Electricity Commission
Te Komihana Hiko

Discussion Paper

Part D Review – Issues and possible options

Prepared by Electricity Commission

6 August 2008

Executive summary

1. Part D of the Electricity Governance Rules 2003 (Rules) sets out the obligations on participants in relation to metering standards. It deals with the responsibility of participants in relation to the provision of metering installations, the testing of metering installations, ensuring a metering installation complies with a set of codes of practice, and the role of the reconciliation manager in relation to metering inaccuracies

2. A review of part D is considered necessary because the Rules need to keep abreast of regulatory and technological changes. The history of the current part D dates back to the introduction of competition in electricity retailing when the Metering and Reconciliation Information Agreement (MARIA) was established as a voluntary arrangement enabling the allocation of quantities produced and sold among the parties.

3. The trend towards convergence of communications, metrology, data handling, and load control at consumers' premises requires a review of the way data is collected, transported, stored, and used (for reconciliation, switching, and regulation). The responsibilities for these roles need to be clearly identified and allocated.

4. Commission staff have reviewed submissions on other topics such as the Advanced Metering Infrastructure (AMI) Discussion Paper, the survey conducted by the Existing Capability Working Panel (ECWP), and the work done by the Value and Pricing Working Panel (VPWP). It has also reviewed metering regulation in other jurisdictions. The following provisional list of issues has been identified:

    (a) Definition of metering and metering infrastructure;

    (b) Responsible party for the provision of a metering installation;

    (c) Responsible party for compliance of a metering installation:

        (i) The role of the meter equipment owner;

        (ii) Load control device certification, testing and records;

    (d) Demarcation between metering installation and "back office";

    (e) Access to metering installations;

    (f) Ownership of raw meter data and access to metering information;

    (g) Current rule change proposals relating to AMI; and

    (h) General issues such as:

        (i) The roles of the market administrator and the reconciliation manager;

        (ii) Metering in other parts of the Rules; and

        (iii) Installation standards and the relationship of part D with other legislation, e.g. wiring regulations.

5. Possible options relating to these issues have been developed and this discussion paper asks submitters to comment on the issues and options.

6. The Commission seeks submissions on the questions set out in this paper, and on any aspect of the paper as a whole. The submission closing date is Friday 3 October 2008.

Glossary of abbreviations and terms

Board	Board of the Electricity Commission
Commission	Electricity Commission
COP	Code of Practice
Electricity Act	Electricity Act 1992
GPS	Government Policy Statement on Electricity Governance (May 2008)
IEC	International Electrotechnical Commission
Regulations	Electricity Governance Regulations 2003
Rules	Electricity Governance Rules 2003

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1. Introduction

1.1 Background

1.1.1 The accuracy of the clearing and settlement of electricity trading in the wholesale electricity market, as well as the accuracy and fairness of consumer electricity billing, are dependent on both the integrity of the metering used to measure electricity consumption and generation, as well as the integrity of the data handling processes.

1.1.2 Part D of the Electricity Governance Rules (Rules) sets out the obligations on participants in relation to metering standards. It deals with the responsibility of participants in relation to the provision of metering installations, the testing of metering installations, ensuring a metering installation complies with a set of codes of practice, and the role of the reconciliation manager in relation to metering inaccuracies.

1.1.3 Metering employed in the majority of installations in New Zealand uses stand-alone single or three phase meters which are interrogated manually on site. However, the use of remote meter reading and two way communication with meter installations is expanding rapidly as is the integration of various communication and load control technologies

1.1.4 The vast majority of electricity is consumed by a relatively small number of consumers and the electricity passing through these installations is measured by very accurate interval meters using remote meter reading.

1.1.5 There are approximately 1.9 million electricity metering installations in New Zealand at present, with this number growing by approximately 30,000 per annum.

1.1.6 Metering installations are categorised according to load and required accuracy. This is to allow for different classes of meters to be used to reflect the value of the electricity being measured. There are seven categories of metering installations (0 to 6), where category 0 is for unmetered load and category 6 is for measurement of electricity where the load exceeds 300 amps and the voltage exceeds 11kV.

1.1.7 The table below shows the number of metering installations by category as at the beginning of 2008.

Category	0	1	2	3	4	5	6
Number of installations	9325	1,898,056	20655	3015	705	44	86

1.1.8 Current metering stock is aging, although it is by no means inaccurate. Although half hour (HH) interval meters in categories 3 and above are well managed in compliance with the Rules, most non half hour (NHH) meters only have what is called "interim compliance". This compliance expires on 1 April 2010 for category 2 metering installations and on 1 April 2015 for category 1 metering installations.[1] The need to ensure certificated compliance with the Rules will necessitate the replacement of a large proportion of the existing stock before interim compliance expires.

1.1.9 The codes of practice are contained in schedule D1 and these cover:

(a) Metering Installations;

(b) Requirements for approved test houses;

(c) Requirements of metering installations;

(d) Data logger minimum functional requirements; and

(e) Variation of requirements for metering installations.

Need to review part D of the Rules

1.1.10 The trend towards convergence of communications, metrology, data handling and load control at consumers' premises requires a review of the way data is collected, transported, stored, and used (for reconciliation, switching, and regulation). The responsibilities for these roles need to be clearly identified and allocated.

1.1.11 A review of part D is also necessary because rules need to keep abreast of regulatory and technological changes. The current rules date back to the introduction of competition in electricity retailing when the Metering and Reconciliation Information Agreement (MARIA) was established as a voluntary

[1] Rule 4.8 of schedule D1 of code of practice D3 of part D of the Rules.

arrangement enabling the allocation of quantities produced and sold among the parties. The major milestones have been:

(a) 1994 - Initial metering rules developed as part of MARIA;

(b) 1999 - major changes to remove barriers to full retail competition enabling profiling and introducing the seven metering categories;

(c) 2004 - the Electricity Commission inherited the metering rules from MARIA – part D was largely extracted from the MARIA rules; and

(d) 2008 – the Electricity Commission published an Advanced Metering Infrastructure (AMI) policy, which in itself has resulted in a need to change the existing part D rules.

1.1.12 There are two components to a metering installation, that is, equipment that measures the flow of electricity (metering platform), and equipment that provides that information into a downstream process (metering data interface). The metering equipment owner would own both the platform and the data interface, and the certification of a metering installation would include these two components.

1.1.13 Historically, the two were located in the same device, i.e. meter reading was only available at the meter itself and even then only for a limited amount of information. However, with the development of more advanced metering systems that may carry out a range of additional services such as load management, multiple registers etc, complex information, and the advent of remote communications, it is now necessary to clearly distinguish the responsibilities between the metering platform provider (who may or may not be the equipment owner) as distinct from those of the metering data service provider (for each of the services offered over the platform), as these may be different parties.

1.1.14 The metering equipment owner could be responsible for ensuring that a system capable of hosting a compliant metering service is made available, but the provision of the actual service of metering might be via another party across the platform. This is distinguishing between the responsibility for the metering service from the responsibility for the metering equipment infrastructure (platform).

1.2 Purpose

1.2.1 The purpose of this paper is to seek views on several key issues identified by the Commission as part of its consideration of the need to review existing metering regulation in light of advances in technology. The Commission will finalise the scope of the project to review part D after receipt and analysis of the responses to this paper.

1.2.2 The paper:

(a) outlines proposed guiding principles for the review project;

(b) proposes that the Commission progress proposed amendments to the existing rules in order to give effect to the AMI policy;

(c) sets out a number of high level issues and possible options;

(d) notes other key issues to be resolved; and,

(e) describes the process the Commission proposes to take after receiving submissions on this discussion paper.

1.2.3 This paper does not constitute the formal consultation and submission process required by section 172E(2) of the 1992 (Act) and is not a formal statement of proposal under section 172F(2) of the Electricity Act. If, after receiving submissions on this discussion paper, the Commission considers that it will progress proposed amendments to the Regulations or Rules, the required consultation and other processes will be carried out in accordance with the Act.

1.3 Submissions

1.3.1 The Commission invites submissions on this paper. Submissions must be received by 5pm on Friday 3 October 2008. Submissions received after this date may not be considered. Submissions should be provided in the format shown in Appendix Two. The Commission requires one electronic copy (Microsoft Word) or one hard copy of each submission.

1.3.2 The electronic version should be emailed with "Submission on Part D Review" in the subject line to submissions@electricitycommission.govt.nz. The hard copy should be posted to:

Electricity Commission
Level 7, ASB Bank Tower
2 Hunter Street
PO Box 10041
WELLINGTON
Tel: (04) 460 8860
Fax: (04) 460 8879

1.3.3 The Commission will acknowledge receipt of all submissions electronically. Please contact the Commission if you do not receive electronic acknowledgement of your submission within two business days.

1.3.4 Your submission is likely to be made available to the general public on the Commission's website. Submitters should indicate any documents attached in

support of the submission in a covering letter, and clearly indicate any information that is provided to the Commission on a confidential basis. However, all information provided to the Commission is subject to the Official Information Act 1982.

2. Guiding principles for part D review

2.1.1 The Commission wishes to establish guiding principles for reviewing the existing part D rules, and is proposing the guiding principles below for the purposes of consultation.

2.1.2 In developing these guiding principles the Commission has had particular regard to the consumer protection components of the GPS and to the Commission's principal objectives under the Act of ensuring that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable, and environmentally sustainable manner. These proposed guiding principles have influenced the Commission's views on appropriate options to address the issues relating to metering, as reflected in this discussion paper.

2.1.3 The Commission considers that the review should meet the following guiding principles:

(a) Issues will be canvassed to enable the widest practicable input to the review.

(b) Issues will be screened to determine relevance and materiality.

(c) Preferred options will be selected on the basis of their contribution to the Commission's principal policy objectives and the outcomes set out in the GPS.

(d) The process will meet the expected standards for regulation as set out in the Act.

(e) The process will, as far as possible, ensure that proposed rules, guidelines or other measures are consistent with the Commission's regulatory approach in other areas or other parts of the Rules.

Q1.	**The Commission seeks comments on the guiding principles for the part D review project. Please give reasons for your view.**

3. Part D

3.1 Overview

3.1.1 The central element of Part D is the metering installation and the boundaries to that installation. The individual parties subject to the rules in part D are shown in figure 1. These are:

(a) The party responsible for providing the metering installation;

(b) The party responsible for quantification (reconciliation participant);

(c) The meter owner;

(d) The approved test house; and,

(e) The reconciliation manager.

3.1.2 The activities to be performed within the rules in part D are:

(a) Installation testing and certification of metering installations;

(b) Audit and approval of test houses;

(c) Provision of metering installation;

(d) Interrogation of meters, storage of data, maintenance of installation records and logging events;

(e) Modifications to defective metering installations;

(f) Determination of quantities from defective metering installations and:

(g) Variations of requirements for metering installations.

3.1.3 The bulk of part D is contained in schedule D1 which contains the codes of practice (COP) that govern the technical aspects of metering installations. They contain standards and processes that are meant to ensure that the activities are performed accurately and that metering installations are suitable for their purpose. The COPs identify the International Electrotechnical Commission (IEC) standards to be used for metering installations and COP D1 to D4 cover:

(a) D1 - Metering installations- defines the accuracy requirements for metering installations;

(b) D2 - Requirements for approved test houses – sets out the permitted activities and approval process;

(c) D3 - Requirements of metering installations- deals with certification and inspection of metering installations; and

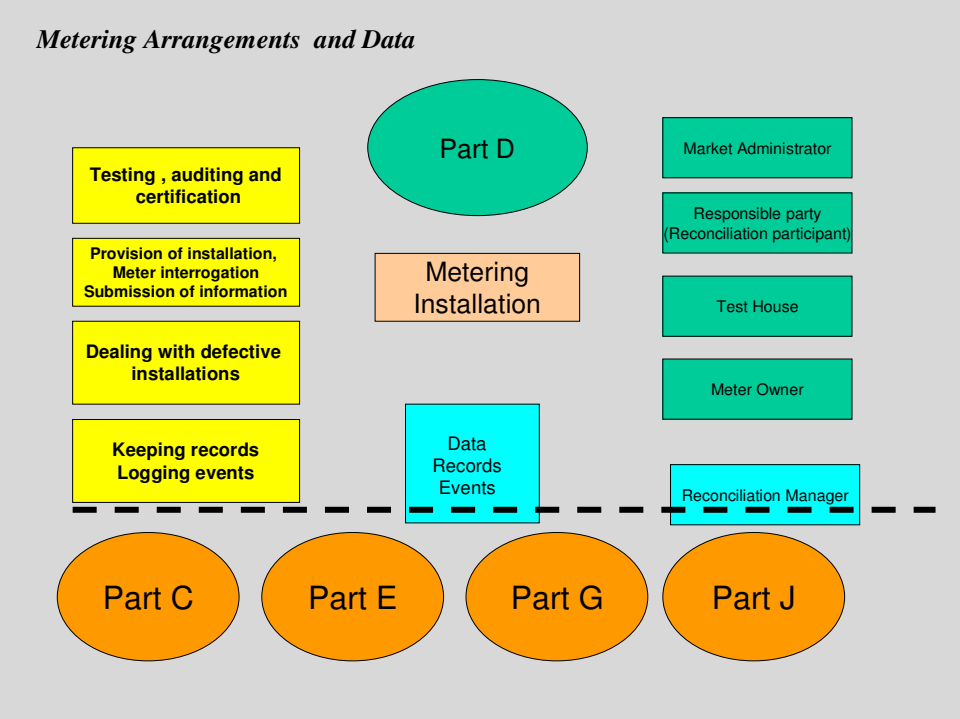
(d) D4 -Data logger functional requirements – deals with the minimum functions required.

3.1.4 COPD5 deals with obtaining permission to vary the requirements set out in COPs D2 to D4 and the role of the COPD5 review panel.

3.1.5 Other parts of the Rules deal with different aspects of metering and, while this paper will deal mainly with the issues relating to part D, the impact of these other parts will have to be identified and taken into consideration.

3.1.6 The diagram below illustrates that the main aspects to be covered lie within part D but other parts are, or can be, affected.

Figure 1



3.2 Issues relating to Part D

3.2.1 Commission staff have reviewed submissions on other topics such as the AMI Discussion Paper, the survey conducted by the Existing Capability Working Panel (ECWP) and the work done by the Value and Pricing Working Panel (VPWP). It has also reviewed metering regulation in other jurisdictions. The following provisional list of issues has been identified:

(a) Definition of metering and metering infrastructure;

(b) Responsible party for the provision of a metering installation;

(c) Responsible party for compliance of a metering installation:

(i) the role of the meter equipment owner;

(ii) issues surrounding multiple metering equipment owners within a metering installation;

(iii) load control device certification, testing and records;

(d) Demarcation between metering installation and "back office";

(e) Access to metering installations;

(f) Ownership of raw meter data and access to metering information;

(g) Potential rule changes relating to AMI and

(h) General issues such as:

(i) The roles of the market administrator and the reconciliation manager;

(ii) Metering in other parts of the Rules; and

(iii) Installation standards and relationship of part D with other legislation, e.g. wiring regulations.

3.3 Metering and metering infrastructure

3.3.1 The Rules do not define 'metering' but do define 'meter reader', meter reading', meter owner', 'metering equipment owner', 'metering information', 'metering installation', 'metering situation', and 'metering standards'.

3.3.2 The definition of 'metering installation' is central to the Rules as they stand:

> **metering installation** means **meters**, load and **meter** control devices (but not their control signals or means of generation), **data loggers**, test blocks, measuring transformers, **error compensation** processes, fittings, equipment, wiring and installations used for the measurement and storage of **volume information**, that is used for the purposes of the **rules**, and which comply with the **metering standards**.

3.3.3 The purpose of the metering installation can be summarised as the control and measurement of electricity, together with the storage of information that may be used for reconciliation or other rules related purposes. Interestingly, control signals and their means of generation are excluded from the definition.

3.3.4 In its discussion paper on AMI[2], the Commission suggested a rule change to the definition of metering installation to include "communication devices used in sending and receiving meter information to the point of meter read", or similar, within the definition. There was general agreement with this suggestion subject to clear definition of the 'point of meter read' and the continuing ability to manually read the meters.

3.3.5 This proposed rule change is discussed in Appendix 1.

3.3.6 Using the existing and proposed definitions of metering installation, it is proposed to define **metering** within the Rules as a process consisting of:

(a) Measurement – equipment which may include components and meters;

(b) Recording – using data loggers, load control devices or other similar recording devices;

(c) Control – of meters and load control devices;

(d) Communication – transferring raw data and supporting event logs to a data handling system and receiving meter and load control signals at the metering installation;

(e) Raw data collection – meter reading (or interrogation);

(f) Storage – providing a safe repository for metering data and event logs;and

(g) Raw data access – allowing authorised parties to access the metering data, event logs and other relevant information.

3.3.7 **Metering infrastructure** can be defined as the hardware and systems used to effect or manage each step in the metering process.

Q2.	**The Commission seeks comments on the proposed definitions for metering and metering infrastructure. Please give reasons for your views.**

[2] Discussion Paper on Advanced Metering Infrastructure (AMI), June 2007.

3.4 Party responsible for providing a metering installation

Issue 1: Rules are not clear or consistent

3.4.1 For points of connection to the grid, the party responsible for providing metering installations is:

(a) For existing points of connection - the participant identified in schedule D2 (either Transpower or a generator); and,

(b) For new points of connection – the participant determined by the Board following consultation with the grid owner and other affected parties at the point of connection[3], which could be the grid owner (for flow predominately out of the grid) or a participant with whom the grid owner has reached agreement such as a local network owner, or an asset owner (when flow is predominately into the grid), who could be a generator or a network owner with a large embedded generator.

3.4.2 The party who is responsible for providing the metering at a grid connection point has to be a reconciliation participant – so has to have responsibility for provision of submission information under rule 4 of part J, and is responsible for compliance with codes of practice in terms of rule 6 of part D.

3.4.3 For points of connection to local or embedded networks the language changes from “responsible for providing metering installation” to “responsible for ensuring that a metering installation is provided” for direct purchasers, embedded generators and embedded network owners.[4]

3.4.4 For retailers the language changes again to “must ensure that the conveyance of electricity is quantified by using a metering installation or a method of calculation…” [5]

3.4.5 The actual provider(s) of a metering installation or components that form a metering installation could be a retailer, a local or embedded network owner, a generator, metering equipment owner, a grid owner, a customer or another party.

[3] Rule 2 of part D of the Rules.

[4] Rules 3.3, 3.4, and 3.7 of part D of the Rules.

[5] Rule 3.1 of part D of the Rules.

Possible option

3.4.6 A simple alternative to the current approach would be that a connecting party must ensure that a metering installation is provided at:

(a) points of connection to local or embedded networks; and/or

(b) points of connection to the grid.

3.4.7 This would place the responsibility on the owner of the physical supply assets that connect to the relevant network to coordinate the different parties who provide the components of the metering installation.

Issue 2: Responsibility for metering infrastructure

3.4.8 The extended definition of metering installation and the proposed definition of metering infrastructure do not change the responsibility of the parties for the metering installation. The definitions raise the question as to whether there is a need to extend the Rules to allocate responsibility for the provision of the metering infrastructure where the communication and load control signal transmitter have to become involved.

Possible options

3.4.9 The metering equipment owner could be required to ensure that the metering installation is correctly integrated with the metering infrastructure and that all the devices operate securely and properly, for example, the load control devices can operate and the communication system is secure.

3.4.10 Another option may be that responsibility for the metering infrastructure be allocated to the local network owner. This will provide for end to end testing and certification to be defined for load control and other communication processes and equipment in addition to the meters and related components.

Issue 3: Anomalies due to grid configuration

3.4.11 There are situations that arise where the configuration of the grid and the metering at point of connection to the grid give rise to anomalies in the reconciliation process. An example is where distribution networks can form part of the grid by paralleling grid connection points within the local network, causing apparent net outflows from the local network that will be confused with generation in the reconciliation system.

Possible option

3.4.12 The Board continues to determine the party responsible for provision of the metering installations at points of connection to the grid but that it also approves the metering configuration. Approval of the metering configuration is to ensure that there are no impacts on reconciliation procedures.

3.5 Party responsible for compliance of a metering installation

3.5.1 The AMI Discussion Paper stated that "[T]he party responsible for reconciliation has ultimate responsibility under the Rules for compliance of the metering installation used in the creation of submission information to the reconciliation manager". Most submitters were happy with this.

3.5.2 This responsibility could be extended to the metering infrastructure, as discussed in section 3.4. For ease of reference, the term metering installation will continue to be used in this paper and replaced with metering infrastructure where relevant.

3.5.3 Although the ultimate responsibility rests with the reconciliation participant for ensuring that the metering installation is compliant, the actual testing certification and auditing of the components is usually arranged by a metering service provider. This could be a retailer, local or embedded network owner, generator, metering equipment owner, grid owner, customer or another party.

3.5.4 Rule 6 of part D sets out that the participant responsible for providing a metering installation will ensure that the metering installation meets the requirements of the codes of practice.

(a) This means that in effect the reconciliation participant is responsible for ensuring that metering installations meet the requirements of the Rules.

(b) Compliance of an installation becomes a contractual issue between the trader and a metering equipment owner, who may own all of the metering equipment components within a metering installation.

(c) Participants and individual companies or persons may own components of a metering installation and have obligations under the Rules that they may not be aware of.

(d) Rule 1 of code of practice D3 of schedule D1 of part D places obligations on metering equipment owners to ensure that their individual responsibilities are defined within an agreement, but does not define who has overall responsibility for the installation certification or what happens when ownership is unknown. This then falls back to (a) above.

Issue 4: Metering certification by reconciliation participants

3.5.5 Rules 3 and 6 of part D of the Rules set out the responsible party for ensuring metering installations comply with the Rules and are appropriately certified. For connections to local or embedded networks this is the party that buys/sells from/to the clearing manager for that point of connection.

3.5.6 There are two problems that can arise under the current situation:

(a) The metering equipment owner provides all or some of the components of the metering installation and may also be the test house certifying the metering installation.

(b) The responsibility for certification of a metering installation is not well defined, particularly where either a change or an addition to equipment occurs, ownership is not clear, or a owner or customer will not enter into an agreement or maintain compliance of their equipment.

(c) reconciliation participants often do not have resources to confirm that where metering installations are leased from another party, that the metering equipment owners and their test houses have performed their obligations correctly. But reconciliation participants have Rules obligations for any certification or metering errors and to correct settlement information.

Possible option

3.5.7 It is considered that the Rules should prohibit a reconciliation participant from certifying the compliance of a metering installation in which it has a financial interest.

3.5.8 The meter equipment owner at any point of connection, being a participant, should be responsible for compliance with codes of practice for the items of equipment that they own. Currently this is achieved through contractual arrangements where the reconciliation participant is not the meter installation owner. It is proposed that all of these transactions be at arms length and a standard contract for testing and certification be developed. The contract terms could:

(a) form part of the Rules; or,

(b) be a model arrangement.

3.5.9 The responsibility for the compliance of the metering installation could be:

(a) moved within the Rules to the metering equipment owner that receives payment for the installation from the trader.

(b) a new rule obligation for the metering equipment owner that requires that the participant responsible for providing metering information to the reconciliation participant, to have responsibility for compliance of the metering installation and infrastructure.

3.5.10 Note that the AMI policy refers to a "platform operator" and that this would be the metering equipment owner for the purposes of part D compliance.

Q3.	**The Commission seeks comments on the responsibilities for provision of metering installations and responsibility for compliance with codes of practice. Please give reasons for your views.**
Q4.	**Is there a need to have a more transparent market system so that reconciliation participants trading an installation can gain information on certification and meter attributes to the meter register level? If so, should these records be maintained by metering equipment owners? Please give reasons for your views.**
Q5.	**There are already a large number of meter equipment owners that may not realise that they have obligations under the Rules, e.g. customers who own their own CTs etc. Do you see split (multiple parties) meter equipment ownership at a metering installation as an issue? The Commission seeks comments on the structure of meter equipment ownership, please give reasons for your views.**

3.6 Demarcation between metering installation and "back office" of reconciliation participant

3.6.1 Once data has been collected from the meters at a metering installation under part D, it is communicated to the reconciliation participant responsible for settlement at that point of connection for processing under part J, i.e. validation and use of the data to produce submission information to the reconciliation manager.

3.6.2 Meter reads and supporting information theoretically exist at the point that information is transferred from the metering installation into the back office process, i.e. the meter reading and communication software could be considered as part of the metering installation.

3.6.3 There is then a demarcation issue between the activities of the metering equipment owner, test house, and the back office process of the reconciliation participant with little market transparency between these participants.

3.6.4 Raw meter data exists from the point of meter read and is the demarcation between the metering installation and the trader. However, where the meter read is recognised remotely, the meter register is separate from the installation.

3.6.5 The reconciliation participant uses this information to process the data to produce bills or check sales/purchasing to/from the clearing manager.

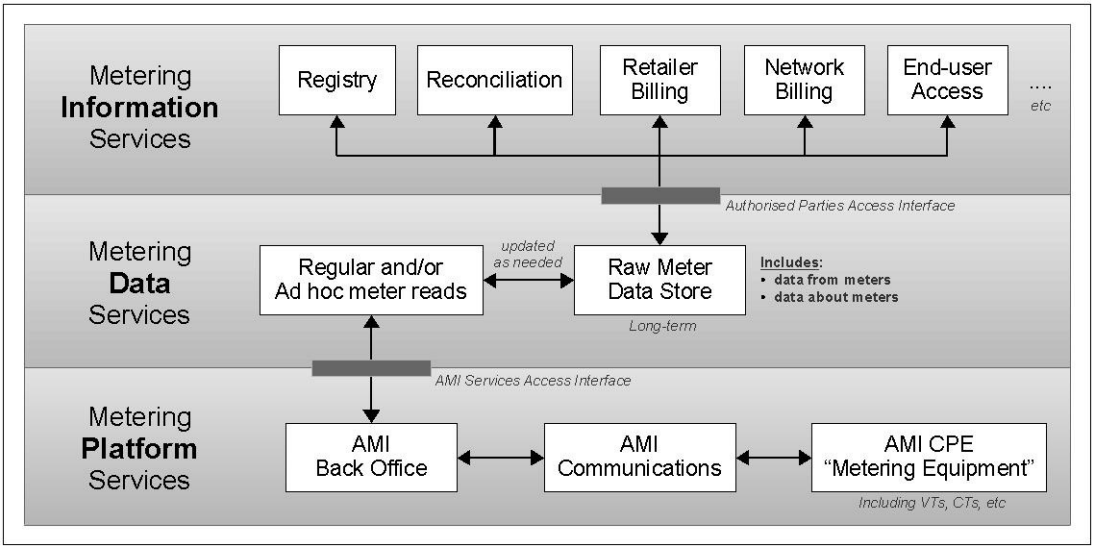
3.6.6 With AMI, there is a potential for a seamless process whereby the reconciliation participant can read the meters remotely and feed the data directly into its billing or other systems.

Possible option

3.6.7 The first definition of “raw meter data” within part A of the Rules could be considered the boundary between parts D and J. This could include meter reading software within the definition of a metering installation.

3.6.8 The interface at a separate facility or service where the raw meter data, event logs and reconciliation information are centrally stored (either within the meter equipment owner’s system or at a central data repository) would identify the demarcation point between the metering installation and the back office. This approach has been adopted in other jurisdictions and provides for better management of access to metering data.

3.6.9 The following diagram illustrates how the different aspects of a metering service for AMI could be configured. The demarcation point in this configuration would be at the input to the “Raw Meter Data Store”. Note that the AMI platform service provider’s back office is distinct from the Retailer’s billing system (back office).



Q6.	**The Commission seeks comments on the demarcation between the metering installation and the reconciliation participant's "back office". Please give reasons for your views.**

Issue 5: Data security standards

3.6.10 With the convergence of communications and data processing, the risk of unauthorised access and tampering with data is increasing and participants need to be assured that this risk is being managed by the owners and operators of metering infrastructures. This raises an issue of how to achieve this assurance.

Possible option

3.6.11 A new code of practice could be developed that would take into account the need for security from malicious abuse of the data being communicated between the metering installation and the back office software through to the metering infrastructure.

Q7.	**Is there a need to develop a new code of practice to cover the security standards required for metering installations and for metering infrastructure? Please give reasons for your views.**

3.7 Access to metering installations

3.7.1 The AMI policy sets out the principle of open operation to encourage an environment where there are no barriers to access to common services required by users.

Issue 6: Open access

3.7.2 This policy also applies to all metering infrastructures and the Commission wishes to explore how open access to metering installations for meter reading purposes, or metering information from a metering infrastructure provider, can be encouraged with the minimum level of regulation.

Possible options

3.7.3 A model contract similar to the MUOSA would set out the rights and obligations of the parties who require access on a commercial basis to the equipment and data.

3.7.4 Rules may be necessary for access to parts of the installation that should only be accessed by approved test houses or the individual metering equipment owners.

Q8.	**The Commission seeks comments on access to metering systems. Please give reasons for your views.**

3.8 Load control device certification

3.8.1 As mentioned above, load control devices and the communication of the signals from the receiver to the metering installation form part of the metering installation. The only provision for performance of ripple receivers is in COPD3[6] which specifies that they must comply with IEC standard 61037.

3.8.2 There is provision in the MUOSA for audits on the performance of load control receivers but there is little evidence that such audits are conducted or that there are incentives for these to occur.

[6] Table 1 in Appendix 1 of COPD3

Issue 7: Certification of load control devices

3.8.3 Load control devices and signalling equipment provide tariff signals or may provide profiling information that may be used in the reconciliation process and can affect the quantities reconciled in specific time periods. There are currently no rules to ensure that the signal transmission is efficient and tested, or that the devices actually operate when required. There are no specifications for the signal frequencies or strength or requirements to keep records, to test, certify or audit the systems used.

Possible option

3.8.4 The inclusion of load control system specification testing and certification will lead to more accurate reconciliation, more demand side participation and the maintenance of the current load control equipment and capability. (see VPWP and ECWP reports).

3.8.5 Bringing the certification of load control devices into the Rules:

(a) Would be consistent with the current trend of integrating load control devices within the same instrument as the meter.

(b) Would ensure that accurate records are maintained for load control devices, including load control channels assigned.

Q9.	**The Commission seeks comments on the certification of load control devices. Please give reasons for your views.**

3.9 Ownership of data

3.9.1 Currently data from metering installations is used for a number of applications:

(a) Reconciliation;

(b) Billing;

(c) Line charge settlement;

(d) Statutory reporting; and

(e) Loss factor determination.

3.9.2 However, metering systems are evolving that will collect far more information than just volumes of energy, for example for distribution planning, electricity marketing, or analysing consumer behaviour that may have value. This may include:

(a) data from other devices such as gas and water meters;

(b) load control parameters that operate within a premise;

(c) event logging of parameters such as amount of load shed or timing of these events;

(d) aggregated information for defined distribution network areas;

(e) real time information such as power quality;

(f) other information that could be of a more personal nature such as security, electricity price, demand or time clocked functions.

Issue 8: Who owns data from meter installations?

3.9.3 The ownership of the data from meter installations is not clear and the Rules do not prescribe who has access, particularly where the one device may record parameters for more than one user that may be of a confidential nature.

3.9.4 Service provider documents, transmission benchmark agreements and model contracts have been used to specify ownership of data relevant to reconciliation, but not to other users of information of a metering system.

3.9.5 The major issue is whether to deal with ownership within a revised part D.

Possible option

3.9.6 The ownership of data may be an issue best left to Regulations as it will relate to other parts of the Rules, or to other users of the metering installation that are unrelated to electricity supply.

3.9.7 However, access to data relating to the Rulebook is covered in Regulations and the part D rules could develop the access provisions by developing another code of practice.

3.9.8 An example of the arrangements in the Australian market is shown in Appendix 3. This is an extract from Chapter 7 of the National Electricity Code.

Q10.	**The Commission seeks comments on ownership of data from metering installations. Please give reasons for your views.**

3.10 Codes of practice

Issue 9: Out of date codes of practice

3.10.1 The main issues relating to codes of practice relate to their relevance in the light of developing standards technology and regulatory practice and whether

the Rules should be restructured to rationalise the mixture of rules and codes of practice that currently exists in part D.

3.10.2 The parties actively involved in the codes of practice are:

(a) Metering equipment owners;

(b) Test houses;

(c) Participants responsible for metering installations; and

(d) COPD5 review panel, which deals with requests for variations to COPD2, COPD3, and COPD4.

3.10.3 COPD3 of part D includes standards that have now been updated or changed, and standards will continue to evolve and new standards will continue to develop over time.

Possible option

3.10.4 A full analysis of each code should be undertaken and any additional codes, such as for access or security, identified by a specialist group.

3.10.5 This group could develop recommendations for specific codes of practice and whether the Rules should be restructured.

Issue 10: Test house and metering equipment owner audits

3.10.6 The Rules provide for auditing of test houses etc.

(a) With the increasing technological sophistication of metering installations, there is possibly a need to ensure that test houses are keeping up with advances and that a more rigorous compliance regime is required.

(b) Class A and B test houses have different requirements for the time period between audits, but may be the same test house.

3.10.7 There is currently no requirement for metering equipment owners to be audited to ensure that they comply with the requirements of the Rules, and have an appropriate asset management plan in place.

Possible option

3.10.8 A review of current compliance should be undertaken to determine the need to extend the current audit requirements and/or their effectiveness.

Q11.	**The Commission seeks comments on updating the Codes of Practice. Please give reasons for your views.**

Q12.	**The Commission seeks comments on the audit of meter equipment owners to ensure that rule obligations are being met.**

3.11 Current rule changes arising from the AMI policy

3.11.1 The rules and codes of practice (in part D and part G) were reviewed in determining the AMI policy. The relevant proposals and questions together with a summary of the outcomes are contained in Appendix 1.

3.11.2 The rule change suggestions that received general support will be progressed outside the scope of the part D review in order to keep the current rules as operational as possible in the interim between the previous consultation and the outcome of the part D review project.

3.11.3 The following are issues that remain outstanding and require further consultation.

Issue 11: Code of practice D3 of schedule D1 of part D

3.11.4 A number of rule changes were suggested but there was no consensus achieved.

Issue 12: Code of practice G1 of schedule G8 of part G

3.11.5 Changes to rules relating to metering in part G were canvassed in the AMI Discussion paper. There was no agreement to proposed changes to this code of practice.

Possible option

3.11.6 It is proposed that these issues be handled by the specialist group dealing with codes of practice.

Q13.	**The Commission seeks comments on the outstanding rule change amendments from the AMI policy. Please give reasons for your views.**

3.12 Other issues

3.12.1 The scope of the part D review will have to deal with a number of other more general issues which include:

(a) The roles of the market administrator and the reconciliation manager;

(b) Metering in other parts of the Rules; and

(c) Installation standards and relationship of part D with other legislation, e.g. wiring regulations.

Q14.	**Are there any other issues related to metering that you would like to raise? If yes, please provide examples and possible solutions.**

4. Next steps

4.1.1 Following the receipt of submissions on this paper, the following process will occur:

(a) the Commission will review and consider submissions;

(b) the Commission will publish its response to submissions;

(c) the Commission will prepare a project plan, which will include a scope based on the outcomes from this consultation;

(d) the Commission will consult with advisory groups and other stakeholders on the project plan; and

(e) the Commission will involve stakeholders on the project.

4.1.2 The significant consultation required around any proposed amendments to Rules/Regulations means that the Commission envisages this process extending into 2009.

Appendices

Appendix 1 Appendix B of the AMI Discussion Paper

The following sets out the issues identified in the Appendix B of the AMI Discussion Paper and the relevant summary of responses. Only 2 items have been carried forward into the current discussion paper.

APPENDIX B: RELEVANT RULES

Issues with the current requirements

1. There are issues with parts D and G of the current Electricity Governance Rules 2003 (Rules) that may need to be addressed to allow the cost effective adoption of new technology.

2. The following rules have been identified by the Commission as issues for discussion to facilitate the implementation of advanced metering installations.

Part A

3. The definition of metering installations in part A of the Rules includes internal and external control devices that impact on the collection or collation of metering information such as time clocks, ripple relays, relays, etc where the information is used in the data administrator or reconciliation process, but excludes communication devices. The argument is where the meter installation stops and the data administration system commences to set the demarcation of where the meter read exists.

> *"**metering installation"** means **meters,** load and **meter** control devices (but not their control signals or means of generation), **data loggers,** test blocks, measuring transformers, error compensation processes, fittings, equipment, wiring and installations used for the measurement and storage of **metering information** that is used for the purposes of the **rules** and which comply with the **metering standards.***

4. A rule change is suggested to clarify that, in the case of advanced meters, the meter read exists at the point at which it becomes visible. In many cases, this is contained within the meter read software. As the sending device is built into the meter itself, the receiving device is still an integral part of the metering installation – this is consistent with the operation of remote meter reading devices.

5. It is interesting to note in the trials underway in Victoria, Australia, that the definition of metering systems has defined the meter and the communications system as part of the AMI system (but not the back office data processing functions).

6. It is suggested to include within the Rules the wording "communication devices used in sending and receiving meter information to the point of meter read", or similar.

Appendix B, Question 1. Do you agree with changing the metering installation definition in part A of the Rules? Please discuss why you agree or disagree. *(paragraphs 3, 4, 5, and 6)*

Appendix B, Question One Do you agree with changing the metering installation definition in part A of the Rules?

There is strong support for a change to the metering installation definition. It is also noted by some that the actual wording will need to be robust to ensure further issues are not created

Part D

7. The party responsible for reconciliation has ultimate responsibility under the Rules for compliance of the metering installation and the meter read used in the creation of submission information to the reconciliation manager. No changes are proposed to this.

> Rule 3 of part D – each direct consumer, retailer, embedded generator, or embedded network owner is responsible for the metering installation at a point of connection for which it is responsible for.
>
> *Rule 6 of part D – Each **participant** responsible for providing a **metering installation** will ensure that the **metering installation** meets the requirements of the **codes of practice.***

Appendix B, Question 2. Do you agree with not having any changes to rules 3 and 6 of part D of the Rules? Please discuss why you agree or disagree. *(paragraph 7)*

Appendix B, Question Two Do you agree with not having any changes to rules 3 and 6 of part D of the Rules?

Respondents agree that rules 3 and 6 of part D of the Rules should remain unchanged

Code of practice D3 of schedule D1 of part D

8. With the introduction of multi register single meters the position of risk changes. Currently, bridging out of a control device exposes the distributor to transmission cost risk, but places no risk on the consumer or retailer.

Advanced metering, that uses time of day distribution pricing, exposes the consumer to increased load at high cost periods, where load control is bridged out or fails to occur.

*Rule 3.8 of code of practice D3 – Where a load or **meter** control device has malfunctioned, it may be bridged out by a person who is not an employee or subcontractor of an **approved test house,** provided that the **retailer** and the **metering equipment owner** have in place appropriate procedures for ensuring that such activities are carried out only by persons so authorised by the **retailer** and **metering equipment owner.** Such procedures shall also ensure that notification to the **retailer** and remedial work by an **approved test house** are handled in a timely manner.*

9. It is suggested that this rule is changed to also include authorisation by the consumer as the consumer may be financially affected.

10. It is essential that systems are installed in environments that are suitable, consideration must be given to harmonics, earthing, etc.

*Rule 5.2.4 of code of practice D3 – Any **data logger** will comply with the requirements of **code of practice** D4 and will (as part of the design report) have been confirmed by the designer of the **metering installation** to be compatible with the **meter** and communications network to which it is connected and suitable for the electrical and environmental site conditions in which it will be installed.*

11. Metering installations for categories 1 and 2 can have inspection intervals increased from 10 to 15 years provided annual non invasive inspections are carried out

*Rule 7.1 of code of practice D3 – All **metering installations** will be subject to non-invasive inspections by a suitably qualified person appointed by the **metering equipment owner.** A copy of the signed inspection report, which will confirm that the **metering installations** continue to comply with the requirements of the **rules,** will be kept with the **certification** records.*

12. Regularly visiting the site imposes a cost. There are advantages with regular site visits as it does tend to act as a tamper deterrent, and also ensures that if the installation is damaged or unsafe that it is noticed.

13. Should appropriate controls be placed within the advanced metering installation, and provided that suitable and approved sample testing is used, it may be reasonable to extend the non invasive inspection period beyond the one year requirement.

Appendix B, Question 3. Do you agree to changing rule 3.8 of code of practice D3 of part D of the Rules? Please discuss why you agree or disagree. *(paragraphs 8 and 9)*

Appendix B, Question 4. Do you agree that appropriate controls be placed within advanced metering installations and that it is reasonable to extend the inspection period beyond one year? Please discuss why you agree or disagree. *(paragraphs 11, 12, and 13)*

Appendix B, Question Three Do you agree to changing rule 3.8 of code of practice D3 of part D of the Rules?

1. There is no consensus among the respondents on this question. Questions are raised as to whether the consumer is qualified or if it is practical to get their authorisation. Although there is general agreement that the customer should be involved in bridging, the practicalities and other issues most likely rule this out. Other ways of controlling the situation should be sought and time frames imposed.

Appendix B, Question Four Do you agree that appropriate controls be placed within advanced metering installations and that it is reasonable to extend the inspection period beyond one year?

2. Respondents pointed out that there is no rule on inspecting installations on an annual basis, so that no rule change is required. There is opinion that some monitoring needs to take place. Inspections defeat the point of advanced metering. But, considering the life of an AMI meter may only be 10 years, a suggested requirement for a 10 year inspection may be warranted if the meter is not replaced.

Code of practice D4 part D

14. Advanced metering devices may be able to have the operating program remotely or locally replaced. Any subsequent upgrades or changes to hardware or software are subject to type test control and recertification of the site. This rule is proposed to remain as is.

> *Rule 3 of code of practice D4 – If at any time there are any modifications to the specification, hardware or resident (ROM) software of a particular type and model of* ***data logger,*** *it will be regarded as a new model and will require repeat* ***type-tests*** *to be satisfactorily carried out before it will be considered to be* ***certified***

15. It may be necessary to distinguish between the operating program that influences the base metering functionality, and “application programs” which could be loaded and unloaded at retailer, distributor or consumer request to support data presentation, billing or other downstream processing of the data. The latter should be encouraged and not subject to type testing requirements provided it is unrelated to the functionality of the core metering capability.

Appendix B, Question 5. Do you agree with not changing rule 3 of code of practice D4 of part D of the Rules? Please discuss why you agree or disagree. *(paragraphs 14 and 15)*

Appendix B, Question 5 Do you agree with not changing rule 3 of code of practice D4 of part D of the Rules?

3. In general, there was agreement that the rule should be changed to reflect that operating and meteorology firmware changes require repeat type tests but application programmes changes should be allowed under controlled conditions to maintain flexibility.

Code of practice G1 schedule G8 part G

16. Depending on how the advanced meter returns information, these devices may function under the Rules definitions as non half hour, or half hour, or be a hybrid.

17. The following definition is used within the Rules:

    a. Half hour – the metering installation returns half hour information and this information is used in the preparation of half hour submission information to the reconciliation manager. In this instance the certification of the installation and the handling of the metering installation are under the Rules for half hour metering installations and data handling.

18. It is proposed to add the following definitions to the advanced metering guidelines:

    a. Hybrid – this is where the metering installation records volumes by trading period, and the trading period information is aggregated into either absolute or accumulating registers within the metering installation and these registers are then used in the preparation of non half hour submission information to the reconciliation manager. In this instance the certification of the installation and the handling of the metering installation are under the Rules for half hour metering installations and data handling.

    b. Non half hour – the metering installation returns non half hour information and this information is used in the preparation of non half hour submission information to the reconciliation manager. In this instance the certification of the installation and the handling of the metering installation are under the Rules for non half hour metering installations and data handling.

Appendix B, Question 6. Do you agree with the definitions in paragraph 18 being incorporated in the advanced metering guidelines? If not, what other suggestions do you have for improvement?

Appendix B, Question 6 Do you agree with the definitions in paragraph 18 being incorporated in the advanced metering guidelines?

4. There was no agreement on this proposal and further analysis is required due to the wide ranging views expressed by the respondents as illustrated below:

    - … strongly agrees with the definitions in paragraph 18 for both Hybrid and non half hour. The definition for Hybrid should be further defined to allow Hybrid metering installations to be used for the creation and maintenance of sample (dynamic) profiles. Where retailers have the ability to manage discretionary load this benefit can only be realised where the profile accurately reflects this dynamic as opposed to the generic residual profile.
    - No. The Hybrid definition imposes the certification requirements of a half hour installation while the data is being reconciled as non-half hourly. Hybrid meters should have their own certification requirements. The certification requirements for half hour metered installations would impose considerable expense that would make advanced metering deployment uneconomic

19. The current rules require stringent time keeping that, given delays in the transmission of information to and from advanced meters, may not be achievable.

20. Rule 5.1.7 of code of practice G1 of schedule G8 – data loggers must have their clocks synchronised in accordance with table 1.

21. Achievement of the permitted time errors specified within rule 5.1.7 of code of practice G1 of schedule G8 of part G may incur considerable expense. It is proposed to review the permitted time errors for meters within category 1, and determine the overall accuracy effect of wide scale implementation, with a wider tolerance band.

Appendix B, Question 7. Do you agree with the proposed changes to rule 5.1.7 of code of practice G1 of schedule G8 of the Rules? Please discuss why you agree or disagree. *(paragraphs 18, 19, and 20)*
Appendix B, Question 8. Are there any other rules that you consider constrains the introduction of advanced metering infrastructure or technology that require changes? Please discuss any other rule changes you see as necessary.

Appendix B, Question 7 Do you agree with the proposed changes to rule 5.1.7 of code of practice G1 of schedule G8 of the Rules?

5. There is general agreement that the time keeping requirements need to be reviewed with the aim of relaxing them. The feeling is that this should be carried out as soon as possible to avoid unnecessary barriers and extra costs being raised for AMI systems which will be rolled out in the near future.

Appendix B, Question 8 Are there any other rules that you consider constrain the introduction of advanced metering infrastructure or technology that require changes?

6. Imposing half-hourly requirements on AMI is seen as a constraint. The requirement to keep the clock going during power outages is also seen as a constraint and should be relaxed. Some respondents felt that the rule changes may be premature.

Appendix 2 Form of Submission

	Question	Comment
Question 1	The Commission seeks comments on the guiding principles for the part D review project. Please give reasons for your view.	
Question 2	The Commission seeks comments on the proposed definitions for metering and metering infrastructure. Please give reasons for your views.	
Question 3	The Commission seeks comments on the responsibilities for provision of metering installations and responsibility for compliance with codes of practice. Please give reasons for your views.	
Question 4	Is there a need to have a more transparent market system so that reconciliation participants trading an installation can gain information on certification and meter attributes to the meter register level? If so, should these records be maintained by metering equipment owners? Please give reasons for your views.	
Question 5	There are already a large number of meter equipment owners that may not realise that they have obligations under the Rules, e.g. customers who own their own CTs etc. Do you see split (multiple parties) meter equipment ownership at a metering installation as an issue? The Commission seeks comments on the structure of meter equipment ownership, please give reasons for your views.	

	Question	Comment
Question 6	The Commission seeks comments on the demarcation between the metering installation and the reconciliation participant's "back office". Please give reasons for your views.	
Question 7	Is there a need to develop a new code of practice to cover the security standards required for metering installations and for metering infrastructure? Please give reasons for your views.	
Question 8	The Commission seeks comments on access to metering systems. Please give reasons for your views.	
Question 9	The Commission seeks comments on the certification of load control devices. Please give reasons for your views.	
Question 10	The Commission seeks comments on ownership of data from metering installations. Please give reasons for your views.	
Question 11	The Commission seeks comments on updating the Codes of Practice. Please give reasons for your views.	
Question 12	The Commission seeks comments on audit of meter equipment owners to ensure that rule obligations are being met.	
Question 13	The Commission seeks comments on the outstanding rule change amendments from the AMI policy. Please give reasons for your views.	
Question 14	Are there any other issues related to metering that you would like to raise? If yes, please provide examples and possible solutions.	

Appendix 3 Data access rights – extract from Chapter 7 of Australian National Electricity Code

The only persons entitled to have either direct or remote access to *metering data* from a *metering installation*, the *metering database* or the *metering register* in relation to a *connection point* are:

(1) *Code Participants* whose *NEMMCO* account statement relates to *energy* flowing through that *connection point*;

(2) the *Metering Provider(s)* who has an agreement to service the *metering installation,* in which case access is to be restricted only to allow authorised work;

(3) the *Network Service Providers* associated with the *connection point*;

(4) *NEMMCO* and *NECA* and its authorised agents; ~~and~~

(5) any *Customer* who is registered with *NEMMCO* and who purchases electricity at the associated *connection point*~~.~~*; and*

(6) *Code Participants* as provided for in the *Market Settlement and Transfer Solution Procedures* and *B2B Procedures.*

(b) Electronic access to *metering data* from a *metering installation* shall only be provided where passwords in accordance with clause 7.8.2 are allocated, otherwise access to *metering data* shall be from the *metering database*.

(c) The *responsible person* must ensure that access to *metering data* from the *metering installation* by persons referred to in clause 7.7(a) is scheduled appropriately to ensure that congestion does not occur.

(d) Despite anything to the contrary in this clause 7.7 and subject to clause 8.6, *NEMMCO* may provide *metering data* relating to a *Code Participant* from a *metering installation*, the *metering database* or the *metering register to* an Ombudsman acting under a duly constituted industry dispute resolution Ombudsman scheme of which the *Code Participant* is a participant, if the Ombudsman has requested the data for the purpose of carrying out a function of that scheme in respect of a complaint made by a customer of the *Code Participant* against that *Code Participant* under that scheme.

(e) *NEMMCO* must notify the relevant *Code Participant* of any information requested by an Ombudsman under clause 7.7(d) and, if it is requested by that *Code Participant*, supply the *Code Participant* with a copy of any information provided to the Ombudsman.

(f) *NEMMCO* must, acting jointly with industry Ombudsmen, develop procedures for the efficient management of timely access to data by Ombudsmen in consultation with *Code Participants* in accordance with the *Code consultation procedures.*