ABN 70 064 651 029

Alinta AE Limited
ABN 82 064 651083

Submission to the Australian Energy Market Commission

Re: Advanced Metering Infrastructure Rollout, Rule Change Proposal (Jurisdictional Derogation – Victoria)

United Energy Distribution and
Alinta AE Limited
Phone: (03) 8544 9447
Contact: Verity Watson
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1 Executive Summary

The Victorian Government is seeking exclusivity by way of a jurisdictional derogation for the distributors to act as the responsible person and meter data service providers in respect of Advanced Metering Infrastructure (AMI) meters rolled out to small customers consistent with the framework established under the Electricity Industry Act (EIA). In accordance with the National Electricity Law (NEL) requirements the Victorian Government has made the request to the Australian Energy Market Commission (AEMC) to make the necessary changes to the National Electricity Rules (NER). This submission is a joint response on behalf of Alinta AE Ltd (Alinta AE) and United Energy Distribution (UED) to the AEMC Rule Change consultation. Our submission seeks to build upon the submissions provided to the AEMC by the Energy Networks Association and the joint Victorian Distribution Businesses.

Alinta AE and UED are committed to ensuring a robust, effective and commercial AMI solution is implemented to meet the Victorian Government's Advanced Interval Meter Roll Out (AIMRO) policy. Both businesses have agreed that the implementation will be managed in accordance with an integrated AIMRO program delivered by Alinta Asset Management.

The Victorian Government's AMI policy approach and the regulatory framework which has been established requires a mandated party to be responsible for the AIMRO. Consistent with the earlier Essential Services Commission (ESC) analysis, the benefits of an interval meter roll out are across a number of parties. There is no one party who receives sufficient benefits to ensure they receive full cost recovery for the infrastructure deployment. The ESC's view was that a market driven approach would be unable to deliver all the benefits to consumers and hence regulatory intervention was warranted.

Alinta AE and UED support the Victorian Government's derogation application to the AEMC. This response will elaborate and provide distributor insight on many of the points raised in the Government's application.

Alinta AE and UED support distributor exclusivity for the AMI. This is a significant program to undertake 1,000,000 meter exchanges across the businesses and to provide two way communications, advanced metering functionality and significantly higher service levels than current practice. AMI is part of a general trend of adding intelligence to the distribution network for increased monitoring and control and therefore efficiency. Over time, AMI and associated technologies will become an integral part of the 'smart grid' and will become almost indistinguishable from the distribution network itself.

Alinta AE and UED very strongly support the derogation as a pragmatic initial step in the introduction of AMI into the NER. The businesses support the Victorian Government derogation application for AMI, however we are also strongly in support of convergence

with the national smart meter arrangements at the appropriate time. We recognise that as the implications of the national smart metering specification and national business processes are better understood, that there may be a need for a new specialised AMI meter type within the NER. We see this as an important debate for the longer term positioning for AMI, however this debate should not delay the commencement of the roll out in Victoria.

The mandate for the local distributor to undertake the AMI deployment in its geographic area requires the exclusivity provided by this derogation to:

- Enable a clear, coordinated roll out of the metering and communications infrastructure;
- Achieve the economies of distributor density and scale;
- Enable a simplified roll out process and the development of the business processes;
- Align with the current technology maturity and proprietary standards;
- Reduce barriers to entry for new retailers to facilitate retail competition;
- Eliminate unnecessary and costly meter churn; and
- Provide all sub 160MWh per annum consumers with a simple, consistent, regulated price for the AMI services.

The derogation contributes to the achievement of the NEM objective by:

- Facilitating an efficient roll out of AMI with a framework for enhanced retailer service offerings;
- The scale and density efficiencies available to the distributors;
- Maximising the efficient delivery of the new AMI functional capability at a business process level;
- Lower metering service provider charges due to longer cost recovery period;
- Alleviating the costs of unnecessary meter churn than would otherwise be the case;
- Simplifying the service provision arrangements for the period of the roll out to allow the AMI benefits to all consumers earlier;
- Minimising supply interruptions and annoyance for consumers; and
- Maximising the opportunity for effective retail competition in the electricity market to continue in Victoria.

2 Background to the Victorian Government's Policy Decision

In 2003 and 2004, the ESC reviewed the potential for the introduction of manually read interval meters into the Victorian market. The ESC's review concluded that there was a benefit in rolling out manually read interval meters in Victoria to certain customer segments. The ESC considered whether the roll out of these manually read interval meters could occur under a competitive market driven solution or whether it needed regulatory intervention to ensure that the benefits to consumers were delivered. In its Final Decision, the ESC concluded that regulatory intervention was warranted as the benefits of the interval meters were spread across a number of parties in the market. The full return of the interval meter investment is not assured to any one party. The ESC's Final Decision concluded that the distributor would be mandated to roll out manually read interval meters to certain customers over a seven year period. These manually read interval meters would be gradually introduced to small customers with single phase metering installations on a new and replacement basis.

In 2005, the Department of Primary Industry (DPI) conducted a cost /benefit analysis to review the possible introduction of advanced interval meters into Victoria. The DPI study analysed whether there were enhanced benefits in moving the ESC decision to a remotely read interval meter roll out and possibly to include all customers in an accelerated deployment of the meters. This review was finalised in early 2006. The cost/benefit analysis concluded that:

- fixed infrastructure advanced interval meter solutions were more cost effective than point to point solutions; and
- the benefits for consumers could be gained earlier than expected if an efficient accelerated roll out was undertaken.

The cost/benefit study was based on a single party being responsible for the metering arrangements for the duration of the roll out. Factors such as metering service provider churn were not considered. The DPI concluded that the distributors should have the obligation to roll out advanced metering infrastructure to all consumers less than 160MWh per annum in a four year period commencing in 2008. This policy decision aligns with the ESC's view that a market solution would not be able to deliver all the benefits and that regulatory intervention was warranted to provide a mandate on the distribution business.

The DPI made changes to the EIA and developed Orders in Council to facilitate the AMI deployment. The framework establishes licence obligations on retailers and distributors including the following:

- A Start Date and End date for the advanced interval meter roll out and yearly roll out targets;

- The obligation for the distributor to roll out advanced interval meters where they are currently responsible for metering arrangements for consumers less than 160MWh per annum;
- The obligation on the ESC to amend existing metering prices for these consumers based on the distributor's pricing proposals;
- A head of power for the AMI Functionality Specification and the AMI Service Level Specification;
- A head of power that requires compliance with the functionality specification for any meters rolled out to small consumers during this period by retailers and distributors; and
- The obligation on the distributor to meet service level requirements for functionality delivered in certain roll out phases.

The framework established by DPI mandates the distributor to roll out the advanced interval meters and meet certain functionality and service levels requirements.

A key aspect of the interval meter roll out policy decision is the ability for interval data to be available and enable retailers to provide more innovative, differentiated offerings to consumers. The interval data will enable consumers to make choices regarding the time of usage and the total quantity of their electricity consumption. The DPI policy decision to roll out to all customers in aggressive timeframes was encouraged by the retailers ability to provide price signals to customers and implement retail media campaigns at the earliest opportunity. The AMI messaging capability also provides a method for retailers to actively engage customers to benefit by their demand response. An efficient, orderly roll out of AMI to enable price signals to customers and thus a demand response at the earliest opportunity will maximise the efficient use of the existing generation, transmission and distribution assets in the NEM, thus achieving the NEM objective.

Improvements in consumption information at an individual customer level will help to empower customers in the sustainability initiatives and issues that lie ahead. The information will no doubt assist industry in the imminent climate change polices – greenhouse reporting, carbon trading schemes etc.

3 National Smart Metering

The Department of Resources, Energy and Tourism (DRET) is conducting a two phase study on the possible introduction of national smart metering. Phase 1 of the study assessed the cost/benefit of possible functions and a target service level that may be considered. The Phase 1 report identified the functionalities that should be included (or not included) in the standard national smart meter. The outcomes of the Phase 1 report were endorsed by the

Council of Australian Government's (COAG) in December 2007, with the recommendation that a national technical smart metering working group should be established to look at some of the finer detail.

Phase 2 of the study has been undertaken with a Final Report due by the end of February 2008. This phase of the project assessed the cost benefit of different roll out approaches and any specific cost/benefit implications in each of the individual jurisdictions.

The Phase 2 of the DRET study provides a national smart metering specification and a recommended roll out approach should the jurisdictions wish to proceed with a smart meter roll out in their state.

The businesses consider that it is important for retailers to have a national standard for the delivery of meter functionality, service standards and business processes in order to facilitate national retail competition and avoid potential rail gauge issues. It is equally important for the Victorian Distributors to be part of the development for these national processes and ensure that clear, unambiguous requirements are agreed nationally. The distribution businesses are equally concerned to avoid rail gauge issues where possible.

Alinta AE and UED support convergence with the national smart metering arrangements at the appropriate time. We are keen to avoid rail gauge problems and to avoid the need to grandfather meters where possible. We recognise that the Victorian Government has made their policy decision on AMI and has set the roll out targets in legal instruments. The inter relationship of the Victorian AMI program and the National Smart Metering program is important moving forward. To date every effort has been made in the Victorian program to minimise the potential rail gauge issues.

4 The Proposed Derogation

4.1 Application

The derogation establishes a term called *relevant metering installation* which applies to each metering installation in Victoria (other than meter type 1-2) for sites consuming less than 160MWh per annum. The *relevant metering installation* term also carves out meter installations where the market participant is the responsible person (RP) at the start date (including installations where the retailer as RP may need to do a normal meter replacement during the derogation term). This carve out means that there is no impact on the sub 160MWh per annum consumers who have already chosen a type 3 or a type 4 competitive Metering Provider and Meter Data Agent.

The metering installations within the scope of the *relevant metering installation* are those where the distributor is the responsible person for sub 160MWh per annum (small) sites at the start date, and for all new connections for small consumers during the derogation term.

The derogation commences on the start date set in the DPI cost recovery Order in Council, 31 December 2008, and ceases to apply on 31 December 2013, one year after the intended conclusion of the AMI roll out. The extra year provides for slippage in the roll out caused by any number of issues – for example the ability to procure compliant, pattern approved meters, a short delay in the industry agreement of business processes and build packs to enable system builds etc. This drafting contributes to the NEM objective by providing a pragmatic approach and thus avoiding the need to continually extend the derogation for the transition period.

The derogation establishes the distributor in the role of the responsible person for the AMI meter and applies the commercial arrangements of the NER as if the *relevant metering installation* were a type 5-7 metering installation (using Rules 7.2.3 (a) (2)).

The derogation provides clarity on the distributor's obligations to roll out meters to *relevant metering installations* thus enabling clarity over the meter volumes to be established in an effort to reduce unit costs and maximise volume buying discounts. This contributes to the NEM objective by providing the maximum certainty over unit volumes possible to gain the most efficient unit prices for the benefits of consumers. Without the regulatory certainty of this derogation, those efficiencies will be reduced.

4.2 Metering Installation types

The Rules currently allow the distributor to alter the metering installation to make it capable of remote data acquisition where there are operational difficulties (eg difficult access or remote rural) without altering the metering installation to a type 4 meter.

These rules clauses have been extended to include the AMI roll out. This allows the flexibility to treat the AMI meter as a type 5 or 6 for some time whilst the functionalities are being tested in the field and systems are fine tuned to meet the service level requirements under different operating conditions. This is intended to provide the minimum impact on the market and retailers until the functionality and service levels are being consistently delivered to the required AMI standard. This derogation contributes to the NEM objective by improving the long term competitiveness of the retail electricity market.

4.3 Cost recovery

Cost recovery of the *relevant metering installations* (AMI meters) is treated in line with distributor cost recovery of types 5-7 in accordance with a Determination made by the Australian Energy Regulator (AER) or a Jurisdictional Regulator. The AMI Meter Price Review will cover meter provision and meter data provision cost recovery for the relevant installations. The ESC will be conducting the first review and as the independent regulator will ensure that the charges are reasonable and efficient in accordance with the cost recovery OIC.

4.4 Agency Data Collection and agency metering databases

The Rules state that NEMMCO may use agency data collection systems to collect metering data, process metering data into settlement ready data and to transfer metering data to the metering database. A person engaged by NEMMCO to provide agency data collection systems must meet and comply with service levels and any other criteria that NEMMCO establishes. These Rules clauses generally relate to large metering installations with a type 1-4 meter. For the small consumer metering installations the meter provision, installation and maintenance, and the data collection, validation and data forwarding is managed by the RP role.

The derogation seeks to allow only the distributor to select the person to be engaged by NEMMCO to provide agency data collection systems and agency metering databases (provided that such person complies with the service levels and any other criteria established by NEMMCO). Given the current maturity of the technology (the meter, communications

and network management system are vendor specific) and given the data collection and meter reading processes are tightly coupled with the communications card in the meter, the delivery of these technology components is best undertaken by a single party.

Both the Victorian and the National smart metering studies have indicated that fixed infrastructure communication technology solutions, such as power line carrier, distribution line carrier or mesh radio, are the most cost effective. This derogation enables a single party to select the meter and the technology for data collection thus enabling the most cost effective technologies to be adopted. Enabling the most cost effective technology to be deployed in the AMI roll out is consistent with the NEM objective.

5 Why Mandate a party to undertake the accelerated advanced interval meter roll out?

DPI considered both retailer mandated roll outs and a distributor mandated roll out and concluded that the mandate should be placed on the distributors as opposed to an option of a mixed retailer/distributor roll out responsibility.

We understand that several retailers expressed an interest in rolling out advanced interval meters to a few customers. However, DPI and the retailers were unable to reach agreement on how this would be managed whilst meeting the Government's policy. An accelerated roll out of AMI with the obligation across a number of parties in a geographic area proved complex to agree in the aggressive timeframes:

- Clarity of which party was rolling out to each premise is difficult and impacts roll out targets and the ability to efficiently manage the roll out process;
- The need to coordinate the roll out geographically across multiple parties to avoid leaving stranded manually read consumers;
- Clarity on which party, distributor or retailer, would take on the obligation for providing services to new connections;
- Clarity of the process and obligations where consumers churn to a new retailer who has chosen not to offer these services and the impacts of consumers moving house into a premise where a retailer has established the metering services;
- Potential customer differentiation of functionality and services offered by the selected retailers vs the mandate on the distributors; and
- Possible differentiation of the retailer accelerated cost recovery from consumers vs the distributor regulated cost recovery smeared across the remaining consumers.

We understand that the Retailers did not agree to commit to meet the DPI requirements for an accelerated roll out nor to provide the advanced metering services to all consumers below

160MWh per annum. There was no agreement that all retailers would meet the DPI policy requirements.

These difficulties establish that the alternative to the proposed derogation would not contribute to the achievement of the NEM objective.

Overseas analysis supports the DPI policy decision to progress the advanced metering infrastructure roll out via an exclusive distributor approach. In Ontario, Canada the local distribution company is responsible for the provision and maintenance of meters. The Demand Response and Advanced Metering Coalition note in their response to the Ontario Energy Board[1]:

'The OEB has rightfully rejected meter contestability. Whereas the idea of competition in the provision and operation of meters on a meter-by-meter basis may seem at first glance to be a proposition that would lead to lower costs and rapid market intervention by competitive suppliers, in reality it means a more expensive (5-6 times more expensive) and slower deployment than via mass deployment through the LDCs based on experience in the U.S. with contestability. Moreover, as the OEB has recognized, the economic advantages of competition can still be seized via the competitive procurement processes of the LDCs, not only for the meters themselves but for meter related equipment and services that can be competitively outsourced.'

On balance, the DPI policy decision concluded the distributors should undertake the roll out in an efficient manner as the exclusive party responsible.

6 Benefits of a Distributor Roll out

6.1 Density of a Distributor roll out

The distributors provide network services and meter provision and data services in a defined geographic area for these mass market consumers today. This provides both scale and density within the distributor's geographic area to enable an efficient roll out thus promoting efficient investment in electricity services. On the other hand, if the retailers were to undertake the roll out, the large incumbent retailers may have the scale but not the same density of consumers. A retailer roll out would involve more drive time between sites thus increasing costs. The large retail incumbents would be unable to achieve the same roll out efficiencies.

[1] Response to Ontario Energy Board, Smart Meter Initiative Draft Implementation Plan, Demand Response and Advanced Metering Coalition, 26 November 2004

Over the last 7 years, 19 new electricity retailers have entered the market. These new entrants do not have the density or scale as the incumbent retailers or the local distributor and could be disadvantaged in a retailer driven roll out, thus damaging the interests of consumers.

DPI has stated that effective competition in the electricity retail market is the primary concern and competition in metering is second order. An exclusive distributor roll out provides the benefit of a metering service to all retailers, large and small, with a consistent standard base offering, thus contributing to the achievement of the NEM objective.

Reviews in the UK market also recognise that there are economies of scale in a distributor roll out, see Attachment 1. A report by Owen and Ward considering the UK market has noted that:

'A mass rollout could realise logistical and organisational efficiencies and deliver scale-economies, in a way not likely to be achieved at low-volumes:

- *Meter-unit costs reducing significantly, potentially by around one-third, depending on volume.*
- *Lower communications costs e.g. Power Line Carrier or Low Power Radio currently estimated to be less than half the cost of mobile equivalent. These also could significantly reduce meter unit costs by eliminating the need for a modem.*
- *Average installation costs in a systematic mass-roll out would also be lower*
- *Supplier benefits (reduced meter-reading and call-centre costs) could expect to be fully realised at volume.*
- *Possibly most practical option to deliver systematic and rapid, (say 5-year) upgrade of the national meter infrastructure.*
- *Shifts long-term responsibility and financial exposure for the meter away from the supplier to the geographic DNO or Meter Licence Holder and therefore averts potential wasteful stranding of smart meter assets. In particular, small new-entrant suppliers will be free of very large financial exposure for expensive meter assets.'*[2]

In response to Ofgem's Consultation Paper, Domestic Metering Innovation, Scottish Southern Energy responded in support of a mass market roll out of smart metering as a regulatory product of a network business;

'The evidence from around the world is overwhelming: smart meters have only successfully been rolled out to the mass market as a regulatory product of the network businesses. Treating smart meters as a regulatory product will secure interoperability, provide an incentive to invest and significant economies of scale as well as ensuring that the domestic customer sees the benefits of what they, ultimately, are paying for.'[3]

[2] Smart Meters: Commercial, Policy and Regulatory Drivers, Owen G and Ward J, March 2006
[3] Response to Ofgem – Domestic Metering Innovation – March 2006, Scottish Southern Energy, 15 March 2006

The benefits of scale also extend beyond the roll out into operations. The new communications network linking the back office systems to the meter will introduce new processes into both the back office and the field. It is expected that the operation of this network will require 24/7 monitoring and field response to ensure market data delivery service levels are maintained. The distributor's scale and the potential to gain efficiencies across a 24/7 network control centre and a communications management centre will not be able to be obtained by retailers and their service providers.

The derogation contributes to the achievement of the NEM objective by:

- The scale and density efficiencies available to the distributors; and
- Reducing the barriers for small and new entrant retailers who may not be able to provide the services due to the lack of scale and density efficiencies thus preserving the long term competitiveness of the retail electricity market.

6.2 Distributor's capability base

6.2.1 Our AIMRO project

UED and AAE have a joint AIMRO project in place to meet the regulatory obligations placed on licensees by the Orders in Council. The combined project has been in place for over a year now with significant resource effort on technology assessment and selection, IT capability and business process development and change management.

Our AIMRO project is undertaking a number of activities in good faith with the aim of meeting the DPI's regulatory framework and mandated roll out targets. The project has undertaken a number of activities to date and will continue with the next phases of these activities as we progress through the roll out period:

Technology

- Active participation in the DPI working groups to develop the advanced metering functionality, service levels and initial technology trials;
- Initial trialling of technology in accordance with the DPI AIMRO trial strategy to test the communication component of potential AMI solutions;
- The development of a technology capability assessment model against all regulatory and business requirements;
- Further trialling to assess technology compliance with the required AMI functionality and service levels, including field surveying, spatial mapping etc;
- Development of tenders, procurement and selection for meters, data concentrators wide and local area network capability and meter installation to meet the DPI requirements;
- Development of processes to manage the assessment of technology options as they evolve;
- Mass Roll-out planning – business continuity, release planning and cutover design; and
- Mass roll out delivery.

IT

- Review of IT architecture and design options;
- Development of an approved IT blueprint;
- Development of tenders, procurement and selection for IT capability; and
- Planning and delivery of IT capability, including data conversion, integration etc.

Business Process and Change Management

- Active participation in the Victorian Industry Project Office business model and business process development;
- Integration of AMI business process requirements as they evolve into detailed design phase;
- Work with industry/regulatory bodies to move AMI business requirements into approved regulatory instruments eg the MSATS and B2B procedures etc;
- Development of a change strategy and engaging stakeholders through all phases of the project;
- Development and delivery of training requirements; and
- Enabling and supporting program leadership.

To date, the businesses have actively participated in the DPI working groups and Industry Steering Committees with a number of stakeholders. The AIMRO project has undertaken significant effort in trialling, technology evaluation, procurement and selection. Our project has built up a significant knowledge base on the technology and will continue to do so. For example, we are conducting surveys of radio signal strength to assess environmental, climatic and other issues. The results of the survey will provide insight into the factors that may reduce signal strength and thus impair the ability to provide a robust, reliable communications network to meet the meter data service level requirements. These types of surveys and planning activities are crucial to improve our understanding of the mesh technology performance on our terrain. This type of planning work would not be able to be undertaken cost effectively without the scale and density that the distributor's mandate entails. The regulatory certainty of the obligation through the Orders and the derogation is a crucial aspect for the AMI delivery.

The DPI Industry Steering Committee has established an Industry Program Office which is currently leading workshops to develop the business model and business process requirements for AIMRO. Significant resource effort is being put into the development of these business processes on the basis of the new functionality and service levels under an exclusive distributor AIMRO model.

While remotely-read interval meters have existed in the market for some time, their use has been restricted to relatively few large customers. However the rules, transactions and processes in place for existing remotely-read interval meters are not suitable for AMI as they:

- Are not designed for the volumes associated with mass-market residential customers; and

- Do not cater for the range of services and capabilities of AMI.

New rules, processes and transactions are therefore required for the successful implementation of AMI. However, these rules, processes and transactions are yet to be defined.

This work needs to be completed and translated into all of the relevant instruments so that industry is able to deliver to a clear, unambiguous set of requirements(for example, the NEM MSATS, Metrology and B2B procedures and build packs). The documentation and approval of these regulatory changes is currently a critical path item in our project plan. If the derogation does not proceed, the transaction complexity would increase and delay finalisation of the business model and processes for AMI.

Our project is well into the rollout planning and procurement phase. Significant costs are being incurred to deliver to the DPI policy framework and regulations. Moreover, an integral part of the framework is the exclusivity derogation as this influences the meter infrastructure procurement requirements. As evidenced from the above description, the project is well managed, heavily resourced, efficiently structured and targeting efficient outcomes. Failure to achieve the derogations puts these efficiencies at risk.

6.2.2 Ability to deal with difficult sites

The deployment of advanced metering infrastructure to about 1 million customers in the aggressive timeframe of 4 years is a large planning task. The distributors have well developed skills in managing network assets and construction projects and are well placed to take on this task. This will require the management of increased workforce, clear communication and engagement with customers and retailers and the management of the procurement and delivery of the required metering infrastructure so that the roll out is not delayed.

As the distributors have found in previous meter replacement programs, difficult sites will be encountered and will need to be managed and the issues resolved during the roll out program. These difficulties may include:

- Fascia fuse brackets breaking when the fuse is pulled;
- Rotten or unsecured fascia boards coming off and requiring replacement when the fuse is pulled;
- Meter board replacement due to asbestos or insufficient board strength due to the mismatch in the meter cut out sizes;
- Cabinet replacement due to new meter depth being different from old meter; and
- Cabinet related issues eg meter reading slits being no longer appropriate, new meter cabinet needs to be relocated etc.

These issues are able to be dealt with efficiently in a distributor roll out program. This was the intent of the manually read interval meter roll out. The DPI policy intent is that a

regulated AMI roll out by the distributors would allow for these difficult sites to be managed as part of the roll out process and the costs recovered and smeared to ensure that the customer receives a positive response from the AMI policy.

If the derogation does not proceed to provide the distributors with the exclusive mandate then the retailers' meter service provider would need to co-ordinate with the distributor for each meter exchange for de-energisation and re-energisation services. The distributor may need to deal with some of the difficult site issues, whilst other issues will need to resolved by the competitive meter provider and costed directly to the customer. Additional costs to the customer who had a meter exchange to meet policy requirements rather than at their request will cause aggravation.

The process of co-ordinating the retailers meter provider and the energisation of large consumers is currently a time consuming and inefficient process for the service providers involved. This requires several parties to co-ordinate the timing of their resources at the premise such that they do not delay the other service provider. This co-ordination, when extended to a mass market meter exchange program, would ultimately lead to a more complex and less efficient process.

The derogation allows the distributor to deal with these difficult site issues efficiently as part of the normal course of the roll out.

The derogation contributes to the achievement of the NEM objective by:

- Enabling efficient meter exchange processes; and
- Increasing the success of the policy implementation by enabling cost smearing of issues encountered during the roll out eg difficult sites.

6.3 Advanced metering functionality

The Minimum AMI Functionality Specification and the Minimum AMI Service Level Specifications were endorsed as Version 1.0 in October 2007. The high level functions within the AMI specification include:

- Remote and local reading of interval data;
- Remote disconnection and reconnection;
- Time synchronisation;
- Load control groups, controlled load management at meters, utility control of other loads;
- Meter loss of supply detection and outage detection;
- Quality of supply and other event recording;
- Supply capacity control;

- Interface to Home Area Network;
- Tamper detection;
- Communications and data security;
- Remote firmware upgrades; and
- Self registration of meters.

The functions in the AMI specification go well beyond normal metering/metrology requirements. Many of the functions within the meter relate to network operations and network performance.

AMI is part of a general trend of adding intelligence to the distribution network for increased monitoring and control and therefore efficiency. Over time, AMI and associated technologies will become an integral part of the 'smart grid' and will become almost indistinguishable from the distribution network itself.

The derogation provides for a clear, simple framework where these functions are able to be utilised by the distribution business without the time delay of receiving network and metering data from many competitive meter data providers within the market. Even a small degree of metering competition will create delays in receiving this data and provide less value to consumers overall. Following up competitive providers for missing or incomplete data for some of these measures may not be cost effective. As the technology evolves and the functions and services able to be delivered become more complex this issue in a multi service provider arrangement will be exacerbated.

If the policy and regulatory framework were to move away from the current exclusive mandate on distributors, then consumers should receive consistent metering capability whether the meter is provided by the retailer's metering service providers or the distributor. The policy framework that has been established requires any meter exchange (or new connection) that occurs during the roll out period to have a meter which meets the Functionality Specification. However, only the distributor provided meters installed during this period need to deliver to the Service Level Specification. If the derogation does not proceed then the service levels to distributors will need to be reviewed. The proposed functionality and service level framework should apply to all parties and all small consumers.

The derogation contributes to the achievement of the NEM objective by:

- Maximising the benefits of the additional metering functional capability and service levels over the current NEM requirements;
- Facilitating retail competition by enabling differentiation in retail offerings to customers sooner; and
- Maximising the efficient delivery of the new AMI functional capability at a business process level.

6.4 Framework for Enhanced Functionality and Service Levels

To date, there has been little innovation by retailers in metering services in the mass market. The NER framework does provide retailers with the option of providing type 4 metering services, and yet there has not been any significant movement to interval metering and remote reading services. Despite metering contestability operating for a number of years in the UK, Ofgem also note similar findings and consider that:
'Innovative metering has generally been introduced in an environment where metering activities have been the exclusive responsibility of the network operators. Metering is therefore treated as part of the overall network business and is remunerated as part of the network price control.' [4]

Often retailers argue that in a competitive metering framework they are better able to innovate and provide differentiated metering services offers. Retailers would argue that the distributors are not receptive to their enhanced needs, and they are unable to choose a different service provider when the distributor is performing poorly. The ability to differentiate metering service offerings would help differentiate the retailer's offering to the consumer in the mass market and hence enhance retail competition.

The retailers have had significant input in the development of the functionality and service levels to date. The service levels for AMI are far greater than those required or delivered by the current type 4 metering service providers. For instance, the service requirement for AMI is for metering data to be delivered to the retailer by 6 am after the end of day, yet for existing service providers of remotely read interval meters the requirement is by 5 pm in two business days.

The framework established by DPI provides the opportunity for a retailer to seek enhanced functionality and service levels from the distributor as the metering service provider. The Functionality and Service Levels Order (clause 5) establishes a process of requesting the enhanced service levels, responding to the request in certain timeframes and negotiating in good faith. Where a retailer considers that a distributor was not negotiating in good faith then the retailer may pass the matter to an Independent Expert Panel for resolution. The framework established ensures that the retailers are able to provide high quality services above the base AMI requirements and that the distributors must be responsive to their needs for further enhanced service offerings.

To meet this requirement, both businesses will be reviewing their internal processes and developing a process that is more receptive and better meets the retailers needs for differentiation in retail offerings and enhanced services.

[4] Domestic Metering Innovation Consultation paper, Ofgem, 1 February 2006

The derogation enables the distributor to select the meter data provider. However this ability to select the meter data provider is only to the extent that the provider selected complies with the service level requirements and any other criteria established by NEMMCO, including accreditation requirements. NEMMCO, as market operator, would continue to monitor and manage any low performance standards for any metering data provider in the market. These processes ensure that the distributor provides a quality service and that poor service will not be tolerated.

The derogation contributes to the achievement of the NEM objective by facilitating an efficient roll out of AMI with a framework for enhanced retailer service offerings.

6.5 Technology Implications

The technology options assessed by the DPI study included fixed infrastructure communications solutions and direct point to point solutions. The DPI cost benefits study and the recent national smart metering study both conclude that the fixed infrastructure communication technologies are cheaper than point to point solutions.

The fixed infrastructure technologies involve consumer's meters communicating with a data concentrator and many data concentrators communicating to a network management system. The consumer's individual meters communicate regularly with the data concentrator either directly or via other meters (of the same technology) acting as repeaters. The data concentrator communicates on a regular basis to the back end communication management system.

Under a retailer roll out, if a fixed infrastructure solution were adopted this could potentially result in multiple sets of communications infrastructure being installed in the one geographic area. This approach would lead to the inefficient duplication of assets within an area as multiple retailers sought to install these fixed infrastructure solutions.

An alternative for retailers would be to adopt a higher cost point to point solution for some or all of the 2 -3 million meters in Victoria. This type of point to point solution would not be able to deliver the network operational benefits and broadcasting capability envisaged in the DPI Specifications as efficiently. For example, the ability to limit supply capacity and minimise/avoid interruptions to customers would be less effective if distributors do not have full control of the systems.(An example of when this AMI functionality would be utilised is during the load shedding when the Victorian electricity transmission interconnect went down in the bushfires on 16 January 2007) Hence the long term benefits to consumers would be lower under this option.

The fixed infrastructure solution operates with some meters acting as repeaters of the radio signal in order to get the signals to the data concentrator. The signal path for mesh radio

may be complex and may divert around black spot (poor radio signal strength) areas to allow the signal to reach the data concentrator. The solution relies on a certain density of meters to establish signal paths from meters distant/shaded from the data concentrator. Climatic, topographical, shielding and other environmental factors will affect signal strength and ultimately the reliability and robustness of meeting the service levels.

Where the retailer had a choice of contestable meter providers and opted for a point to point solution, the overall meter density of a certain fixed infrastructure technology would be lowered affecting the reliability and robustness of the signal path and overall performance of the AMI service levels.

The loss of consumers from the distributor's AMI system would result in the need to install more data concentrators or in the need to install special repeaters to fill the role of the meters that had been cherry picked. These distributor reconfiguration costs would increase the cost of the service to the remaining customers. The fixed infrastructure solutions will be susceptible to certain levels of cherry picking of meters from the fixed infrastructure solution. The exclusivity derogation provides an appropriate transition period to gain further knowledge over the roll out period so this risk may be reduced.

Options for the retailer to employ separate meter providers and meter data agents whilst using or having open access to the distributors communication backbone would create uncertainty and would serve to delay the DPI policy initiative. If retailers metering providers were interested, it is unclear on what basis this access would be granted and the contractual matters, liability etc would need to worked through. If proprietary technology were adopted this would create difficulties in meter service provider access, security and regulation with the telecommunications industry requirements. The distributor would need to ensure that overall performance of transactions was able to be maintained across mutli-parties with appropriate transaction prioritisation. The process to gain the necessary agreement across multiple technology selections and multiple parties would create uncertainty and serve to delay implementing the policy objectives.

The derogation contributes to the achievement of the NEM objective by:

- Facilitating the efficient deployment of communications technology in a geographic area;
- Encouraging the use of more cost effective fixed infrastructure technologies over point to point technologies where practical;
- Avoiding the unnecessary use of higher cost point to point technologies;
- Avoiding the need for communication network reconfiguration costs caused by competitive meter provision;
- Maximising the efficiency of the delivery of the additional AMI meter functionality; and
- Avoiding the regulatory and contractual complexity of multi-party access to multiple technology platforms.

6.6 Benefits of Regulated Cost Recovery

The derogation proposes that the cost recovery for the metering services – meter provision and meter data provision be treated in a similar manner to meter types 5 and 6 recovery. The jurisdictional regulator pricing Determination will establish the base terms and conditions and the reasonable and efficient charge for these services.

The jurisdictional regulator is an independent regulator. Retailers concerns of monopoly charging are addressed in the regulatory framework. The cost recovery OIC establishes the process by which the ESC will conduct the price review for metering service charges. This framework provides mechanisms in addition to the CPI-x price control mechanism to incentivise distributors to manage the cost of the roll out of AMI services. The regulated charge also provides benefits by facilitating cost smearing across all customers.

Retailers often argue that distributors provide monopoly charges, however, a large portion of the estimated overall cost of the program will be incurred in a series of major contracts with external suppliers. An extensive and robust procurement process is therefore essential for the success of the program.

Alinta AE and UED have carried out an extensive Request for Information (RFI) process and are currently assessing tenders received as a result of a Request for Tender (RFT) process. In total, 43 suppliers have been requested to respond to RFTs covering technology (meters and communications), installation and IT requirements. The majority of the program costs are therefore subjected to extensive market testing to avail the businesses of the best available priced compliant products that will support the Alinta AE and UED regulatory requirements. The ESC in their price review process will assess the appropriateness and robustness of these processes and costs.

The cost recovery framework established provides for assets being recovered over long time periods. For example the meter asset life and cost recovery is over a 15 year period. On the other hand, retailers have a shorter relationship with their consumer and metering service providers resulting in a shorter cost recovery period. This results in higher metering costs to the customer over the life of the retail contract.

The derogation contributes to the achievement of the NEM objective by:

- Efficient, competitive procurement processes resulting in metering service charges based on market tested costs with scale and density efficiencies;
- Simple, reasonable and efficient regulated charges to all retailers which simplifies retail offers and reduces the barrier for new entrant retailers;
- Costs of policy implementation able to be smeared across all *relevant metering installations* eg the costs of difficult sites; and
- Lower metering service provider charges due to longer cost recovery period.

6.7 Meter Churn Impacts the Market

The DPI Rule change proposal notes that customer transfers may result in meter installations inefficiently being removed creating issues in relation to performance and delivery of metering data and hence increasing costs to a number of roles in the process. This increase in the cost of the transfer has the potential to impact the effectiveness of the retail electricity market.

The current Rules provide a framework where a customer may transfer to a different retailer and many of the underlying roles may change as a consequence. Where the new retailer chooses a new MP and a new MDP, there may be 6 parties involved in the transaction, in addition to the distributor. This choice of metering service providers applies to meter types 1-4 which are mainly used for large consumers in the market, generally consuming above 160MWh per annum. For consumers below 160MWh per annum, the distributors are the exclusive providers of type 5 and 6 metering and the churn of service provider roles has been avoided.

Where the retailer requires different metering service providers, they may be able to align the customer transfer date with the service provider churn arrangements. If for some reason this is unable to occur, this creates a churn period where new and old meter providers and service providers may be providing services to each other and there is a mismatch of roles in MSATS and the commercial contractual arrangements.

NEMMCO in their recent Meter Churn Guideline describes how meter churn impairs the performance of metering data and standing data in the market[5]. Attachment 2 provides an excerpt from the Meter Churn Guideline listing the market issues meter churn creates. During this churn period the data often goes missing impacting the meter providers, meter data providers, distributors and retailers in relation to billing accuracy.

NEMMCO advise the following data issues in the market in their Meter Churn Guideline in point 2.5.7:

- Temporary impairment in delivery of quality *metering data*;
- Meter type changes may necessitate aggregation and complicate billing processes;
- Delays in *standing data* updates into MSATS, hence metering details may not reflect installed equipment for a period of time;
- Contractual obligations are impaired with service providers ;
- Possible inaccuracies in network billing;
- Possible inaccuracy of prudential's, forecasting and hedging assessments;
- Increased B2B processing and industry queries; and
- Increase in consumer queries.

Not only has NEMMCO seen a need for this new Meter Churn Guideline to advise retailers of appropriate processes, it also has a 30 page Meter Churn Data Management Rules document to clarify the obligations of the old and new MDP[6]. At the moment, the meter providers and meter data providers have manual processes in place to communicate with the old/new service providers to fill in the part days data. These processes are not sustainable for any significant volume of meter churn due to the complexity. If a small portion of the 28% retail churn for small customers resulted in meter churn then these highly manual processes would have a significant market impact.

NEMMCO further noted that many of the market impacts created by meter churn are exacerbated by retrospective transfers.

Even a small degree of meter churn creates issues for many players in the market as indicated above. Meter churn generally occurs for large customers consuming above 160MWh per annum. There are approximately 2.1 million domestic customers and only 280,000 business customers. The mass market customers churn retailers at a rate of 28% each year whilst the large consumers churn retailers at a rate of less than 1%. Metering service provider churn for even a small amount of the retail churn that occurs in the mass

[5] Financially Responsible Market Participant Meter Churn Guidelines, NEMMCO, Draft version 0.1, First Stage Consultation

[6] Meter Churn Data Management Rules, NEMMCO, 1 March 2006

market would add considerable cost to the industry. Further, the metering churn which would occur without the derogation would create delays and inefficiencies in the AMI roll out.

The advanced interval meters have a number of additional functions over existing meters used in the NEM. The additional functions include customer energisation and other network management/performance functions. The market even after 12 years of operation with some metering churn is still experiencing problems with the meter data and standing data. These additional advanced interval meter functions will significantly increase the complexity of the delivery of these functions during this churn period.

By providing an exclusive party to be responsible for the meter provision and the meter data provision for the term of the derogation, the Victorian Government is seeking to avoid meter churn to the greatest extent possible. The Rule change proposal is seeking the distributor to be responsible for the sub 160MWh per annum consumers which is aligned to the current framework where the distributors are currently providing these services.

In the limited number of cases where the retailer has exercised their choice of service providers for these sub 160MWh per annum customers, the service provision arrangements would remain unaltered unless the retailer or consumer requests otherwise.

The derogation contributes to the achievement of the NEM objective by:

- Alleviating the costs of unnecessary meter churn than would otherwise be the case;
- Simplifying the service provision arrangements for the period of the roll out; and
- Maximising the opportunity for effective retail competition in the electricity market to continue in Victoria.

6.8 Impact of Meter Churn on Consumers

The meter exchange processes results in an interruption of supply to the customer. The interruption of supply is an annoyance to customers resulting in the resetting of clocks and programs in the many electronic devices in the home or business. For small business customers it may result in an interruption of supply during business hours, possible loss of production during the interruption, or the need to arrange and be present for an after hours meter exchange. Whilst the initial meter exchange from a manually read meter to an advanced interval meter cannot be avoided, further unnecessary interruptions to supply can be avoided if there is no meter churn involved with retailer churn.

The derogation contributes to the achievement of the NEM objective by:

- Minimising supply interruptions and annoyance for consumers;
- Reducing the barriers to customers changing retailers; and
- Minimising the potential for complaints related to meter exchange supply interruptions.

6.9 Retail Competition

The DPI Rule change proposal notes that meter churn will impact the effectiveness of the retail electricity market and indirectly the wholesale market through the data problems that are created. The Victorian Government stated that the effectiveness of the retail electricity market is the primary competition concern. Where retailers select competitive meter providers and meter data providers for large consumers with meter types 1-4 they are seeking to lock these consumers in to longer term retail contracts. These larger consumers are often industrial and commercial customers who are managed on a retailer account basis. The retail contracts are often seeking to lock in consumers for 2-5 year contract terms with possible extensions. This provides the consumers with certainty on price for the term but also seeks to lock in the consumer so that the retailer can recover the costs of providing the meter, the meter exchange costs and the costs of the service providers.

The derogation contributes to the achievement of the NEM objective by maximising the opportunity for effective retail competition in the electricity market to continue in Victoria.

7 Minor Derogation Drafting Amendment

In conjunction with the Victorian Government's development of this derogation application, NEMMCO have also submitted to the AEMC a Rule Change proposal to incorporate 1st tier metering arrangements into the NER. We understand that the AEMC intends to make a Final Determination on the 1st tier metering Rule change proposal on 21 February 2008. However, in light of the latest 1st tier metering Draft Decision, we offer the following drafting suggestions for your consideration to ensure consistency with the Victorian Government's proposal is maintained.

9.9B.3 Terms and Conditions (clause 7.2.3 (b) – ~~(h)~~ (i))
(a) Clause 7.2.3 (b) and 7.2.3 (c) will not apply to *relevant metering installations*.
(b) Clause 7.2.3 ~~(ca) – (h)~~ (d) – (i) will apply to *relevant metering installations* as if the *relevant metering installations* were referred to in clauses 7.2.3 ~~(ca)~~ (d) and 7.2.3 ~~(d)~~ (e).

We would also welcome the opportunity to provide any further minor drafting changes that are required once the 1st tier metering Final Determination has been issued.

Attachment 1

Experience from Overseas

In the UK retailers are responsible for making metering arrangements on behalf of customers and can arrange any type of meter to be installed (subject to certain accuracy, safety criteria). Even with metering contestability, the distributors are obliged to provide metering on all supply points in their area as a default provider. Any retailer requiring such services would be able to obtain them through the competitive metering services market or from the local distribution business. Retailers have not taken advantage of the contestability of meter provision, relying instead on the distributors for meter provision and operation. Despite contestability in metering in the UK, there has been little innovation in metering services.

Ofgem note in their report that:
'Innovative metering has generally been introduced in an environment where metering activities have been the exclusive responsibility of the network operators. Metering is therefore treated as part of the overall network business and is remunerated as part of the network price control'. [7]

A report by Owen and Ward considering the UK market has noted that;
'A mass rollout could realise logistical and organisational efficiencies and deliver scale-economies, in a way not likely to be achieved at low-volumes, because at volume one could expect to see:

- *Meter-unit costs reducing significantly, potentially by around one-third, depending on volume.*
- *Lower communications costs e.g. Power Line Carrier or Low Power Radio currently estimated to be less than half the cost of mobile equivalent. These also could significantly reduce meter unit costs by eliminating the need for a modem.*
- *Average installation costs in a systematic mass-roll out would also be lower.*
- *Supplier benefits (reduced meter-reading and call-centre costs) could expect to be fully realised at volume.*
- *Possibly most practical option to deliver systematic and rapid, (say 5-year) upgrade of the national meter infrastructure.*
- *Shifts long-term responsibility and financial exposure for the meter away from the supplier to the geographic DNO or Meter Licence Holder and therefore averts potential wasteful stranding of smart meter assets. In particular, small new-entrant suppliers will be free of very large financial exposure for expensive meter assets.'*

'Under the present commercial, policy and regulatory framework, little is likely to happen to stimulate smart-meter installation, without additional measures… In many other countries

[7] Domestic Metering Innovation Consultation paper, Ofgem, 1 February 2006

detailed assessments have found a positive cost-benefit case for widespread smart meter installation and this review suggests that the cost benefit case for the UK is also likely to be positive, but further work is needed to confirm this. Therefore it would be sensible to start with a number of minimal interventions to enable some progress to be made, alongside a major trial or trials, to help determine the most appropriate further regulatory interventions. These could either be developments of the current competitive framework, or a more systematic geographic rollout.' [8]

In response to Ofgem's Consultation Paper, Domestic Metering Innovation, Scottish Southern Energy, responded in support of a mass market roll out of smart metering as a regulatory product of a network business;
'We firmly believe that taking a segmented approach…will fail to deliver the potential benefits to the domestic consumer or to industry as a whole. There will be no economies of scale, the potential for bespoke technical solutions that may lock customers in to particular suppliers will remain a real concern, and there will be an ongoing risk of stranded assets.'

'The evidence from around the world is overwhelming: smart meters have only successfully been rolled out to the mass market as a regulatory product of the network businesses. Treating smart meters as a regulatory product will secure interoperability, provide an incentive to invest and significant economies of scale as well as ensuring that the domestic customer sees the benefits of what they, ultimately, are paying for.'

'We believe that smart meters can only be introduced into the mass domestic market as a regulatory product of the network operators. This would provide the necessary incentive to invest whilst removing the risk of stranded assets and, critically, ensure interoperability is secured.'

'Such arrangement will allow for a practical, phased roll out to the mass market, based on geography, whilst achieving significant reduced costs through economies of scale.'

'Allowing network operators to bring in smart meters as an excluded service will allow existing arrangements to run off over at least the life of the existing price control and possibly over the life of the assets themselves without the need to reopen existing price controls.'

'Significant economies of scale could be achieved through a programmed, mass roll out of a standardised product. Such economies of scale will be significant and include those accruing from a rationalised telecommunications investment that utilises existing distribution network infrastructure. For example, Ofgem's review of international experience highlighted the Enel example that utilises power line carrier communications between the meters and LV transformers, then GSM/fixed line to the data centres.'

[8] Smart Meters: Commercial, Policy and Regulatory Drivers, Owen G and Ward J, March 2006

'The other options 'will either maintain the current inertia, with smarter meters being installed in niche, non-domestic market segments or will exacerbate the problem and further stratify the domestic market.'

'Concerns over the potential for choosing the 'wrong' technology could be adverted by clearly specifying the required functionality and standardising communication protocols following a pilot that was designed to test the customer benefits accruing from the new technology. In addition, concerns over lack of choice, high costs and high prices could be addressed via an appropriate incentive mechanism within the price control.'

'In our view the existing framework is fundamentally flawed, with tensions evident between suppliers and their metering agents that undermine the development of competition in metering and, more particularly, the introduction of innovative technology.'

'A retailer has no incentive to offer innovative metering.'

'Smart meters are not, in themselves, goods. They are simply the means to provide information and energy services products to the end consumer. As a consequence we believe they should be treated as part of the network infrastructure.' [9]

Scottish Power, also responded to Ofgem's consultation paper in support of re-regulation of metering via the network businesses;

'*The only viable policy option to support the introduction of smarter metering is for the asset, communications, installation and enabling IT investment to be funded on a regulated rate of return basis with appropriate cost pass through to customers facilitated by re-regulation of the metering businesses via the DNO's and DNs.'*

'We believe that achieving these levels of specification, against a backdrop of full GB rollout volumes, will not be a great challenge to meter manufacturers. Conversely, any form of fragmented approach will result in higher charges and reduced functionality as manufacturers hedge their prices against volume risk.' [10]

In Ontario, Canada the local distribution company is responsible for the provision and maintenance of meters. The Demand Response and Advanced Metering Coalition note in their response to the Ontario Energy Board:
'*The OEB has rightfully rejected meter contestability. Whereas the idea of competition in the provision and operation of meters on a meter-by-meter basis may seem at first glance to be a proposition that would lead to lower costs and rapid market intervention by competitive*

[9] Response to Ofgem – Domestic Metering Innovation – March 2006, Scottish Southern Energy, 15 March 2006
[10] Response to Ofgem - Domestic Metering Innovation – March 2006, ScottishPower, 15 March 2006

suppliers, in reality it means a more expensive (5-6 times more expensive) and slower deployment than via mass deployment through the LDCs based on experience in the U.S. with contestability. Moreover, as the OEB has recognized, the economic advantages of competition can still be seized via the competitive procurement processes of the LDCs, not only for the meters themselves but for meter related equipment and services that can be competitively outsourced.' [11]

[11] Response to Ontario Energy Board, Smart Meter Initiative Draft Implementation Plan, Demand Response and Advanced Metering Coalition, 26 November 2004

Attachment 2

NEMMCO Financially Responsible Market Participant Meter Churn Guidelines First Stage Consultation

Excerpt from Section 2.5 regarding the impacts of meter churn on the market.[12]

2.5 Impacts

Meter churn impairs the performance and delivery of *metering data* and *standing data* to *market participants* for a *connection point* as summarised in the following:

2.5.1 Retail transfer and *responsible person*.

In situations involving transfers of large customers where a change to the *metering installation* is undertaken pre transfer, the current RP is not in direct control of the changes. As a consequence the ability of the current RP to meet *Rule* obligations for the *connection point* over the meter churn period is impaired.

2.5.2 Whether the MDP changes.

A change in the MDP for the *connection point* requires a 'hand over' of the *connection point* information between the service providers concerned. In these situations the acquisition of meter data from the new installed *metering installation* has to be undertaken by the incoming MDP pre transfer. As a consequence the new MDP has to provide services to meet the performance deliverables of another MDP over the churn period.

2.5.3 Whether the MPB changes

A change of MPB is usual with changes to the *metering installation* which inturn necessitates re-validation of the *metering installation* details between the new RP and the new MDP. Whilst this validation can take place in readiness for transfer, the new *standing data* details cannot be updated into MSATS until the new MPB and MDP role responsibilities become active.

2.5.4 Metrology changes to the metering installation.

In situations where the metrology of the installation changes, for example;

- An interval to interval meter change but the new meter has a different interval, (e.g. 15 to 30 mins).
- Non – interval to interval meter changes.

The management of the metering data through the meter change day is therefore complicated. This necessitates the MDPs to adjust or aggregate the sets of

[12] Financially Responsible Market Participant Meter Churn Guidelines, NEMMCo, Draft version 0.1, First Stage Consultation

metering data in order for a contiguous set of data to be provided to the market. The MDPs will also need to facilitate the alignment of the datastreams across metrology changes.

2.5.5 Whether the meter is changed before or after the transfer date.

The period between the meter change date and the transfer date dictates the flow of metering data between MDPs and the substitution / validation processes to be applied. In many situations of meter churn, there can only be an initial provision of substituted metering data until the new installation configuration is known and the real metering data becomes available.

2.5.6 Retrospective transfers.

The action of any significant retrospective transfer will further complicate nearly all of the above.

2.5.7 Meter churn will for various periods of time, have any number of the following effects;

- Temporary impairment in delivery of quality metering data;
- Meter type changes may necessitate aggregation and complicate billing processes;
- Delays in standing data updates into MSATS, hence metering details may not reflect installed equipment for a period of time;
- Contractual obligations are impaired with service providers ;
- Possible inaccuracies in network billing;
- Possible inaccuracy of prudential's, forecasting and hedging assessments;
- Increased B2B processing and industry queries; and
- Increase in consumer queries.