

30 April 2019

MEP and ATH forum

Issues around the operation of AMI meters

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Metering installations and standards (1/1)

- Memos on EA web site

<https://www.ea.govt.nz/operations/retail/metering/metering-installation/>

and in particular and relevant to today.....

<https://www.ea.govt.nz/dmsdocument/8586-information-paper-burdening-of-transformers>

MEPs and meter interrogations ^(1/4)

- As part of the certification, ATHs must record the maximum interrogation cycle

(Clause 26 of Schedule 10.7)

26 Requirements for metering installation incorporating meter

.....

(4) An ATH must, before it certifies a metering installation incorporating a meter, record in the metering installation certification report, the maximum interrogation cycle for the metering installation.

*(5) The maximum **interrogation** cycle for a **metering installation** referred to in subclause (4) is the period of memory availability given the **meter** configuration.*

.....

MEPs and meter interrogations (2/4)

- Where an MEP is responsible for reading a metering installation, it must ensure that the reading is within the maximum interrogation cycle

(Schedule 10.6 Clause 8)

8 Electronic interrogation of metering installation

(1) This clause applies when raw meter data can only be obtained from a metering equipment provider's back office.

(2) A metering equipment provider must—

(a) ensure that the interrogation cycle for each metering installation that it electronically interrogates does not exceed the maximum interrogation cycle in the registry; and

(b) interrogate a metering installation for which it is responsible at least once in each maximum interrogation cycle in the registry; and

.....

MEPs and meter interrogations ^(3/4)

- ATHs must determine where access to meter services can be obtained

(Part 1 definition)

services access interface means the point, at which access may be gained to the services available from a *metering installation*, that is—

- (a) recorded in the **certification report** by the **certifying ATH** for the **metering installation**; and
- (b) where information received from the **metering installation** can be made available to another person; and
- (c) where signals for services such as remote control of load (but not ripple control) can be injected

MEPs and meter interrogations (4/4)

- What is the MEPs responsibility to provide AMI meter readings where
 - The electricity supply to an installation is turned off – irrigation pumps, shearing sheds etc
 - Communication to the meter has failed and it is a remote site
 - The MEP has a contract with a trader that requires the MEP to deliver regular meter readings
- There is no reasonable endeavors provisions in the Code for MEPs

MEPs and meter interrogations ^(4/4)

- What is the MEPs responsibility to provide AMI meter readings where
 - The electricity supply to an installation is turned off – irrigation pumps, shearing sheds etc
 - Communication to the meter has failed and it is a remote site
 - The MEP has a contract with a trader that requires the MEP to deliver regular meter readings
- There is no reasonable endeavors provisions in the Code for MEPs
- The MEP must deliver raw meter data via its back office services access interface up until the time that the AMI flag is changed from “Y” to “N”

Use of AMI = "Y" and registry flags (1/9)

ELECTRICITY REGISTRY UAT

[Online User Guide](#)

Last activity at 11:21:08. Calculated timeout now 12:21:08



User: MET1 User - MET1

Participant: MET1 Training - MET1

View ICP Summary

[Logout](#)

[Close](#)

ICP

Search

Summary >

Attributes

History

Reconciliation

Switching

Inquiries

Utilities

Help

ICP Number	<input type="text" value="0020190328RBA79"/>	As At	<input type="text" value="28/03/2019"/>	<input type="button" value="Refresh"/>	<input type="button" value="ICP Attributes"/>	<input type="button" value="Switch History"/>
Status						
Status	<input type="text" value="ACTIVE"/>	Reason	<input type="text"/>	Event Date	<input type="text" value="02/01/2019"/>	
Trader switch	<input type="text" value="None"/>	MEP switch	<input type="text" value="None"/>			
Address						
Unit	<input type="text"/>	Property Name	<input type="text" value="EA Ivory Towers"/>	Event Date	<input type="text" value="01/01/2019"/>	
Number	<input type="text" value="2"/>	Street	<input type="text" value="Hunter Street"/>	Suburb	<input type="text"/>	
Town	<input type="text" value="Wellington"/>	Region	<input type="text" value="Wellington"/>	Post Code	<input type="text" value="6143"/>	
Network						
Network	<input type="text" value="NET1 - NET1 Training"/>	POC	<input type="text" value="NET1001"/>	Reconciliation Type	<input type="text" value="GN - Grid Exit"/>	Event Date <input type="text" value="01/01/2019"/>
Dedicated NSP	<input type="text" value="Y"/>	Installation Type	<input type="text" value="L"/>	Unmetered Load	<input type="text"/>	
Shared ICPs	<input type="text"/>			Direct Billed Status	<input type="text" value="Retailer"/>	
Pricing						
Price Category	<input type="text" value="PCAT1"/>	Chargeable Capacity	<input type="text" value="0.00"/>	Installation Details	<input type="text"/>	
Loss Category	<input type="text" value="LFC1 (System Loaded Code)"/>					
Trader						
Trader	<input type="text" value="RET1 - RET1 Training"/>	Proposed MEP	<input type="text" value="MET1 - MET1 Training"/>	Profiles	<input type="text" value="HHR"/>	Event Date <input type="text" value="02/01/2019"/>
Unmetered Load	<input type="text" value="ANZSIC A012100 - Mushroom Growing"/>			Submission	<input type="text" value="HHR Y NHH: N"/>	
Metering						
MEP	<input type="text" value="MET1 - MET1 Training"/>	Half Hour	<input type="text" value="Y"/>	Non Half Hour	<input type="text" value="N"/>	Prepay <input type="text" value="N"/>
Meter Multiplier	<input type="text" value="N"/>	Highest Metering Category	<input type="text" value="1"/>	C&I TOU	<input type="text" value="N"/>	Channel Count <input type="text" value="1"/>
Serial Numbers (Register Content Codes)	<input type="text" value="1123456M1 (UN, 7304)"/>					



[Link to Google Maps](#)

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Use of AMI = "Y" and registry flags (2/9)

ELECTRICITY REGISTRY UAT

[Online User Guide](#)

Last activity at 11:39:33. Calculated timeout now 12:39:33



User: MET1 User - MET1

Participant: MET1 Training - MET1

Update Metering

Success 0 No Error [Help](#)

[Logout](#)

[Close](#)

ICP Number:

Metering Summary

[Refresh summary fields](#)

Attribute	Value
Event Date	2/1/19
MEP Participant Identifier	MET1 - MET1 Training
User Reference	RonB
Number Of Installations	1
Reversal Indicator	
Highest Metering Category	1
HHR Flag	Y
NHH Flag	N
PP Flag	N
AMI Flag	Y
Meter Channel Count	1
Meter Multiplier Flag	N

Metering Installation (Level 2)

Metering Installation Number:

[Remove this installation](#)

[Add new installation - number](#)

Attribute	Value
Metering Installation Number	1
Highest Metering Category	1
Metering Installation Location Code	FP - FRONT PORCH
ATH Participant Identifier	ATH1 - ATH1 Test
Metering Installation Type	HHR - Half hour
Metering Installation Certification Type	F - Full
Metering Installation Certification Date	2/1/19
Metering Installation Certification Expiry Date	2/1/2034
Control Device Certification Flag	N
Certification Variations	N - None
Certification Variations Expiry Date	
Certification Number	123456
Maximum Interrogation Cycle	40
Lease Price Code	Cheap
Number Of Components	1

Metering Component (Level 3)

Component Serial Number:

[Remove this component](#)

[Add new component - serial number](#)

Attribute	Value
Metering Component Serial Number	1123456M1
Metering Component Type	M - Meter
Meter Type	HHR - Half hourly
AMI Flag	Y
Metering Installation Category	1
Removal Date	
Compensation Factor	1
Owner	
Number of Channels	2

Metering Channel (Level 4)

Metering Channel Number:

[Remove this channel](#)

[Add new channel - number](#)

Attribute	Value
Channel Number	50
Number of Dials	12
Register content code	7304 - 30 minute recorded channel kWh
Period of availability	24
Unit of Measurement	kWh - kWh
Energy Flow Direction	X - Exit
Accumulator Type	A - Absolute
Settlement Indicator	N
Event Reading	

Update

- ICP
- Switching
- Inquiries
- Utilities
- Help

Use of AMI = “Y” and registry flags ^(3/9)

(Part 1 definition)

services access interface means the point, at which access may be gained to the services available from a *metering installation*, that is—

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Use of AMI = “Y” and registry flags ^(4/9)

(Part 11 Cause 11.2)

11.2 Requirement to provide complete and accurate information

- (1) A **participant** must take all practicable steps to ensure that information that the **participant** is required to provide to any person under this Part is—*
- (a) complete and accurate; and*
 - (b) not misleading or deceptive; and*
 - (c) not likely to mislead or deceive.*
- (2) If a **participant** becomes aware that the information the **participant** provided under this Part does not comply with subclause (1)(a) to (c), even if the **participant** has taken all practicable steps to ensure that the information complies, the **participant** must, as soon as practicable, provide such further information as is necessary to ensure that the information complies with subclause (1)(a) to (c).*

Use of AMI = “Y” and registry flags ^(5/9)

(Part 10 Cause 10.9)

10.9 Demarcation of responsibility between metering equipment provider and reconciliation participant

- (1) The demarcation of the responsibility of a metering equipment provider under this Part and a reconciliation participant under Part 15, is at the services access interface.*
- (2) A metering equipment provider is responsible for providing and maintaining the services access interface.*
- (3) The services access interface for a metering installation is—
 - (a) determined by the ATH certifying the metering installation under clause 10 of Schedule 10.4; and*
 - (b) recorded in the metering installation certification report under clause 10 of Schedule 10.4.**

Use of AMI = “Y” and registry flags ^(6/9)

(Schedule 10.6 Clause 1)

1 Metering equipment provider must provide access to raw meter data

(1) A metering equipment provider must, within 10 business days of receiving a request from a trader with whom it has an arrangement to access raw meter data from a metering installation for which the metering equipment provider is responsible, give remote or onsite access at the services access interface to the trader to collect, obtain, and use raw meter data from the metering installation.

Use of AMI = “Y” and registry flags ^(7/9)

- Code expects that failed communication attempts investigated in a timely manner. Noted that a number of these may be due to the site electricity being turned off – there will be history
- Clause 11.2 requires corrections to the information in the registry ‘as soon as practicable’. The Authority considers that, unless history or exceptional circumstances apply, it is reasonable to expect that ‘ASAP’ means:
 - Where meters are interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than one week with no communication.
 - Where meters not interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than three consecutive failed attempts, but within 31 days of the first communication failure.
 - Investigations should begin immediately and conclude within three business days even if a site visit is required. If site access is not available and the meter is still not communicating, the meter should be designated as AMI=“N” until a site visit can be arranged.
 - If communications cannot be restored the installation is not AMI. Metering records should be updated by the ATH using Clause 8A of schedule 10.7. MEPs should update registry ASAP after investigation is completed, and within three business days.

Use of AMI = “Y” and registry flags ^(8/9)

- Where an MEP has declared that the service access interface is its back office, the MEP must deliver meter readings to that services access interface regardless of the communication state of the metering installation
- Where the AMI flag = “Y” in the registry,
 - the MEP is indicating that the services access interface is in its back office
 - if the meter is not remotely communicating, the MEP will provide manually acquired meter readings
- Gaining traders rely on the AMI flag when assessing customers for switching
- Authority issued a memo on this subject at <https://www.ea.govt.nz/dmsdocument/22379-memo-ami-flag-and-investigation-of-non-communicating-meters>

Use of AMI = “Y” and registry flags ^(9/9)

- Proposal in the Switch Process Review project to repurpose the AMI flag to be a “communications flag” and extend the parameters. **Green** is existing flag, **red** is proposed new flags
 - “Y” = communicating AMI (MEP provides read from its back office system at least weekly)
 - “I” = intermittent communicating AMI (MEP provides read from its back office system but read may be delayed beyond a week or is intermittent (at times is electrically disconnected or known poor signal strength))
 - “N” = non communicating AMI (trader reads)
 - “L” = legacy NHH (trader reads)
 - “C” = C&I HHR (trader reads - communicating non-AMI installation)

Use of settlement indicator ^(1/2)

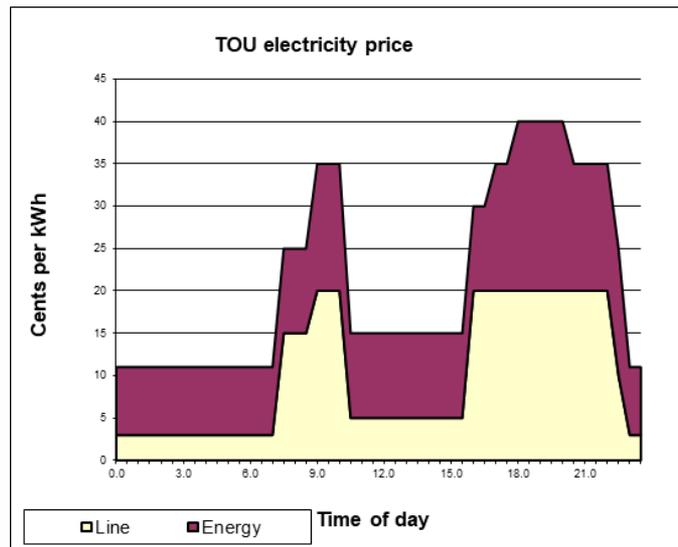
- MEPs are required to populate all channels in a metering installation that are certified by the ATH within the metering installation
- The purpose of the settlement flag is not to indicate what channels a trader must use, but to require cumulative meter readings to be exchanged in the trader ICP switch completion file
- Meter readings required on metering components incorporating cumulative channels to demarcate between
 - electricity market settlements
 - network settlements
 - customer invoicing

Use of settlement indicator ^(2/2)

- Use is regulated in the Code in Line 30 of table 1 of Schedule 11.4 of Part 11 as follows
an identifier determined as follows:
 - (a) if the relevant **meter** or **data storage device** has an AMI flag of "Y", the cumulative data channel identifier must be "Y" and the other data channel identifiers must be "N"; and
 - (b) for any other **meter** or **data storage device**, or for a **control device**, the data channel identifier must be the appropriate identifier selected from the list in the **registry**
- (a) is problematic to some trader systems as an inactive channel would require a meter reading that a trader may not be able to provide
- Authority considering a Code amendment to require
 - (a) to apply to active channels only
 - MEPs to monitor channels that are inactive and update these to active when electricity first starts being measured within an inactive channel

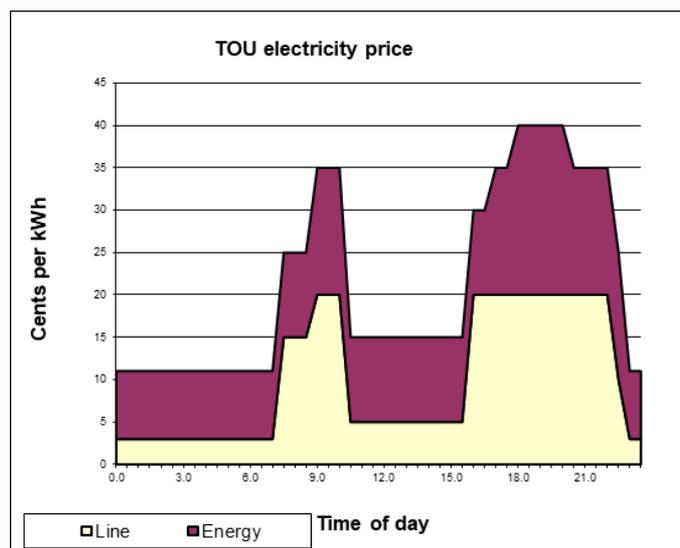
Potential impacts of pricing changes (1/4)

- Most networks are considering adopting cost reflective pricing, also called time of use pricing
 - It is a term used to describe pricing that reflects the actual cost of supplying electricity and removes cross subsidies between customer and pricing groups
 - Identifies costs to supply electricity enabling participants and customers to make more relevant investment decisions



Potential impacts of pricing changes (1/4)

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- NHH legacy metering may require replacement
- AMI meters may require either
 - reprogramming of NHH channels
 - time blocking of HHR data by either the retailer or the MEP
- Electricity delivery costs are mostly dependent on peak generation and network capacity requirements
- Reducing peak capacity demands can enable capital deferral through the value chain, maintaining downward pressure on costs

Potential impacts of pricing changes (2/4)

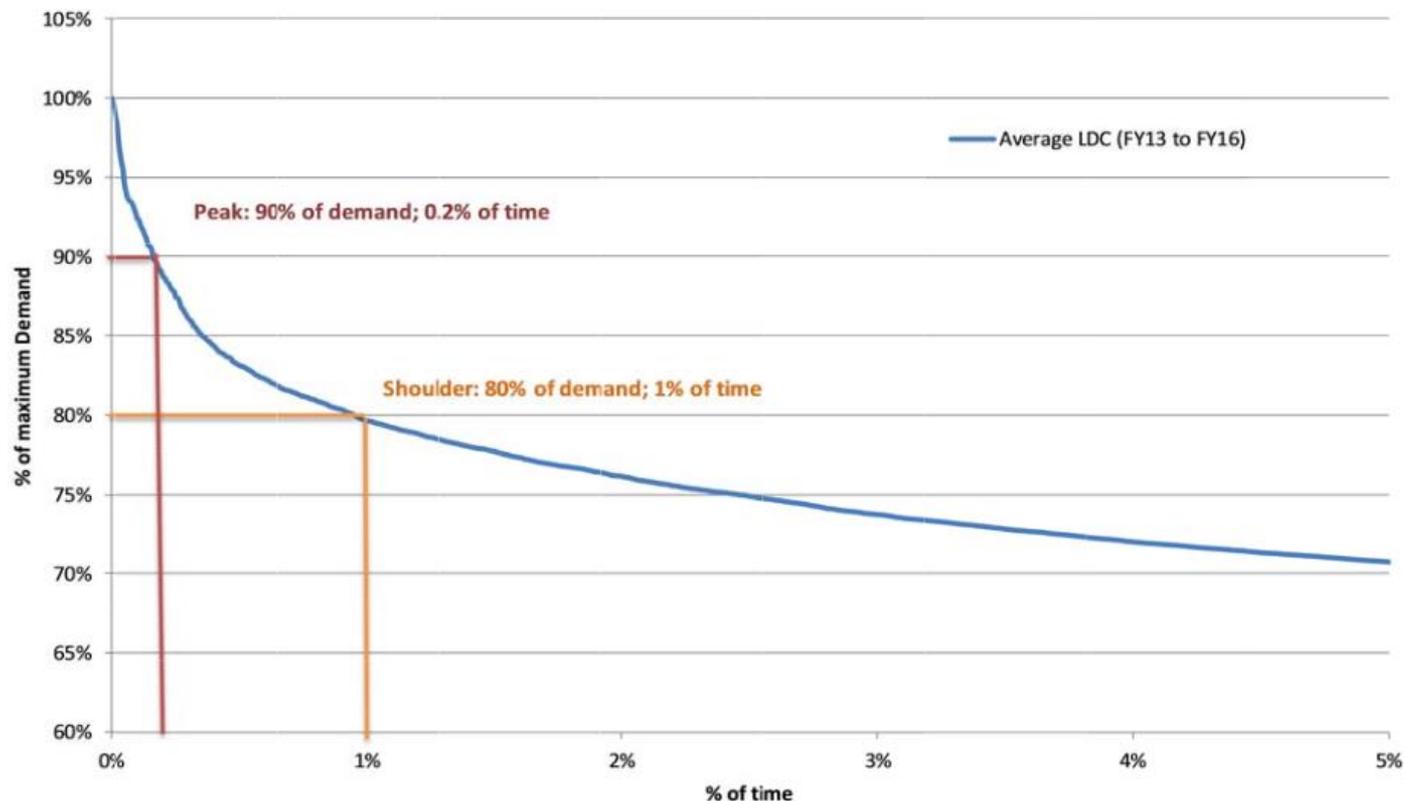


Figure 1: Load duration curve for Endeavour Energy

- Endeavour energy were quoted in an AEMC report “On the road to cost reflective pricing” (26 Oct 2016)

Potential impacts of pricing changes (3/4)

- Accurate metering data is required for cost reflective pricing
- AMI has enabled mass market CRP
- Industry is moving to more complex pricing scenarios to enable CRP, may require
 - changes to AMI NHH meter registers (MEP/ATH)
 - aggregation of HHR volumes into time periods (MEP/Trader/Distributor)
 - determination of peak capacity at fixed or coincident periods (MEP/Trader/Distributor)
 - differing requirements between networks
- The Code allows metering components to be reprogrammed without requiring recertification of the metering installation provided that

Potential impacts of pricing changes (4/4)

- The Code allows metering components to be reprogrammed (clause 19 of Schedule 10.7) without requiring recertification of the metering installation provided that
 - an approved test laboratory has tested and confirmed that the integrity of the measurement and logging of a data storage device in the metering installation would be unaffected by the change
 - the metering records are updated
 - the ATH who most recently certified the MI has agreed to the change methodology and the change methodology has been documented and audited under Part 10
 - the change has been considered in advance by the ATH who most recently certified the MI, and the change does not, or would not affect
 - the metrology layer
 - the accuracy of raw meter data
 - a compensation factor