

Discussion and Monitoring Paper

Advanced Metering Infrastructure and Interim
Metering Compliance

25 September 2009

Glossary of abbreviations and terms

Act	Electricity Act 1992
Commission	Electricity Commission
CPE	Customers' premises equipment
GA	General accumulation registers on a metering installation
GPS	Government Policy Statement on Electricity Governance May 2009
Guidelines	Guidelines on advanced metering infrastructure v2.0
Minister	Minister of Energy and Resources
Regulations	Electricity Governance Regulations 2003
Rules	Electricity Governance Rules 2003
TOU	Time of Use

Contents

Glossary of abbreviations and terms	C
1. Introduction and purpose of this paper	3
1.1 Introduction	3
1.2 Purpose of this paper	3
1.3 Submissions	3
2. Background	5
2.1 Advanced metering infrastructure	5
2.2 Metering installations with interim certification	5
3. Discussion and questions on the Guidelines on advanced metering infrastructure version 2.0	7
3.2 Terms, conditions and pricing	7
3.3 Metrology	7
3.4 Meter reading	8
3.5 Management of load control	10
Management of existing hot water loads	10
Management of general demand response	10
3.6 Data security: access, storage, and transportation	11
Data access	11
Data storage	11
Data security and transportation	12
3.7 Provision for home area network (HAN) interface	12
3.8 Provision for customer displays	13
3.9 Premise disconnection and reconnections	14
3.10 Prepayment	14
3.11 Event recording	15
3.12 Further consideration for the Guidelines	15
3.13 Installation safety	15
3.14 AMI security	16
3.15 Voluntary status of the provisions in the Guidelines	17

4.	Discussion and questions on interim compliance of metering installations	18
Appendix 1	Summary of questions and format for submission on compliance with the Guidelines on advanced metering infrastructure v2.0	20
Appendix 2	Questions and format for submission on compliance with metering installation requirements	28

1. Introduction and purpose of this paper

1.1 Introduction

1.1.1 The Electricity Commission (Commission) routinely monitors participants' uptake with guidelines, that have been published on the Commission's website, that provide recommendations to participants where there are no explicit regulatory requirements. This is in line with paragraph 2 of the May 2009 Government Policy Statement on Electricity Governance (GPS) (and the previous GPS's as well) to 'monitor compliance with guidelines and model arrangements and recommend regulations or rules if voluntary arrangements prove unsatisfactory'.

1.1.2 The Commission also routinely surveys participants on certain areas of the Electricity Governance Rules (Rules) that require participants to meet explicit deadlines.

1.2 Purpose of this paper

1.2.1 The purpose of this paper is to obtain feedback from participants on the following:

- (a) participants' uptake of the Guidelines on advanced metering infrastructure v2.0 (Guidelines); and
- (b) participants' implementation of compliance measures for metering installations that have interim certification that expires on 1 April 2010 and 1 April 2015.

1.3 Submissions

1.3.1 The Commission's preference is to receive submissions in electronic format (Microsoft Word). It is not necessary to send hard copies of submissions to the Commission, unless it is not possible to do so electronically. Submissions in electronic form should be emailed to submissions@electricitycommission.govt.nz with "Advanced Metering Infrastructure and Interim Metering Compliance" in the subject line.

1.3.2 If submitters do not wish to send their submission electronically, they should post one hard copy of their submission to the address below.

Kate Hudson
Electricity Commission
PO Box 10041
Wellington 6143

Kate Hudson
Electricity Commission
Level 7, ASB Bank Tower
2 Hunter Street
Wellington

Tel: 0-4-460 8860

Fax: 0-4-460 8879

- 1.3.3 Submissions should be received by **5.00 on Friday 9 October 2009**. Please note that late submissions are unlikely to be considered.
- 1.3.4 The Commission will acknowledge receipt of all submissions electronically. Please contact Kate Hudson if you do not receive electronic acknowledgement of your submission within two business days.
- 1.3.5 If possible, submissions should be provided in the format shown in Appendix 1 and 2. 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. Background

2.1 Advanced metering infrastructure

- 2.1.1 In line with international practice, the Commission considers a metering system to be “advanced” when it includes, along with the normal metrology or measurement function, both load control and two-way remote communication capability as a minimum. Further, the Commission’s view is that such systems should not be operated in such a way as to impose barriers to competition.
- 2.1.2 In May 2008 the Commission published on its website an Advanced Metering Infrastructure (AMI) policy and the Guidelines. Both the AMI Policy and the Guidelines were the product of extensive consultation processes between industry, the Commission, and other stakeholders.
- 2.1.3 Guidelines are not legally binding but are intended to be advisory. This is in line with the GPS requirement to persuade and promote rather than regulate. The Commission recommends that guidelines published on the Commission’s website should be read in conjunction with the Rules, and, in the case of the Guidelines, with the AMI policy.
- 2.1.4 The Guidelines set out recommendations relating to the introduction of new technology for metering and the supporting infrastructure. The Guidelines also outline recommendations for participants for situations where advanced meters are installed for new and existing consumers.

2.2 Metering installations with interim certification

- 2.2.1 Metering installations have specific certification requirements within the Rules. There are rule requirements for metering equipment owners, test houses, and retailers to maintain certification of metering installations, and also to report under the Rules where accuracy is not maintained for metering installation categories 3, 4, 5, or 6¹.
- 2.2.2 Metering installations used for electricity trading purposes must be certified by a Commission Board approved test house, in accordance with the Rules². For metering installations that were in existence when part D of the Rules came into force (existing metering installations), this certification can include interim certification.

¹ Rule 13 of part D.

² Rule 4.1 of Code of Practice D3 Schedule D1 of part D

2.2.3 Interim certification is deemed certification for existing metering installations which did not fully comply with the requirements of the Rules³. The only metering installations that this certification now applies to are metering installation categories 1 and 2 (interim certification for category 3 having expired on 1 October 2004)⁴.

2.2.4 There are two types of participants that have responsibility within the Rules for the compliance of metering installations, the participant responsible for providing a metering installation and the metering equipment owner.

2.2.5 The person responsible for providing a metering installation must ensure that the metering installation is compliant, as stated in rule 6 of part D:

6. Metering installations to comply with codes of practice

Each **participant** responsible for providing a **metering installation** will ensure that the **metering installation** meets the requirements of the **codes of practice**.

2.2.6 Rule 3 of part D specifies the person responsible for quantifying the conveyance of electricity using a metering installation for certain points of connection (excludes points of connection to the grid). In the case of metering installation categories 1 and 2, this is the retailer for a point of connection on a local or embedded network.

2.2.7 Rule 1 of part A of the Rules defines a metering equipment owner as follows:

“**metering equipment owner**” and “**meter owner**” means the **participant** who owns any or all of the items of metering equipment installed in a **metering installation**;

2.2.8 The Rules place obligations on metering equipment owners to ensure that a programme of inspection, testing, and equipment replacement (as appropriate) is implemented to ensure compliance of the existing metering installation by the required full certification date⁵.

³ Rule 4.8 of Code of Practice D3 Schedule D1 of part D.

⁴ Refer to rule 1 of code of practice D1 of schedule D1 of part D for the metering installation category characteristics.

Refer to rule 4.8 of code of practice D3 of schedule D1 of part D for the expiry dates of interim certification for metering installation categories 1 and 2.

⁵ Rule 4.8 of code of practice D3 of schedule D1 of part D.

3. Discussion and questions on the Guidelines on advanced metering infrastructure version 2.0

3.1.1 The Commission requests information on the uptake of participants with regard to the Guidelines. Details of these questions are contained within the body of this document, and a summarised schedule of questions is contained within Appendix 1.

3.1.2 The Commission requests that participants who have an interest in metering respond to all of the relevant questions attached in Appendix 1. The Commission requests that where the questions are not relevant, that the party submitting state this in the response.

3.2 Terms, conditions and pricing

3.2.1 Standard terms and conditions. The Guidelines provide that the same terms, conditions and price for use of the same attributes should apply to all users.

3.2.2 Paragraph 12 of the Guidelines states: “Advanced metering infrastructure owners and operators should have standard terms and conditions, and price schedule of charges for the use of common attributes on their systems”.

3.2.3 Question 1:

- (a) Do you have standard terms and conditions, and price schedule of charges for the use of common attributes?
- (b) Have you experienced any issues or problems with achieving compliance with this?

3.3 Metrology

3.3.1 The Guidelines provide that any change to the metrology section of an AMI installation requires re-certification of the meter and the metering installation and should not be carried out remotely. This includes items such as changes of either constants or multipliers, or changes to the master accumulating register.

3.3.2 Paragraph 17 of the Guidelines states: “Any changes to the metrology section of an AMI meter will require the re-certification of each meter so changed (part D of the Rules)”.

3.3.3 Functions 6 and 49 in Appendix 1 of the Guidelines also provide guidance on re-certification for any changes to the metrology section of an AMI meter.

6. Installed and certified by an approved test house.	Essential. No change to metrology section without re-certification (also see 49).
49. Programming for measurement within the meter separated from the programming ability for cumulative registers and other load control or added value functionality.	Essential. No change to metrology section without re-certification. Changes to non-metrology sections may be permitted after sample CPE devices recertified and with suitable control processes in place, incl. rollback (also see 6). Results subject to audit (also see 58).

3.3.4 Function 53 in Appendix 1 of the Guidelines provides:

53. Non remote programmable multipliers.	Essential. Meter multipliers can be located anywhere within AMI system provided robust change management processes are implemented and results are logged for audit purposes. Multiplier values should be available via Services Access Interface.
------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

3.3.5 Question 2:

- (a) Do you re-certify a metering installation if the metrology section of an AMI meter is changed?
- (b) Do you have non remote programmable multipliers?
- (c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?

3.4 Meter reading

3.4.1 The Guidelines provide that the minimum number of general accumulation (GA) registers that are used in settlement should be available for view on the metering installation. The Guidelines suggest a minimum number of six GA registers to be available.

3.4.2 Paragraph 24 of the Guidelines states: “In addition, the AMI system should provide a minimum of six GA registers. These registers will allow the service user to accumulate energy usage data during previously defined time periods. These

registers may be reset if desired once the data they contain has been securely retrieved and is available via the services access interface”.

3.4.3 Paragraph 49 of the Guidelines states: “Register displays should be available to consumers in order to validate consumption and invoices, without the requirement of specialised screens or existing terminals”.

3.4.4 Function 29 in Appendix 1 of the Guidelines provides:

29. Meter display of accumulating registers used in settlement.	Essential. Total units used in settlement period should be displayed. Further breakdown optional.
-----------------------------------------------------------------	---------------------------------------------------------------------------------------------------

3.4.5 Question 3:

- (a) Do you have a minimum of six GA registers available?
- (b) Do you have meter registers available to consumers to validate consumption invoices?
- (c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?

3.4.6 Changes to GA registers should follow an auditable process.

3.4.7 Paragraph 25 of the Guidelines states: “The service user should be able to set (either itself or via the platform operator) the times and/or dates at which these GA registers start and stop recording. These GA registers should provide time of use (TOU) functionality and be capable of being started and stopped repeatedly either daily or weekly, with resolution that allows them to be aligned with the industry standard 30 minute boundaries”.

3.4.8 Paragraph 26 of the Guidelines states: “TOU registers used for data collection for profile based wholesale settlement should only be changed after an auditable and approved process has been followed”.

3.4.9 Question 4:

- (a) Do you allow the service user to change the GA registers?
- (b) Do you ensure an auditable process is followed for any changes to the TOU registers used for data collection?
- (c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?

3.5 Management of load control

Management of existing hot water loads

- 3.5.1 The Guidelines provide that the installation of an AMI meter should not disrupt the control of hot water load.
- 3.5.2 Paragraph 28 of the Guidelines states: “Premises where AMI CPE⁶ is installed should be left in a state where active control of the hot water load is provided by some means. This may be through a feature in the AMI CPE itself (such as an internal load control switch) or it may be achieved by leaving the existing ripple control relay (or other existing load control device) in place”.
- 3.5.3 Question 5:
- (a) Do you ensure that the installation of an AMI meter should not disrupt the control of hot water load?
 - (b) Have you experienced any issues or problems with achieving compliance with this?
 - (c) Do the AMI meters you are responsible for have internal contacts that can be remotely controlled by ripple or other means? Please advise if the AMI meters that you are installing have internal contacts, the nature of the contacts, and if these contacts are connected.

Management of general demand response

- 3.5.4 In general, consumption behaviour can be controlled either directly (by switching loads) or indirectly by TOU pricing signals. One key outcome of the deployment of AMI systems is the ability to enhance both of these areas.
- 3.5.5 Paragraph 30 of the Guidelines states: “Retailers could make cost reflective TOU product offerings available via AMI, such as controlling additional loads for the customer (or provide the customer the tools to do this for themselves) by shifting various appliances away from higher cost periods”.
- 3.5.6 Question 6: Do you offer or intend to offer time of use pricing to consumers with AMI?

⁶ Customers' premises equipment.

3.6 Data security: access, storage, and transportation

Data access

- 3.6.1 Data access should be provided to the metering installation platform.
- 3.6.2 Paragraph 35 of the Guidelines states: “Access to all services (including the data available from a service) should be provided by the platform operator via the services access interface. This is system specific, and the platform operator will provide any protocol conversion required”.
- 3.6.3 Question 7:
- (a) Have you experienced problems obtaining information from AMI systems?
 - (b) Would you use a standard format for information exchange if this was available?

Data storage

- 3.6.4 The Guidelines provide for the storage of data within the meter itself.
- 3.6.5 Paragraph 37 of the Guidelines states: “The data for each of the GA registers should be capable of being physically retained in the CPE for a period longer than at least twice the expected data retrieval interval or 15 days (whichever is the greater) to provide some protection in case of problems with communication links”.
- 3.6.6 Question 8:
- (a) Does the system you are operating allow the data to be physically retained for a period longer than at least twice the expected data retrieval interval or 15 days (whichever is the greater)?
 - (b) Do you consider that this is sufficient? Please provide alternatives that you consider suitable and provide an explanation why.
- 3.6.7 There is only a general statement within the Guidelines relating to storing other critical aspects of an AMI system.
- 3.6.8 Paragraph 39 of the Guidelines states: “Data storage for other critical aspects of the AMI system (such as event log, audit logs, etc) are left to the AMI system to determine. The key data elements expected to be available are listed in Appendix 1 [of the Guidelines]”.
- 3.6.9 Question 9: Do you consider that the requirement to store critical information such as event logs and audit logs should be provided within the Guidelines?

Data security and transportation

- 3.6.10 Any AMI data should be transferred in a secure manner that is in compliance with the requirements of the relevant Rules. The provision of information that is used in the reconciliation process is included within the certification requirements of reconciliation participants.
- 3.6.11 Paragraph 42 of the Guidelines states: “Consumption data intended for reconciliation or billing purposes needs to be moved from the back office systems to the reconciliation or billing calculation point under a secure and auditable process that complies with the requirements of the Rules. Once the process has verified that a successful transfer has been completed, and the data is securely stored in an AMI central database and accessible by the service user, the GA registers within the CPE only may be reset as desired. (Note the records within the back office system must remain intact regardless of the reset within the CPE, and the MA register within the back office and the CPE should not be reset at any time)”.
- 3.6.12 Question 10:
 - (a) Where you supply information to reconciliation participants for use in the reconciliation process, have your processes been audited by a Board approved auditor either by the reconciliation participant you perform work for, or as an independent audit?
 - (b) How is AMI data transferred from the back office system into reconciliation and billing systems, and what measures are taken around the security and integrity of the data being transferred?

3.7 Provision for home area network (HAN) interface

- 3.7.1 In general, consumption behaviour can be controlled either directly (by switching loads) or indirectly by TOU pricing signals. One key outcome of the deployment of AMI systems is the ability to enhance both of these areas.
- 3.7.2 Paragraph 46 of the Guidelines states: “The provision of this HAN interface capability should not interfere with, or allow any device that may connect via the HAN in future to interfere with, the certification of the metrology section of the meter, or any of the data accumulation registers or meters data transport pathways”.
- 3.7.3 Function 61 in Appendix 1 of the Guidelines provides:

61. Remote appliance control.	Optional. However, ability to add and support a suitable HAN interface is required.
-------------------------------	-------------------------------------------------------------------------------------

- 3.7.4 Question 11:
- (a) Does the system that you provide include or support the addition of a home area network?
 - (b) If included, can you provide information on the type of HAN and frequency used?
 - (c) If the system will support the addition of a HAN, how is this added to the meter and what is the cost of adding this?
 - (d) Do you see the need to make a HAN an essential item at this time? Please give reasons for your answer and details of the type of HAN, standards, protocols, etc, that you consider should be essential.
 - (e) Would you or representatives in your organisation be willing to take part in an industry working group on this issue?

3.8 Provision for customer displays

- 3.8.1 Customer displays provide information to consumers that may assist consumers in the control of their electricity consumption. These displays may take many different forms and have different types of communication possibilities, all with varying costs. Although shown in the Guidelines as optional, the Commission is interested in participants' views on the use of, and requirements for, customer displays.
- 3.8.2 Paragraph 47 of the Guidelines states: "Customer displays are desirable, but not seen as essential. Depending on the AMI system, these may take the form of specialised screens within the premises, or may use existing terminals such as PCs or mobile phones".
- 3.8.3 Question 12:
- (a) Does the AMI system that you provide support the addition of a customer display?
 - (b) If so, what type of interface and communication medium would be employed?
 - (c) Have consumers requested that you provide a customer display?
 - (d) Do you intend to provide customer displays in the near future for your AMI systems?
 - (e) Do you consider that the provision of a customer display should be made an essential requirement for an AMI system? Please give reasons for your answer.

3.9 Premise disconnection and reconnections

- 3.9.1 The ability for a meter to remotely disconnect and reconnect a metering installation can pose challenges to meter infrastructure owners. Further, the Commission understands from participants that only a small percentage of premises will regularly be disconnected, and the provision of the disconnection device is expensive, and may become a future maintenance or security issue.
- 3.9.2 Paragraph 50 of the Guidelines states: “Where the AMI has provision for remote disconnection, provision should be made for ensuring that credit control operation is consistent with the Commission’s ‘Guideline on arrangements to assist low income and vulnerable consumers’ and the Model Domestic Contract”.
- 3.9.3 Paragraph 51 of the Guidelines states: “Remote restoration of supply to occupied premises has the potential to be dangerous if an unsafe situation exists that might be visible or known to the consumer”.
- 3.9.4 Paragraph 52 of the Guidelines states: “Reconnection should be remotely enabled by the retailer but require consumer intervention to complete the reconnect cycle. In the case of restoration of power following a network event, supply may be made available as soon as supply is restored on the network”.
- 3.9.5 Question 13:
- (a) What is the percentage of premises from your customer base that would be disconnected for any reason?
 - (b) Do all of the meters you are associated with have disconnection contacts connected? Please give reasons if not all meters are connected via disconnection contacts.

3.10 Prepayment

- 3.10.1 AMI meters can operate in either a pre-pay or post-pay mode.
- 3.10.2 Note that the part D consultation paper discusses the operation of prepay applications within AMI meters. The part D consultation paper can be found on the Commission’s website at <http://www.electricitycommission.govt.nz/consultation/part-d-options/view>.
- 3.10.3 Paragraph 54 of the Guidelines states: “AMI systems should be able to be remotely configured between pre and post-payment operation”.

3.10.4 Question 14:

- (a) Do you operate or intend to operate AMI in the pre-pay mode?
- (b) If so, do you comply with the recommendation to be able to remotely configure between pre and post pay?

3.11 Event recording

3.11.1 AMI meters have the ability to record events that have occurred within the meter. This may include simple events like a meter reading, but may also record “watch dog” events and events, such as power outage and restoration.

3.11.2 Paragraph 62 of the Guidelines states: “As a matter of principle, AMI systems should maintain a history record of key events. This should encompass any changes to the systems which have the potential to affect the accuracy or resolution of the services offered through the systems, as well as functional commands (i.e. shedding of load)”.

3.11.3 Question 15:

- (a) Do the meters that you operate with contain an event log?
- (b) Is the event log downloaded with each meter interrogation cycle?
- (c) Who examines the event log to ensure that any problems with the metering installation are located and actioned?

3.12 Further consideration for the Guidelines

3.12.1 Since the Guidelines were produced, there has been movements both within the industry and in technology, and the Commission is interested in the views of participants and interested parties on:

- (a) installation safety;
- (b) AMI security; and
- (c) voluntary status of the provisions in the Guidelines.

3.13 Installation safety

3.13.1 The current roll outs of AMI have identified a number of issues related to electrical safety.

3.13.2 Some premises may be aged or damaged, and the wiring may either be unsafe to disturb, or may require remedial work beyond the work intended for the replacement of a meter within a metering installation.

3.13.3 Question 16:

- (a) Should a process of how to deal with notifications of installations like these be included within the Guidelines?
- (b) Where unsafe installations are located, what is the current practice of your business for dealing with these?
- (c) Unsafe installations may preclude an installation being certified in accordance with the Rules when interim certification ceases. What are your views on dealing with these situations?
- (d) Where installation control points move between traders, and the safety aspect of an installation has prevented an upgrade or change to a metering installation, should the registry provide an indication so that gaining retailers are aware of a metering issue at the site, and that a meter change may not be easily carried out?

3.14 AMI security

3.14.1 There has been considerable industry discussion with respect to the security of AMI systems, where the integrity of a metering installation or data may be compromised with malicious intent.

3.14.2 There are two potential points of risk where malicious entry could be made to an AMI system, these are within the communications between the meter and back office software, and any communications interface with other devices within a premise such as a HAN.

3.14.3 Question 17:

- (a) Do you consider that standards for security of communications should be included within the Guidelines?
- (b) Do you consider that there is a security issue within the communications between an AMI meter and the back office software, and if so, what suggestions would you like to make on how these should be addressed?
- (c) Do you consider that there is a security issue with the communications between an AMI meter and devices within a premise, and if so, what suggestions would you make on how these should be addressed?

3.15 Voluntary status of the provisions in the Guidelines

3.15.1 The Commission views AMI systems as an important enabler to further the GPS. In particular, AMI systems have the potential to significantly increase demand-side participation in the electricity market.

3.15.2 As noted in paragraph 2.1.3, guidelines are a non-regulatory approach. However, there has been discussion within the media and industry suggesting that the Guidelines should be regulated. It is essential, as technology is rapidly changing within the AMI area, that AMI functionality can be easily and rapidly understood and any Guidelines or legislation amended. The current guideline approach allows participants to innovate without the requirement for a rule change.

3.15.3 Question 18:

- (a) Do you consider:
 - (i) that the voluntary nature of the Guidelines is appropriate in this instance; or
 - (ii) that the current non regulatory approach to AMI should be a regulatory approach?

Please give reasons for your answers.

4. Discussion and questions on interim compliance of metering installations

- 4.1.1 The Commission requests information on the compliance of retailers and metering equipment owners with regard to the rules within code of practice D3 of schedule D1 of part D of the Rules. A set of questions and the relevant rule references has been included as Appendix 2.
- 4.1.2 The Commission requests retailers and metering equipment owners to respond to all of these questions attached in Appendix 2. The Commission notes that some of the questions will not apply to some retailers or metering equipment owners and requests that this is stated in the response.

Appendices

Appendix 1	Summary of questions and format for submission on compliance with the Guidelines on advanced metering infrastructure v2.0	20
Appendix 2	Questions and format for submission on compliance with metering installation requirements	28

Appendix 1 Summary of questions and format for submission on compliance with the Guidelines on advanced metering infrastructure v2.0

Question No.	General comments in regards to the:	Response
1.	(a) Do you have standard terms and conditions, and price schedule of charges for the use of common attributes?	
	(b) Have you experienced any issues or problems with achieving compliance with this?	
2.	(a) Do you re-certify a metering installation if the metrology section of an AMI meter is changed?	
	(b) Do you have non remote programmable multipliers?	
	(c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?	
3.	(a) Do you have a minimum of six GA registers available?	

Question No.	General comments in regards to the:	Response
	(b) Do you have meter registers available to consumers to validate consumption invoices?	
	(c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?	
4.	(a) Do you allow the service user to change the GA registers?	
	(b) Do you ensure an auditable process is followed for any changes to the TOU registers used for data collection?	
	(c) Have you experienced any issues or problems with achieving compliance with (a) and (b) above?	
5.	(a) Do you ensure that the installation of an AMI meter should not disrupt the control of hot water load?	
	(b) Have you experienced any issues or problems with achieving compliance with this?	

Question No.	General comments in regards to the:	Response
	(c) Do the AMI meters you are responsible for have internal contacts that can be remotely controlled by ripple or other means? Please advise if the AMI meters that you are installing have internal contacts, the nature of the contacts, and if these contacts are connected.	
6.	Do you offer or intend to offer time of use pricing to consumers with AMI?	
7.	(a) Have you experienced problems obtaining information from AMI systems?	
	(b) Would you use a standard format for information exchange if this was available?	
8.	(a) Does the system you are operating allow the data to be physically retained for a period longer than at least twice the expected data retrieval interval or 15 days (whichever is the greater)?	
	(b) Do you consider that this is sufficient? Please provide alternatives that you consider suitable and provide an explanation why.	
9.	Do you consider that the requirement to store critical information such as event logs and audit logs should be provided within the Guidelines?	

Question No.	General comments in regards to the:	Response
10.	(a) Where you supply information to reconciliation participants for use in the reconciliation process, have your processes been audited by a Board approved auditor either by the reconciliation participant you perform work for, or as an independent audit?	
	(b) How is AMI data transferred from the back office system into reconciliation and billing systems, and what measures are taken around the security and integrity of the data being transferred?	
11.	(a) Does the system that you provide include or support the addition of a home area network?	
	(b) If included, can you provide information on the type of HAN and frequency used?	
	(c) If the system will support the addition of a HAN, how is this added to the meter and what is the cost of adding this?	
	(d) Do you see the need to make a HAN an essential item at this time? Please give reasons for your answer and details of the type of HAN, standards, protocols, etc, that you consider should be essential.	

Question No.	General comments in regards to the:	Response
	(e) Would you or representatives in your organisation be willing to take part in an industry working group on this issue?	
12.	(a) Does the AMI system that you provide support the addition of a customer display?	
	(b) If so, what type of interface and communication medium would be employed?	
	(c) Have consumers requested that you provide a customer display?	
	(d) Do you intend to provide customer displays in the near future for your AMI systems?	
	(e) Do you consider that the provision of a customer display should be made an essential requirement for an AMI system? Please give reasons for your answer.	
13.	(a) What is the percentage of premises from your customer base that would be disconnected for any reason?	

Question No.	General comments in regards to the:	Response
	(b) Do all of the meters you are associated with have disconnection contacts connected? Please give reasons if not all meters are connected via disconnection contacts.	
14.	(a) Do you operate or intend to operate AMI in the pre-pay mode?	
	(b) If so, do you comply with the recommendation to be able to remotely configure between pre and post pay?	
15.	(a) Do the meters that you operate with contain an event log?	
	(b) Is the event log downloaded with each meter interrogation cycle?	
	(c) Who examines the event log to ensure that any problems with the metering installation are located and actioned?	
16.	(a) Should a process of how to deal with notifications of installations like these be included within the Guidelines?	
	(b) Where unsafe installations are located, what is the current practice of your business for dealing with these?	

Question No.	General comments in regards to the:	Response
	(c) Unsafe installations may preclude an installation being certified in accordance with the Rules when interim certification ceases. What are your views on dealing with these situations?	
	(d) Where installation control points move between traders, and the safety aspect of an installation has prevented an upgrade or change to a metering installation, should the registry provide an indication so that gaining retailers are aware of a metering issue at the site, and that a meter change may not be easily carried out?	
17.	(a) Do you consider that standards for security of communications should be included within the Guidelines?	
	(b) Do you consider that there is a security issue within the communications between an AMI meter and the back office software, and if so, what suggestions would you like to make on how these should be addressed?	
	(c) Do you consider that there is a security issue with the communications between an AMI meter and devices within a premise, and if so, what suggestions would you make on how these should be addressed?	

Question No.	General comments in regards to the:	Response
18.	<p>(a) Do you consider:</p> <ul style="list-style-type: none">(i) that the voluntary nature of the Guidelines is appropriate in this instance; or(ii) that the current non regulatory approach to AMI should be a regulatory approach? <p>Please give reasons for your answers.</p>	

Appendix 2 Questions and format for submission on compliance with metering installation requirements

Question No.	Question	Response
1	What is the extent of metering equipment that is owned by your company? Please note that metering equipment owner includes current and voltage transformers, wiring, test blocks, fuses, meters, and data loggers that comprise components of a metering installation as defined within the Rules.	
2	Paragraph 4 of rule 1 of code of practice D3 of part D of schedule D1 of the Rules provides that, where there is multiple ownership at a site, those owners of equipment must ensure that their individual responsibilities are defined in agreements. Please describe how your company complies with this requirement.	
3	Rule 3.8 of code of practice D3 of schedule D1 of part D provides that, 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, providing there are appropriate procedures in place. Please advise the procedures that your company has in place for complying with this requirement.	

4	Please advise the inspection, testing, and replacement plans that are in place for complying with the requirements in rule 4.8 of code of practice D3 of schedule D1 of part D of the Rules.	
5	Please advise the inspection plans that are in place for complying with the requirements in rule 7.1 of code of practice D3 of schedule D1 of part D of the Rules.	
6	With regard to category 1 and 2 metering installations, please advise if you have chosen to extend the inspection interval to 15 years by carrying out low level visual checks of the metering installation (rule 7.1 of code of practice D3 of schedule D1 of part D of the Rules).	
7	Please describe your process for complying with each of the record keeping requirements in rule 8.1 of code of practice D3 of schedule D1 of part D of the Rules.	