations related to the proposal to lift the exemption for electricity meters. Most recently, NMI conducted a public consultation, seeking feedback directly on the proposal.

7.1 On the proposal to lift the exemption

In November 2010, NMI published a consultation paper entitled, "Consultation Paper on Lifting the Exemption for Electricity Meters under the National Measurement Act". This paper was published on the NMI website[15], and listed also on the business consultation website[16]. All recognised stakeholders, including utilities, meter manufacturers, regulators and consumers were contacted directly by email about the consultation. The following consumer groups were consulted:

- Australian Consumer Association
- Consumer Action Law Centre
- Consumer Federation Organisation
- Consumer Utilities Advocacy Centre
- Public Interest Advocacy Centre

This consultation paper sought feedback on (1) the impact of lifting the exemption, and (2) comment on appropriate classes of meter for which to lift the exemption. Fourteen written submissions were received (one confidential). The thirteen public submissions are available on the NMI website.

The majority of submissions supported the lifting of the exemption. Some opposed it, and most sought clarification on the time frame and implementation. NMI produced a responses document, which is also available on the on the NMI website (on the same webpage as the consultation). This document provided a response to all of the issues and questions raised in the submissions.

The submissions that opposed the proposal were from the manufacturers, though it should be noted that not all manufacturers opposed the proposal, indeed most manufacturers already comply with the proposed requirements. The three principle issues that were cited are: barrier to entry, compliance costs and adequacy of IEC standards.

With regard to barrier to entry, it was stated in a submission that this regulatory change would impose an unjustified barrier to manufacturers entering the market, or who do not currently have approved meters. Specifically, a submission stated: "If the exemption is lifted [we] would be

[15] See http://www.measurement.gov.au/Pages/consultationelectricitymeters.aspx.

[16] See https://consultation.business.gov.au/consultation/.

strongly affected as our meters are not currently NMI pattern approved even though they fully comply with IEC standards. We have grave concerns that this would negatively impact fair and open competition in the Australian electricity meter market. Specifically, we reasonably foresee that there would be a significant movement towards the few select competitors in the market who currently have NMI approved electricity meters. The proposal therefore imposes an unjustified barrier to entry which has the effect of making the metering market less contestable, unfairly protects the few select market participants who already have undertaken voluntary NMI assessment and pattern approval and unnecessarily increases the cost of doing business in this market."

The NMI response states that it is not believed that this would introduce an unjustified barrier to entry. Manufactures, and the industry as a whole, have been aware of the movements towards lifting the exemption for many years, as evidenced by the fact that to date there has been over 50 meters approved over the past 10 years. Furthermore, the requirements are well-aligned with the draft OIML R 46[17], which is an international recommendation for electricity meters. Under Section 19A(7) of the National Measurement Act 1960 (Cth) regulations shall not be inconsistent with recommendations published by OIML, unless the inconsistency is in the national interest or it is not practicable to be consistent because of particular circumstances applying in Australia.

With regard to compliance costs, it was stated in a submission that there would be significant costs, however, no specific costs were provided. It is acknowledges that there would be costs associated with this proposal, and these are dealt with in this paper. However, it should be recognised that in compliance with the National Electricity Rules many manufacturers have already undergone the process of meter review, modification and testing to produce a compliant meter.

With regard to the adequacy of IEC (International Electrotechnical Commission) standards, a submission suggested that compliance with IEC standards should be adequate and questioned the justification for differences to IEC standards. IEC standards are principally industry-driven standards, drafted primarily by manufacturers for manufacturers. The relevant standards for electricity meters are IEC 62052.11, 62053.21, and 62053.22. The NMI response states that NMI held extensive consultation with industry when developing NMI M 6, and again in 2009 - 2010 when NMI M 6 was revised. The same issue has been raised in OIML Technical Committee 12 (the committee responsible for OIML R 46), and was overridden by the majority of members who believe the differing requirements are necessary and important for consumer needs. The NMI requirements of NMI M 6 are well-aligned with the draft OIML R 46.

The OIML R 46 standard and the IEC standards are to a large extent quite similar, but certain requirements and tests differ. For instance, OIML R 46 has more extensive requirements for ensuring that meters are not unduly affected by radiated electromagnetic fields. The international OIML technical committee determined that meters should be immune to fields up to 6 GHz, whereas the IEC standards specify up to only 2 GHz. The justification behind this decision relates to the current environment in which we live with mobile and other radio communications operating

[17] See the OIML website at http://oiml.org/.

in the range between 2 and 6 GHz. For instance, radio communication standards used by smart meters commonly operate within this range.

The development of IEC standards is largely influenced by industry and so the resulting standards are very effective at facilitating standardised test methods and design requirements. However, metrological requirements are intrinsically related to consumer protection and the structure and operation of OIML and OIML members facilitates the active participation of government and regulators who liaise with industry and consumers when developing the standards. OIML Members cover in total 86 % of the world's population and 96 % of its economy.

7.1.1 Specific Issues and Responses

Table 5 summarises the issues raised in the consultation and provides responses for each. Some comments seeking clarification on administrative or technical details have been omitted, although all of these comments have been addressed in the responses published on the NMI website on the consultation.

Table 5. Issues raised from the consultation and NMI responses.

Comments / Issues	NMI responses
Comments were received about the justification and clarification of requirements in NMI M 6 and adequacy of IEC standards.	NMI held extensive consultation with industry when developing NMI M 6. Furthermore, NMI M 6 was recently revised (2009 - 2010), and further industry consultation was conducted. NMI M 6 aligns closely with the draft OIML R 46, which is being developed by the international treaty organisation OIML (International Organisation of Legal Metrology). NMI M 6 does in fact also largely align with AS/IEC standards. Specific differences are listed in Annex B of NMI M 6. NMI has liaised with individual stakeholders who requested specific clarifications on particular technical details of some tests.

Comments / Issues	NMI responses
Concerns were raised about loss of functionality and impacts on the physical size of meters. *"For example, data centre installations are currently metered down to the individual circuit level. Meters for this application are able to meter up to eighty four circuits simultaneously. Replacing this type of meter with eighty four currently pattern approved meters will cause a very large increase in the metering space required and reduce the efficiency and functionality of such installations. Such changes may cause installation owners to re-think the methods they use to re-coup electrical and mechanical service costs.*"	NMI considers this to be a misunderstanding. The proposal and requirements in NMI M 6 do not restrict the size and functionality of meters. The intention of pattern approval is to ensure a meter is able to operate within limits over a range of conditions (temperature, disturbances, etc). It is not intended to limit (or even specify) size or functionality.

Comments / Issues	NMI responses
Concerns were raised about the expiration, cancellation and review of pattern approval certificates, as well as the impact if approval requirements change.	There was some misunderstanding among stakeholders about the expiration or cancellation of pattern approval certificates, and a perceived impact on existing meters. The expiration and cancellation of pattern approval certificates only relates to the continued manufacture of new meters. The Act is drafted so that a meter is considered to be of an approved pattern if it had a valid approval at the time of manufacture. So if an approval certificate is cancelled, say because a manufacturer discontinues that product, then meters that were made when the certificate was valid are still considered to be of an approved pattern. Similarly, when a pattern approval certificate is reviewed, it may be cancelled (as discussed above), reviewed without change, or amended. If it is amended, again this only relates to the manufacture of new meters – already manufactured meters are still considered to be approved. Pattern approval requirements can and do change. However, consultation is always conducted for any significant changes and appropriate transitional periods may be implemented.
Requests were received for exemptions where trials are conducted.	An exemption would not be granted for trials. NMI has an established procedure for dealing with trials whereby NMI may grant provisional certificates for site trials. This is generally only considered for a small number of instruments, and where the majority of approval testing has been completed. Site trials may be discussed as part of an application for pattern approval.

Comments / Issues	NMI responses
Concerns were raised about possible time delays due to a “flood” of pattern approval testing being sought ahead of the proposed regulatory change.	NMI currently has one active approving authority (UL International in New Zealand, formerly known as Parkside). It is believed that this laboratory has sufficient capacity for the market. NMI acknowledges that there is likely to be an increase in pattern approval applications, and has taken this into consideration when proposing timeframes and liaised with the appointed approving authority to assess and monitor.
Clarifications were sought on software/firmware changes. This has particular relevance the AMI (Advanced Metering Infrastructure) where software updates may be made over the network.	NMI recognises that the importance and use of software is increasing across most measuring instruments. Also, updates are not only implemented in newly manufactured instruments, but also in existing instruments through remote (network) updates. The consistent policy of NMI across all types of measuring instruments is that changes may be made provided they do not affect the metrological performance of the meter. If a change is likely to affect the metrological performance, then the pattern approval certificate owner would need to contact NMI for approval. Depending on the level of impact expected, NMI may approve the change (with or without modifications to the certificate of approval), or request further information or testing. Based on experience and feedback from industry, the majority of changes would not be considered metrologically significant, and in most cases there would be no need to contact NMI
Clarifications were sought on obligations for meter vendors.	The Act provides penalties for supplying or selling a meter for trade that is not of an approved pattern.
Comments were received stating the need to finalise NITP (National Instrument Test Procedure) for Utility Meters	This was agreed and at the time of the consultation, NMI was actively consulting with industry on the development of NITP 14 for Utility meters. NITP 14 has been finalised and was published in September 2011.

Comments / Issues	NMI responses
Comments were received that sought clarification on the requirements for refurbishment and in-service testing as required under the National Electricity Rules.	The National Measurement Act requires meters to be approved and verified. With regards to repairs or adjustments, the relevant section of the Act is Section 18GQ. In short, if adjustments or repairs that affect the metrological performance of the meter are made, then they must be performed by a utility meter verifier and the verification mark must be obliterated. So, if in-service testing could be performed without affecting the metrology (and we have no reason to believe it couldn't), then this would not affect the verification of the meter. Refurbishment may be a different story. NMI would expect that refurbishment may affect the metrological performance, and therefore, the meter would need to be of an approved pattern (or grandfathered) and verified if it was refurbished and re-installed. It is expected that manufacturers would be able to provide guidance on what adjustments or repairs would be acceptable. It is not possible to list allowable adjustments or repairs as each meter may be constructed differently.
Clarifications were sought on the applicability of the Act and concerns about the potential impact of jurisdictional controls.	The National Measurement Act does not apply to the reverification of utility meters, not is it intended to exclude or limit the concurrent operation of any State and Territory law relating to improper practices in connection with utility meters used for trade (refer to Section 4A of the National Measurement Act).
Clarifications were sought on the interpretation of the Act for meters that are relocated.	NMI considers that meters may be relocated, taking into consideration the requirements for repairs and adjustments.

Comments / Issues	NMI responses
Concerns were raised that there would be a significant movement towards the "*few select competitors*" in the market who currently have NMI approved electricity meters. *"The proposal therefore imposes an unjustified barrier to entry which has the effect of making the metering market less contestable, unfairly protects the few select market participants who already have undertaken voluntary NMI assessment and pattern approval and unnecessarily increases the cost of doing business in this market."*	NMI has drafted NMI M 6 with extensive consultation with stakeholders. NMI (previously NSC) has been approving electricity meters for over10 years (since 2001). The majority of submissions received support the proposal and given the amount of time, consultations and development of infrastructure, it is not believed that the proposal would impose an unjustified barrier to trade.
Concerns were raised that customers may prefer approved meters for non-trade uses, and that this imposes further impacts.	The National Measurement Act only covers utility meters in use for trade, and pattern approval is the process of approving types of meters for use for trade. The scope of NMI M 6-1 has beed revised to clarify that the requirements have been developed and are intended for electricity meter to be used for trade.
Concerns were raised about compliance costs, the extent of consultation undertaken and the comment in the paper that industry is *"now largely receptive to the proposal"*.	NMI acknowledges that there would be costs associated with this proposal. The purpose of the consultation process is to seek such feedback, and this RIS includes cost-benefit analysis. It should also be acknowledged that NMI has been approving electricity meters for 10 years. The consultation paper does indicate that the metering industry is now largely receptive to the proposal. This was the feedback received prior to the consultation, and is supported by the overall feedback received through the consultation.

Comments / Issues	NMI responses
Comments were received suggesting to use a timeline for the lifting of the exemption aligned with the hardware configuration of the meter. One meter could be suitable for > 750 MWh pa, or 40 MWh pa.	Annual throughput limits are a convenient way of classifying meters, and this aligns with the classification of meters under the National Electricity Rules. Furthermore, this approach will ensure that meters will be covered by the Act regardless of technology. The current infrastructure for approving and verifying meters covers single phase and three phase meters, and so NMI sees no reasons to defer three phase meters. It is acknowledged that there could be a particular pattern of meter that could be suitable to measure a wide range of annual energy usage, however there is a need to place a limit, and 750 MWh, aligns with a meter installation type boundary under the National Electricity Rules, and is considered to be an appropriate limit.
Comments were raised that manufactures/vendors may not know the annual throught limit (MWh per year) for a particular installation.	NMI acknowledges that vendors may have limited knowledge or control over the application for a purchased meter. The Act requires meters sold for use for trade to be of an approved pattern. The Act also contains requirements for the installation and use of meters, so the installer and user also have obligations to ensure that meters are verified (and hence pattern approved). So obligations lie with both the vendor and owner.

Comments / Issues	NMI responses
Comments were received suggesting the proposal should only be considered for domestic customers *"It is understood that the main objective of the lifting of exemptions for electricity meters is to provide protection to domestic customers who do not have the knowledge, capability or capacity to influence the choice and accuracy of the meters used in their installations and not per se to maximise the number of meters in the market covered by the National Measurements Act. The lifting of exemptions could more logically be applied to meters used in domestic premises rather than based on any particular level of annual consumption. In this regard, even option 1 covers far more meters than is necessary for customer protection.* *One could debate whether the lifting of exemptions adds any additional confidence to installation metering accuracy above that which is already provided under the National Electricity Rules.*"	Consumer protection extends beyond just domestic customer. All users of electricity meters for trade, whether they are individual consumers, commercial, or otherwise, should be able to have confidence in the measurement.

Comments / Issues	NMI responses
Questions were raised about penalties under the National Measurement Act relating to inaccurate use and use of inaccurate meters (Section 18GD and Section 18GE).	There are two sections in the Act that specify penalties relating to meter accuracy. Section 18GD relates to inaccurate use. A traditional example is a greengrocer placing their finger on the scales whilst weighing apples. In other words, this penalty relates to how the instrument is used. Section 18GE on the other hand provides an offence for using or supplying a measuring instrument for trade where the instrument gives an inaccurate measurement. These penalty clauses are vital for controlling the use of measuring instruments for trade. There were specific concerns raised in the feedback about results from in-service sampling and that characteristic distributions may imply some meters lie outside accuracy tolerances. If there are large numbers of meters and a sampling system is employed, then it would be expected that the compliance levels be set to a satisfactorily high level, so that the probability of any meters being outside the limits is satisfactorily low. Of course, any individual meters that were tested and found to be inaccurate must be taken out of service. As the Act does not apply to reverification, NMI has not developed more extensive guidelines or requirements for in-service inspections.

8. CONCLUSION

This RIS addresses the problem of metrological control of electricity meters in use for trade. This is important because it corresponds to the ability of meters to operate accurately and maintain accuracy under conditions of use. The accuracy of meters is fundamental for ensuring the fair and equitable metering of the supply electricity.

This paper presents two options: Option 1 is to maintain the status quo, and Option 2 is to lift the exemption for electricity meter under the National Measurement Act. Existing partial state regulation through the National Electricity Rules is also discussed, and it is shown that Option 2 would effectively close the regulatory gap.

8.1 Preferred Option

Option 2 is the preferred option.

This is based on the fundamental importance of a fair and equitable regulatory system and the minor impact on the cost of a meter

The cost-benefit analysis presented in this RIS yields for option 2 a total compliance cost per meter of between $0.18 and $4.45, with a middle estimate of $0.78. This cost is borne by the manufacturer. In cases where the verification is not performed by the manufacture, a very small component of this (middle estimate of 2 cents) is borne by the utility meter verifier. There are no costs borne by government or consumers directly.

Manufacturers benefit from consistent national regulation that provides a level playing for all manufacturers and avoids them having to compete against cheaper, sub-standard meters. Another benefit for utilities and consumers is the confidence of accurate and suitable meters for the accurate and reliable measurement of energy consumption, leading to accurate and equitable charges for energy consumption. A further benefit for consumers is the reduction in transaction costs for some consumers of electricity who would otherwise have meters that over-register energy consumption.

8.2 Implementation and review

8.2.1 Implementation

The implementation of the preferred option would be straight-forward because the proposed regulation is essentially an extension of existing regulation. NMI has been providing the service of pattern approval for electricity meters for over ten years. It has been on a voluntary basis (from the point of view of the National Measurement Act 1960), but has been widely adopted by industry and enacted under the National Electricity Rules as described in section 2.3.1.

In terms of regulatory amendments, the only required amendment will be to lift the exemption for the appropriate categories of electricity meters. An equivalent legislative framework exists for domestic water meters, with the exemption for water meters having been lifted already.

8.2.1.1 Meters in stock

A significant number of electricity meters are held in stock by meter owners. Some of these meters are not of an approved pattern and so if the exemption were to be lifted, these meters would not be permitted to be installed. In order to address this issue, NMI has proposed to provide for the grandfathering of meters.

Grandfathering is the process of granting an approval for types of meters. It has been applied previously by NMI when introducing metrological controls for a type of measuring instrument to recognise existing and established instruments and to enable them to continue to be used. Note grandfathering would not enable the continued sale of meters.

The process for grandfathering is as follows. NMI would contact all known meter owners to seek requests for grandfathering. Meter types would need to be currently in use. NMI would consider applications for grandfathering on a case by case basis.

This implementation process is designed to minimise the transitional impact on utilities by enabling them to continue to install recognised meter types they hold in stock.

It should be noted that meters installed prior to the lifting the exemption (implementation of this preferred option) are not affected. That is, meters installed prior to the lifting of the exemption will remain exempt.

8.2.2 Review

The proposed option is not expected to present significant changes or challenges for a number of reasons. The framework and infrastructure for implementing pattern approval and verification is already in place as the system has been running on a voluntary basis for over ten years. Furthermore, industry adoption of the requirements has lead to implemented regulation covering most of the market. As discussed above, the proposed option is considered necessary to implement the regulations consistently across Australia.

NMI has an on-going commitment to meet the objective stated in this RIS, and would actively review the progress by monitoring and responding to feedback received from stakeholders.

Furthermore, within five years, a full review will be conducted on the impacts of the regulation. This is expected to be incorporated into other on-going reviews mentioned in this RIS including the adoption of the international standard OIML R 46, and metrological requirements for transformers. This review will include consultation with stakeholders seeking feedback on the regulation and an assessment of the assumptions and impacts stated in this RIS.

APPENDIX A – EXPLANATORY MEMORANDUM 1998

This appendix contains the explanatory memorandum for the National Measurement Amendment (Utility Meters) Bill 1998.

1998

THE PARLIAMENT OF THE COMMONWEALTH
OF AUSTRALIA

HOUSE OF REPRESENTATIVES

NATIONAL MEASUREMENT AMENDMENT (UTILITY METERS) BILL 1998

EXPLANATORY MEMORANDUM

Circulated with the authority of the
Minister for Industry, Science and Resources,
Senator the Honourable Nick Minchin

ISBN: 0642 378762

NATIONAL MEASUREMENT AMENDMENT (UTILITY METERS) BILL 1998

OUTLINE

This Bill amends the National Measurement Act 1960 to provide mandatory requirements for specified utility meters as recommended by the Review of Australia's Standards and Conformance Infrastructure (Kean Review).

The Bill provides for mandatory pattern approval of meter designs to ensure that the designs conform to acceptable standards, and verification of production meters to ensure that each meter conforms to the approved pattern and operates within the maximum permissible errors. It also provides for auditing of verified meters to ensure that they have been correctly verified. Arising from consultation by the National Standards Commission with State and Territory regulators, the bill does not provide for the reverification of utility meters, a function that will be retained by State and Territory authorities.

FINANCIAL IMPACT STATEMENT

Compliance with the proposed metrological control system for utility meters will cause additional costs for manufacturers but this will be more than compensated for by the efficiencies and benefits of scale associated with a single, national market for utility meters. International harmonisation of utility meter requirements will enhance the opportunity for entry to export markets. In addition the proposal has clear benefits for consumers, utility authorities and State and Territory regulators. However it is not possible to quantify these benefits.

There will be minor costs to the National Standards Commission associated with coordinating the system.

REGULATORY IMPACT STATEMENT

Problem

Trade measurement in reticulated water, electricity and gas falls within the ambit of the National Measurement Act 1960 (the Act). However the Act does not provide a detailed measurement control system to enable traders to easily comply with its broad requirements.

Trade measurement in reticulated water, electricity and gas is controlled in the States and Territories by their water, electricity and gas legislation. This is an extensive body of legislation but in general does not provide an adequate measurement control system for trade in these commodities. States and Territories also have trade measurement legislation which in almost all cases specifically exempts trade measurement in these commodities.

All but two jurisdictions have enacted the uniform trade measurement legislation (UTML), beginning in 1989. The agreement between the Commonwealth and the States in relation to the adoption of the UTML included a statement that the complete list of instruments used for trade measurement, including the special category of exempted instruments, would be progressively monitored within a ten year period.

While the trend towards the corporatisation and privatisation of public utilities has enhanced the opportunity for competition in the commodities themselves, the lack of uniform requirements for pattern approval, verification and reverification of utility meters provides no foundation on which fair and equitable competition in the commodities can be based. In the absence of an adequate measurement control system for utility meters it is possible for market participants to introduce lower cost meters that are sub-standard in that they are of a lower accuracy or will not maintain their calibration over time or in the presence of particular influence factors such as electromagnetic radiation. This is turn can undermine the basis for competition in the commodity itself.

Most utility authorities recognise the need for accurate and reliable meters as the basis for their profitability and at the present time may carry out testing themselves or recognise the testing of other authorities. A particular meter may be subjected to multiple partial testing by different authorities but still not be fully tested to internationally harmonised requirements. The present system is therefore wasteful and inadequate. Moreover, because it is completely controlled by one party to transactions in the commodity, it results in an asymmetry of information between consumers and utilities which gives rise to a lack of consumer confidence and increased transaction costs.

The 1995 Review of Australia's Standards and Conformance Infrastructure (the Kean Report) recognised these issues and noted industry's concerns about the effect on costs of having to meet differing requirements. It recommended:

6. *The National Measurement Act be amended to provide for mandatory requirements for specified utility meters and legal measuring instruments and that these requirements be based on those adopted by the International Organisation for Legal Metrology.*

When electricity utilities were large and vertically integrated, there was little need to monitor internal transfers of electricity. With the break-up and privatisation of these utilities, accurate measurement of electricity transfers from generators to distributors to retailers is of fundamental importance. Moreover the National Electricity Grid has now been created which will provide for a contestable market in electricity down to 160 MWh/year (small businesses). The need for accurate metering to provide a firm basis for enhanced competition is accordingly enhanced.

Manufacturing industry through the Australian Electrical and Electronic Manufacturers' Association (AEEMA) have consistently argued for the introduction of a single, national set of requirements for utility meters which would reduce their costs and enhance export opportunities.

Both the present and the previous governments in their responses to the Kean Report have accepted its recommendation 6.

In summary there are considerable losses in the present arrangements in terms of the costs to manufacturers in meeting differing standards, the costs to utilities in carrying out multiple approval testing, the undermining of the basis for fair and equitable competition in the commodities themselves, the asymmetry of information between utilities and consumers leading to increased transaction costs through complaint handling, and the impairment of export opportunities.

Objectives

To introduce national metrological controls for specified utility meters that will:

- Increase confidence of consumers and other market participants in measurements made by utility meters by reducing the information asymmetry;
- deliver efficiencies and benefits of scale of a single national market to Australian manufacturers, which will also enhance export opportunities for Australian manufacturers through international harmonisation of metering requirements; and
- enhance competition for utility commodities and for utility meters by providing standard metering requirements as the basis for competition in utility meters.

Options

Trade measurement is controlled by regulation throughout the world. Australia is a signatory to the Convention on Legal Metrology and participates in the work of the International Organisation on Legal Metrology (OIML) which develops regulatory standards for the performance of measuring instruments used for legal purposes and for trade. OIML has prepared standards for utility meters.

The options considered were:

1. Self-regulation by industry with industry developing its own approval and verification systems harmonised to international standards.

2. Amendment of the National Measurement Act as recommended by the Infrastructure Review in order to provide a national system for metrological control of specified utility meters comprising mandatory national pattern approval and verification systems harmonised to international standards.

3. Amendment of the trade measurement legislation in all States and Territories to lift the exemption on utility meters. This approach would require State and Territory trade measurement authorities in each jurisdiction to undertake extensive negotiations with other portfolios that currently have responsibility in their jurisdiction for regulating the metering of water, electricity and gas. Were the exemption to be lifted then mandatory national pattern approval would be one result.

4. Amend legislation that regulates water, electricity and gas metering in each jurisdiction to reference internationally harmonised standards for utility meters.

Impact analysis

Option 1.

Many tens of billions of dollars in commodities are traded on the basis of utility meter measurements per annum. The experience of the Commission during consultation with utilities and existing regulators is that there are very strong but misinformed forces willing to sacrifice the integrity of utility measurements for the sake of small reductions in unit meter costs which, because of the large number of meters, translates into large apparent savings. The problem is therefore one of

high risk and it is unrealistic to expect the self-regulatory approach of option 1 to be viable. It would not satisfy consumers, manufacturing industry or most State and Territory regulators and will not be discussed further.

Option 2.

Option 2 would affect consumers, manufacturing industry, utility authorities, State and Territory regulators and/or trade measurement authorities and the National Standards Commission.

Consumers and other market participants would be provided with confidence that a system exists to ensure the accuracy of the utility meters and thereby reduce transaction costs. Increased competition arising from internationally harmonised standards and the likely entry of new importers should cause a reduction in the cost of metering which would provide a small benefit to consumers.

Manufacturers have strongly supported the introduction of national requirements as stated in the Infrastructure Review. While manufacturers would incur additional costs associated with the cost of obtaining pattern approval and verification, there would be compensatory benefits of scale in having to meet only one set of metrological requirements. Competition between test houses should minimise the additional costs to manufacturers.

Utility authorities routinely carry out pattern approval testing of utility meters that have already been tested by other authorities. Option 2 would eliminate the need for this multiple testing and remove the cost of this burden from authorities.

State and Territory regulators would retain the responsibility for in-field re-verification, but would benefit from the provision of standardised procedures and performance criteria.

The Commission would sustain additional costs in operating the pattern approval system, carrying out pattern compliance and verification auditing, and monitoring the operation of the system. The Commission would charge for some of this work on a cost recoverable basis.

Option 3.

Experience with the introduction of the uniform trade measurement legislation would suggest that option 3 would be unlikely to provide a nationally uniform approach in the short to medium term, particularly as there would be a need to uniformly amend the legislation from time to time. More important than the lack of legislative uniformity and synchronism is the lack of administrative uniformity amongst the States and Territories which would see manufacturers having to comply with differing procedures, systems and forms. It was these differences in interpretation and administration amongst States and Territories that resulted in the Kean Report's recommendation that the Commonwealth assume full responsibility for trade measurement (Recommendation 5).

While direct costs of pattern approval and verification should be similar to option 2, option 3 would result in increased indirect compliance costs for manufacturers. A fragmented market for utility meters would reduce efficiency and economies of scale and impair export opportunities.

Option 4

This option would suffer from the same drawbacks of non-uniform legislation and administration as option 3 but in addition would be more complex in that there would be separate systems for water, electricity and gas in each jurisdiction. In addition there is little likelihood that national pattern approval could be achieved. There is no basis to expect this option to be viable.

Consultation

The Commission has held numerous consultative meetings with utilities, State and Territory regulators and meter manufacturing industry in the water and electricity sectors to develop metrological frameworks for these sectors. In the case of water meters, consultations began in October 1993, prior to the Kean Report, whereas consultations on electricity metering began in October 1996. Consumers have previously written to the Commission asking for the

problem to be addressed. In addition some direct consultations have been held with regulators in particular jurisdictions in conjunction with the Department of Industry, Science and Tourism. These consultations are essentially complete.

Recently, initial contact has been made with the gas regulators and the Commission addressed an industry conference, "The Northern Conference" of the Australian Gas Association, in May 1998 on regulatory developments. Further consultation with gas regulators, utilities and manufacturing industry is planned.

One of the first issues discussed with the water and electricity representatives was the legislative options, listed above, to achieve metrological control. A survey was conducted in which opinions on the three possible legislative models were canvassed. The survey revealed an overwhelming (if not unanimous) preference for national legislation.

Extensive consultation has been undertaken with utilities and industry to develop the necessary standards, internationally harmonised to the greatest possible extent, and significant contributions have been made, and will continue to be made, to the revision of the relevant international standards.

Conclusion and recommended option

Four options to achieve the objectives were considered. Option 1, industry self-regulation was found not to be viable because of the significant risk and impact of the problem. Option 2 achieves the objectives and reduces costs to industry. Option 3 was found not to be able to achieve all the objectives and be more costly to industry than option 2. Option 4 would achieve few if any of the objectives and is not consider viable.

The proposal contained in option 2 is recommended. Of the options considered, it produces the greatest net benefits to consumers, manufacturing industry, utilities and State and Territory regulators.

Option 2 has now been agreed with State and Territory regulators, electricity and water utilities, meter manufacturers and consumers. The proposal is essential to underpin a significant micro-economic reform proposed by the Kean Report in its recommendation 6. This recommendation has received the support of both the present and previous Governments.

Implementation & review

It is proposed that the amendments to the national Measurement Act 1960 will provide for the exemption of prescribed classes of utility meters and initially all classes of utility meters will be exempted. Following satisfactory completion of consultations and an agreed introductory period, the exemption will be lifted for a particular class of utility meter.

The amendments will also provide that utility meters already existing in the field may remain provided that they are able to measure to sufficient accuracy, but no new meters of these types may be installed after the expiry of the introductory period without full pattern approval and verification.

Manufacturers will be encouraged to obtain pattern approval for their meters on a voluntary basis prior to the expiry of the introductory period in order to minimise the possibility of disruption should they be unable to meet some of the requirements when they become mandatory. Because of the small number of manufacturers and importers, all would be already aware of the proposed changes. However, all will be notified in writing prior to the commencement of the legislation.

Utilities will be encouraged to inform consumers of the changes as this should enhance consumer confidence in meter readings, reduce the level of consumer complaints and thereby reduce transaction costs.

The effectiveness of the proposal will be assessed by sampling the production of manufacturers and importers for pattern compliance

testing and auditing of verifications. In addition the test houses will be accredited by the National Association of Testing Authorities (NATA) and regularly assessed by NATA. The effectiveness of the Commission's role will be overseen by the board of Commissioners which comprises members with expertise and experience in the manufacturing of utility meters and administration of trade measurement.

In addition, the Commission will obtain detailed verification and re-verification data from verifiers and regulators respectively to continuously monitor and assess the effectiveness of the system and make recommendations on re-verification procedures.

NOTES ON CLAUSES

Clause 1: Short Title

1. Provides for the proposed Act to be cited as the National Measurement Amendment (Utility Meters) Act 1998.

Clause 2: Commencement

2. Subclause 2(1) provides for the proposed Act to come into operation on the day on which it receives the Royal Assent, subject to subclause 2(2).

3. Proposed subsection 2(2) provides that subject to proposed subsection 2(3), Schedule 1 to the proposed Act commences on a day to be fixed by Proclamation.

4. Proposed subsection 2(3) provides that if Schedule 1 does not commence under proposed subsection 2(2) within 6 months of the day on which this proposed Act receives Royal Assent, it commences on the first day after the end of that period.

Clause 3: Schedules

5. Proposed clause 3 provides that each Act that is specified in a schedule to this Bill is amended or repealed as set out in the proposed

applicable items in the Schedule concerned, and any other proposed item in a Schedule to this Bill has effect according to its terms.

Schedule 1 - Amendment of National Measurement Act 1960 relating to utility meters

1 Subsection 3(1)

6. This item amends subsection 3(1) of the Act to insert a definition of "utility meter". This definition provides for classes of utility meters to be exempted from the operation of proposed Part VA by the regulations. Initially all classes of utility meters will be exempted by this mechanism.

2 Subsection 3(1)

7. This item amends subsection 3(1) of the Act to insert a definition of "verification".

3 Subsection 3(1)

8. This item amends subsection 3(1) of the Act to insert a definition of a "verifying authority" of utility meters.

4 After subsection 3(3)

9. This item inserts a new subsection 3(3A) to ensure that the amended Act will not affect the reverification of utility meters under the control of State and Territory authorities.

5 At the end of paragraphs 4(1)(a), (b), and (d)

10. This item improves the syntax of subsection 4(1) and provides for an additional paragraph to be added.

6 After paragraph 4(1)(d)

11. This item inserts a new paragraph that extends the objects of the Act to embrace the verification of utility meters.

7 After subsection 4(1)

12. Subsections 4(2) and 4(3) of the Act define the extent to which the Act excludes or preserves State and Territory laws. This item inserts a new provisions that removes from the ambit of these subsections the use of utility meters for trade so that this may be dealt with separately.

8 After section 4

13. This item provides for the Act to apply to the exclusion of any State or Territory law dealing with the use of utility meters for trade, except in regard to improper practices where there is no inconsistency between these laws and the Act or the regulations. The item specifically excludes the Act from applying to the reverification of utility meters which will remain under the control of State and Territory authorities.

9 After paragraph 18(1)(ea)

14. This item inserts two new paragraphs that extend the functions of the National Standards Commission ("the Commission") to embrace the verification of, and proper application of the new Part VA to, utility meters used for trade.

10 At the end of paragraphs 18AAA(a), (b), (c) and (d)

15. This item improves the syntax of the subsection and provides for an additional paragraph to be added.

11 After paragraph 18AAA(b)

16. This item inserts new paragraph (ba) that extends the powers of the Commission for the purposes of new Part VA to enter into contracts and to appoint agents. This is necessary so that the Commission can appoint authorised officers under Division 5 of Part VA to audit the verification of utility meters for trade.

12 After Part V

17. This item inserts a new Part VA comprising five divisions containing sections 18G to 18ZZB.

Part VA - Utility Meters

Division 1 - Preliminary

18 G Overview of Part

18. This section describes the application of new Part VA and the matters dealt with by the five Divisions.

18H Definitions

19. Proposed subsection 18H(1) defines a number of terms for use within this part. In particular, while the Act already contains a definition of "measuring instrument with an approved pattern" in subsection 3(1), it is necessary to define "approved pattern" in relation to a utility meter in order not to invalidate meters that were installed with an approved pattern where subsequently the pattern has expired or been cancelled.

20. Recognising that all measurements are inaccurate to some extent, proposed subsection 18H(2) defines measurements made by utility meters for trade as inaccurate only if the measurement is inaccurate by more than the maximum permissible errors contained in the regulations.

21. Proposed subsection 18H(3) defines the term "marking a utility meter with a verification mark" to encompass both marking the meter directly and attaching a marked label to the meter.

18J Application of Criminal Code

22. This section references Chapter 2 of the Criminal Code and makes it applicable to all offences in this Part.

Division 2 - Requirements for use of utility meters for trade

18K Overview of Division

23. This section provides an overview of the division. Throughout this Part, the person who uses a utility meter for trade is the person who controls the utility meter and uses it to determine the price paid for the commodity.

18L Utility meters used for trade to be verified

24. Proposed section 18L provides that a person is guilty of an offence if the person uses a utility meter for trade an the utility meter is not verified.
A penalty of 50 penalty units is imposed .

18M Installing unverified utility meters

25. Proposed section 18 M provides that a person is guilty of an offence if the person installs in or on any premises a utility meter for use for trade and the meter is not verified.
A penalty of 200 penalty units is imposed.

18N Supplying unverified utility meters

26. Proposed section 18N provides that a person is guilty of an offence if the person sells or otherwise supplies a utility meter for use for trade and the meter is not verified.
A penalty of 200 penalty units is imposed.

18P Inaccurate use of utility meters

27. Proposed subsection 18P(1) provides that a person is guilty of an offence if the person uses a utility meter for trade and does so in such a way that the meter gives an inaccurate measurement or other information inaccurately. A penalty of 200 penalty units is imposed.

28. Proposed subsection 18P(2) provides that a person is guilty of an offence if the person does, or fails to do something in relation to a utility meter and the personís act or omission causes, or is likely to cause, the meter to give an inaccurate measurement or other information.
A penalty of 200 penalty units is imposed

18Q Using or supplying inaccurate utility meter

29. Proposed subsection 18Q(1) places the responsibility on the user of a verified utility meter to ensure that it operates within the prescribed maximum permissible errors at all times and that all derived data is accurate.
A penalty of 200 penalty units is imposed for an offence against proposed subsection 18Q(1).

30. Proposed subsection 18Q(2) makes it an offence to sell or supply a verified utility meter that does not operate within the prescribed maximum permissible errors.
A penalty of 200 penalty units is imposed for an offence against proposed subsection 18Q(2).

18R Transactions by utility meters to be in prescribed units of measurement

31. Proposed section 18R provides that a person is guilty of an offence if the person sells a quantity of gas, electricity or water for a price and the price is not a price determined by reference to a measurement of a quantity in the unit of measurement required by the regulations.
A penalty of 50 penalty units is imposed.

Division 3 - Verification of utility meters

18S Overview

32. Proposed section 18S provides an overview of Division 3

18T Meaning of verification

33. Verification is defined in proposed section 18T.

18U Who is permitted to verify utility meters?

34. Section 18U deals with the matter of who is permitted to verify utility meters.

18V Requirements for verification

35. This proposed section specifies how a utility meter is verified, that to be verified the utility meter must be of a pattern approved by the Commission and that it must operate within the prescribed maximum permissible errors.

18W Standards of measurement to be used for verification

36. This proposed section specifies that standards of measurement used for the verification of utility meters must be traceable according to section 10.

18X Offences relating to verification

37. This proposed section provides for offences for placing a verification mark on a utility meter when not permitted to do so, for placing a fraudulent verification mark on a utility meter, for having possession of an implement for making a verification mark when not permitted to use it, for having possession of an implement for making a fraudulent verification mark, and for selling or supplying a utility meter that has been marked in one of these ways.
For each offence, a penalty of 200 penalty units is imposed.

18Y Repairer to obliterate verification mark

38. This proposed section makes it mandatory for a repairer to obliterate a verification mark on a utility meter if anything is done to change its metrological performance. This ensures that such repaired utility meters must be verified again.
A penalty of 200 penalty units applies for an offence against this proposed section.

Division 4 - Verifiers of utility meters

18Z Overview

39. Proposed section 18Z provides an overview of Division 4.

18ZA Commission is a verifying authority

40. Proposed section 18ZA provides that the Commission is a verifying authority.

18ZB Application for approval as a verifying authority

41. Proposed section 18ZB provides that other persons may apply for appointment as verifying authorities

18ZC Appointment of verifiers

42. Proposed section 18ZC provides that the Commission may appoint another person as a verifying authority providing the conditions in this proposed section and proposed section 18ZD, or any other conditions that the Commission imposes, are met.

18ZD Conditions on appointment of verifying authorities

43. This section sets out the basic conditions for appointment as a verifying authority. In particular the authority must be competent to carry out the verification activity as evidenced by accreditation by the National Association of Testing Authorities for the appropriate testing activity.

18ZE Commission must allocate verification marks

44. Proposed section 18ZE provides that the Commission allocates verification marks for use by verifiers.

18ZF Commission must keep register of verification marks

45. This proposed section requires the Commission to keep a register of verification marks that it allocates to the verifying authorities that it appoints.

18ZG Notice to verifying authority of intention to take disciplinary action

46. Proposed section 18ZG provides for the Commission to notify a verifying authority if the Commission intends to take disciplinary action against that authority. The proposed section sets out the procedure the Commission must follow if the Commission considers that there may be grounds for taking disciplinary action.

18ZH Commission may seek further information

47. Proposed section 18E enables the Commission to seek further information from a verifying authority for the purposes of making a decision under subsection 18ZG.

18ZI Commission must consider authority's submission and information in making a decision under section 18ZG

48. Proposed section 18ZI provides that in making a decision to take disciplinary action against a verifying authority, the Commission must take into account any matters raised in the authority's submission and any other information found under proposed section 18ZH.

18ZJ Taking disciplinary action against a verifying authority

49. This proposed section specifies the range of disciplinary actions that may be taken by the Commission against a verifying authority that has breached a condition of appointment and the procedures to be followed in taking those actions.

18ZK Review of decisions

50. This proposed section provides for the Administrative Appeals Tribunal ("the AAT") to review Commission decisions made under proposed sections 18ZC or 18ZJ.

Division 5 - Enforcement

18ZL Overview of Division

51. This division describes the Commissions powers to appoint authorised officers and the powers of those officers to search for and seize evidential material including utility meters or information relating to the verification of utility meters.

Subdivision A - Appointment of authorised officers and identity cards

18ZM Appointment of authorised officers

52. This proposed section provides for the appointment of authorised officers and the requirement for authorised officers to comply with the directions of the Commission.

18ZN Identity cards

53. This proposed section provides that the Commission should issue all authorised officers with identity cards, and specifies the requirements on authorised officers with respect to identity cards.

Subdivision B - Powers of authorised officers

18ZO Powers available to authorised officers for monitoring compliance

54. This proposed section provides for the powers available to authorised officers for monitoring compliance with the Act.

18ZP Offence powers

55. This proposed section provides for powers of an authorised officer if an authorised officer has reasonable grounds to suspect that there may be evidential material on any premises.

18ZQ General powers of authorised officers under this Part

56. This proposed section details the powers that an authorised officer may exercise in relation to premises under section 18ZO and 18ZP.

18ZR Authorised officer may request persons to answer questions

57. The sections of subdivision B provide above standard Commonwealth powers to enter business premises, to search such premises for evidential material, to request information and to seize evidential material. Proposed section 18ZR sets out the powers of an authorised officer to request persons to answer questions.

Subdivision C - Obligations of authorised officers

58. The sections of subdivision C provide standard Commonwealth requirements on the manner in which the powers of authorised officers are exercised and the obligations of authorised officers.

18ZS Authorised officer must produce identity card on request

59. Proposed section 18ZS provides that an authorised officer must produce his or her identity card on request.

18ZT Details of warrant to be given to occupier etc.

60. Proposed section 18ZT provides for the procedures to be followed when a warrant in relation to premises is being executed.

18ZU Consent

61. Proposed section 18ZU provides for the procedures to be followed by an authorised officer before obtaining consent of a person for the purposes of proposed paragraph 18ZO(2)(a) and subparagraph 18ZP(2)(a)(i).

18ZV Announcement of entry

62. Proposed section 18ZV provides for the procedures to be followed by an authorised officer before entering premises under a warrant.

18ZW Compensation for damage to electronic equipment

63. Proposed section 18ZW provides for an entitlement to compensation to the owner of damaged electronic equipment.

18ZX Copies of seized things to be provided

64. Proposed section 18ZX provides for copies of things seized by an authorised officer to be provided.

18ZY Receipts for things seized under warrant

65. Proposed section 18ZY provides for the authorised officer to provide receipts for things seized under warrant.

18ZZ Retention of seized things

66. Proposed section 18ZZ provides for retention of things seized by an authorised officer under this Part.

18ZZA Magistrate may permit a thing to be retained

67. Proposed section 18ZZA provides for an authorised officer to apply for an order to retain a thing that he or she has seized.

Subdivision D - Occupier's rights and responsibilities

18ZZB Occupier entitled to be present during search

68. Proposed section 18ZZB provides the right for an occupier of a premises to be present during a search and observe the search, but this right ceases if the person impedes the search.

18ZZC Occupier to provide authorised officer with all facilities and assistance

69. Proposed section 18ZZC provides for the occupier or the occupier's representative to furnish the executing officer with all reasonable assistance with the conduct of the search..

Subdivision E - Warrants

70. The proposed sections of subdivision E provide standard Commonwealth requirements on the application for warrants by authorised officers and issuing of warrants by magistrates.

18ZZD Monitoring warrants

71. Proposed section 18ZZD provides for the application for a monitoring warrant by an authorised officer, the requirements to be satisfied by the magistrate in issuing the warrant and the requirements for the contents of the warrant.

18ZZE Offences related to warrants

72. Proposed section 18ZZE provides for the application for an offence related warrant by an authorised officer, the requirements to be satisfied by the magistrate in issuing the warrant and the requirements for the contents of the warrant.

18ZZF Offence related to warrants by telephone

73. Proposed section 18ZZF provides that in urgent cases an authorised officer may apply to a magistrate for an offence related warrent by telephone. The proposed section provides for requirements additional to those of proposed section 18ZZE that must be met by the authorised officer in applying for the warrant and the by the magistrate in issuing the warrant.

13 At the end of section 20

74. This item extends the regulation making power of section 20 to include regulation-making powers in respect of utility meters. In

particular the proposed subsection 20(f) is required by the new definition of "utility meter", described in the 6th note on clauses, in order to exempt certain classes of utility meter.

14 Application

75. This item provides for existing utility meters in use for trade at the time of commencement of Part VA to continue in use for trade. However any new meters of the same or other types must be verified under Part VA.

Schedule 2 - Miscellaneous amendments of the National Measurement Act 1960

76. The amendments in this schedule arise because references in paragraphs 12(4), 12A(3), 12A(4), 13 and 13A(1) to subsections 7(1), 7(2) and 7(3) became incorrect following an amendment of the Act in 1991 that repealed section 7 and inserted new sections 7, 7A and 7B. The consequential amendments to update the references in paragraphs 12(4), 12A(3), 12A(4), 13 and 13A(1) were not made at the time. That omission is being remedied in this schedule.

Clause 1: Subsection 12(4)

77. This clause replaces an incorrect reference to paragraph 7(3) which no longer exists with the correct reference to paragraph 7A(2).

Clause 2: Subsection 12(4)

78. Proposed clause 2 removes an incorrect reference to paragraphs 7(2) and 7(1) which no longer exist without altering the effect of subsection 12(4).

Clause 3: Subsection 12A(3)

79. Proposed clause 3 replaces an incorrect reference to paragraph 7(3) which no longer exists with the correct reference to paragraph 7A(2).

Clause 4: Subsection 12A(3)

80. Proposed clause 4 removes an incorrect reference to paragraphs 7(2) and 7(1) which no longer exist without altering the effect of subsection 12A(3).

Clause 5: Subsection 12A(4)

81. Proposed clause 4 amends paragraph 12A(4) to remove an incorrect reference to paragraphs 7(2) and 7(1) which no longer exist without altering the effect of subsection 12A(4).

Clause 6: Section 13

82. Proposed clause 6 amends paragraph 13 to replace an incorrect reference to subsection 7(2) with the correct reference to section 7.

Clause 7: Section 13A(1)

83. Proposed clause 7 amends paragraph 13A(1) to replace an incorrect reference to subsection 7(2) with the correct reference to section 7.