

30 April 2019

MEP and ATH forum Update

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- Consumers
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- Code & Compliance
- About Us

The Electricity Authority promotes competition in, reliable supply by, and the efficient operation of, the New Zealand electricity industry for the long-term benefit of consumers.

- Market Brief - 4 September 2018
- Electricity Education Portal**
- EMI Market statistics and tools

News

04 Sep
Market enhancement omnibus one: September 2018
 As part of our refreshed 2018/19 Work Programme, we are coordinating the consultation processes for more minor projects into an omnibus series.

04 Sep
Electricity Industry Participation Code Amendment (Amendments to Certification Reports) 2018
 We have approved a Code amendment to insert a new clause 8A into Schedule 10.7 of the Code.

28 Aug
List of distributed generation eligible to qualify to receive ACOT in the lower North Island
 The Authority has published a list of distributed generation in the lower North Island as well as a decision paper.

28 Aug
Consumers to receive ACOT
 Submission



Operations > Industry participants

Electricity Education portal

The Authority's Electricity Education portal provides easy to follow visual links to electricity information.

In this section:

- Wholesale market
- Transmission
- Distribution
- Retail market

Industry participants

- Participant register
- How to register as a participant
- Participant identifiers
- Participant events and education

Electricity Education portal

- Market operation service providers
- Consumer services

The **Electricity Education portal** was developed in conjunction with Whiteboard Energy and it makes information about the electricity system easy to find. It will assist with improving awareness and understanding of how the New Zealand electricity market functions for existing participants and those new to the sector.

Data visualisation software has been applied to electricity sector guidelines to present information in an easily accessible format. Users who are looking for more in-depth information can follow links to find as much detail as they need.

The tool focuses on the relationships between hundreds of different topics and knowledge areas within the guidelines. It is like a three dimensional neural network of electricity sector knowledge.

[Electricity Education portal](#)

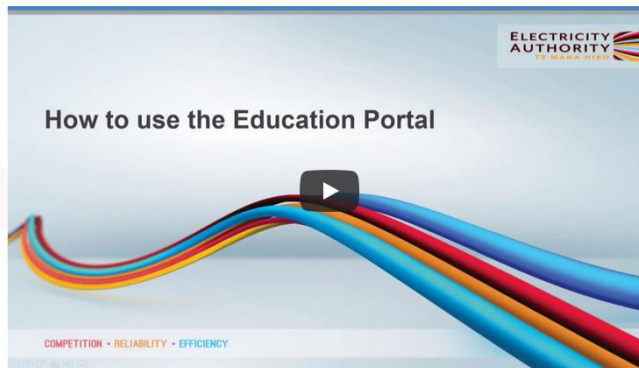
How do I use the portal?

To assist you to use the portal and we have developed a user guide and video.



User Guide - Electricity Education portal
[User-Guide-Electricity-Education-portal.pdf \(PDF, 3 MB\)](#)

Last updated: 25th June 2018



How do I provide feedback on the portal?

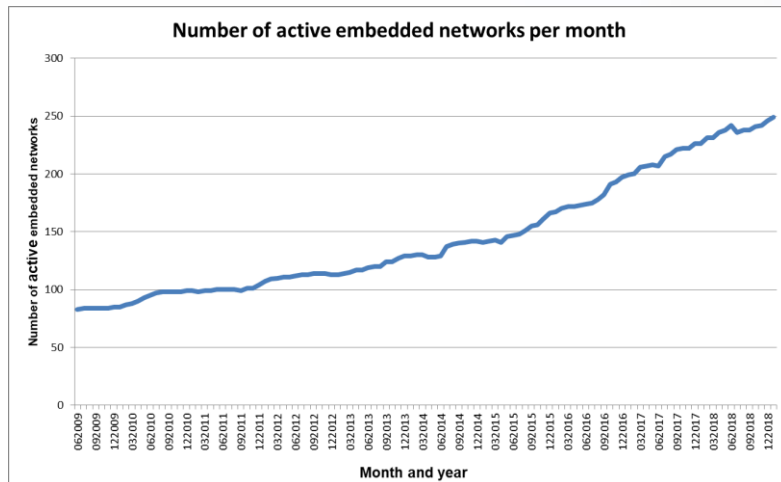
Feedback we received prior to launch has been extremely positive – however we'd love to know how you find the tool. If you'd like to provide feedback on the portal please email marketoperations@ea.govt.nz.

Education Portal

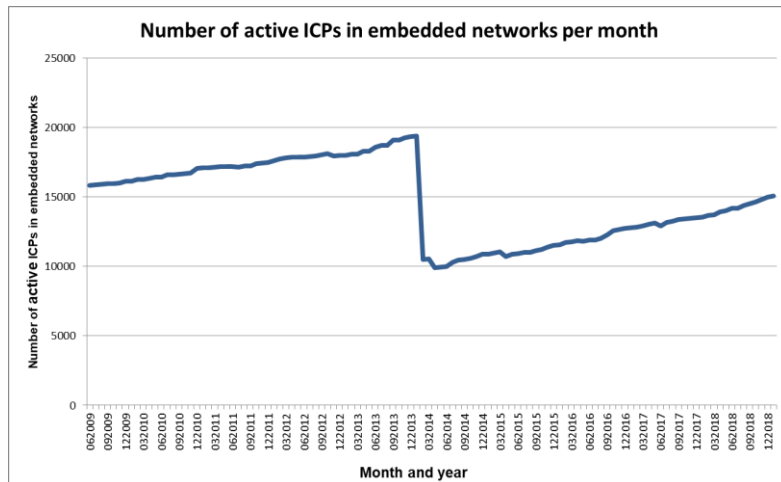
- Centre tile on Authority web page <https://www.ea.govt.nz/>
- User notes and video is available at <https://www.ea.govt.nz/operations/industry-participants/electricity-education-portal/>
- Portal is available at <http://education.ea.govt.nz/>

Secondary networks

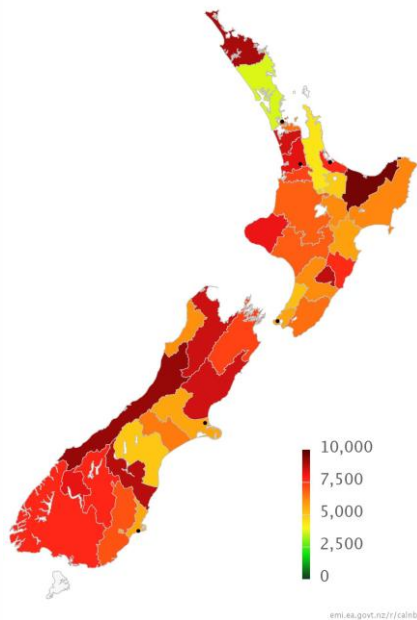
Growth in embedded network



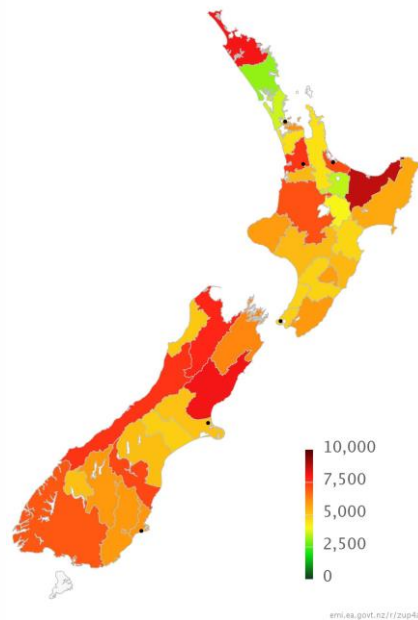
- There are currently 249 embedded network NSPs, spread over 15,065 active ICP identifiers (1/2/2019)
- Embedded network owners defined as distributors under the Act (since 1 July 2017) and the Code
- Embedded networks may become more prevalent as physical microgrids develop
- Code issues around microgrids may be looked at next financial year



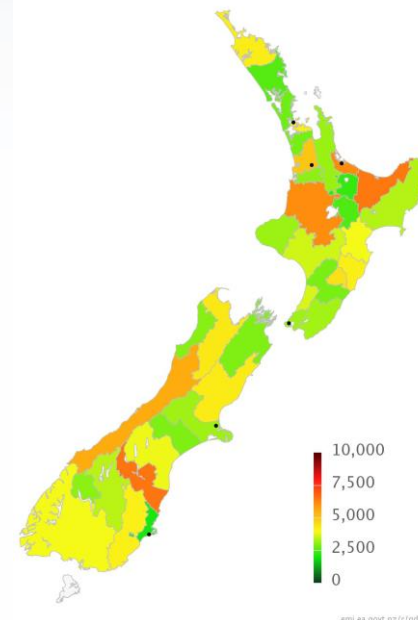
HHI - Increasing (type 1) retail competition



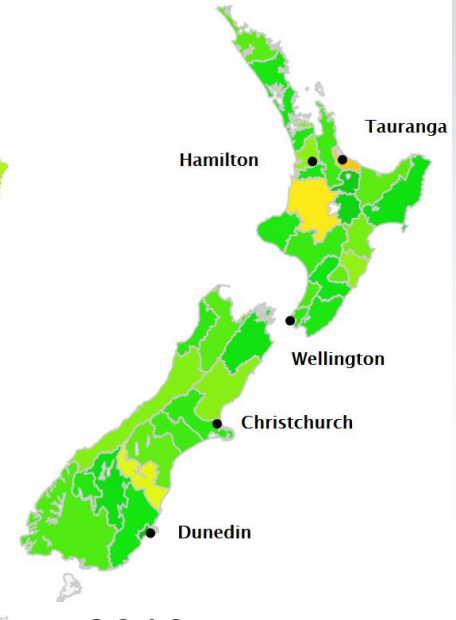
2004
6 retailers



2008
9 retailers



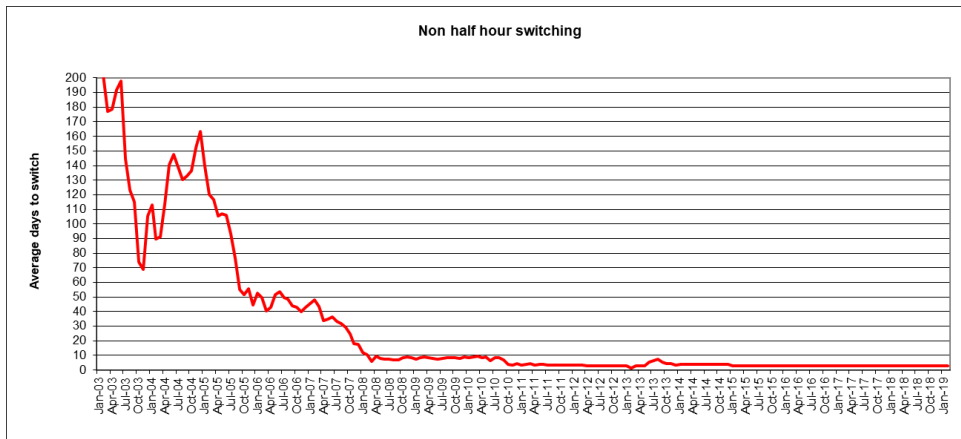
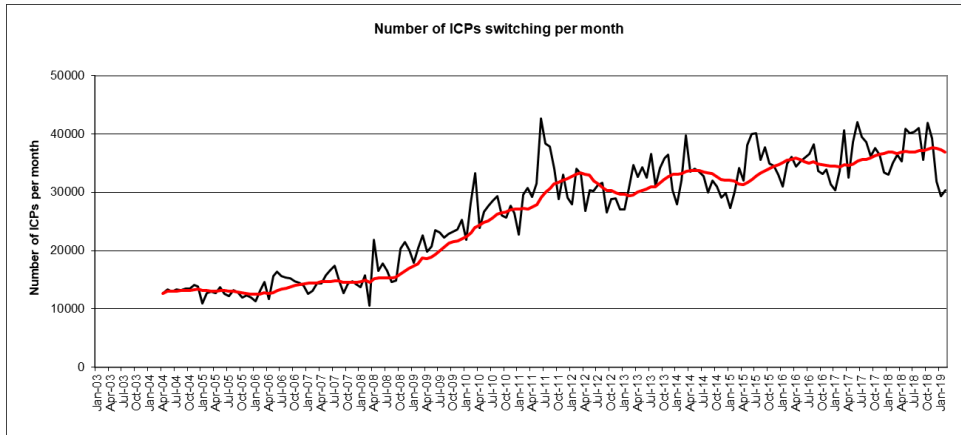
2012
16 retailers



2019 (1/03/2019)
38 entities,
46 participant identifiers

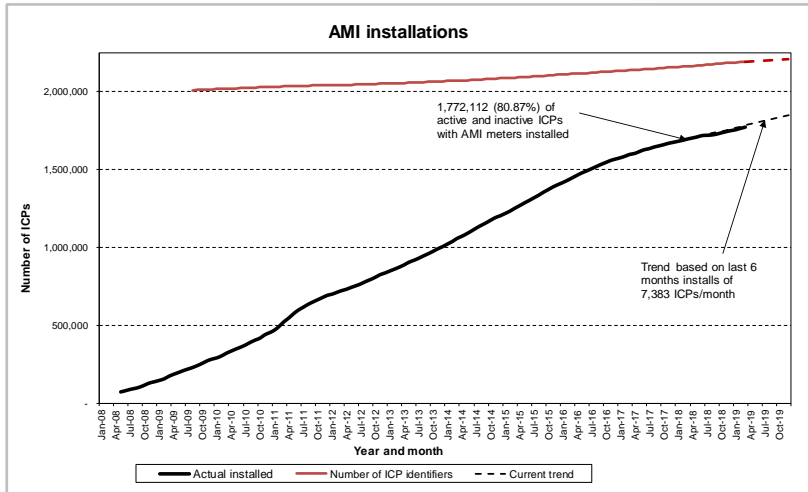
The Herfindahl-Hirschman index (HHI) is a measure of market concentration. This metric is derived from parent company share of ICPs for the market segment selected in each regional market where retailers operate and compete. The regional markets are represented by the pricing regions or network reporting regions. The HHI presented for other regions is the connection weighted average of the HHI for the network reporting regions.

Trader ICP switching



- Central registry manages switching process and is the database of reference for connection information, customer invoicing and market settlement
- Rolling 12 month rate approx 20%
- The NZ trader ICP switch process operates as worlds best practice, however that has not always been the case
- Improvements historically made were due to industry cooperation
- We need to keep that momentum as new technology is adopted

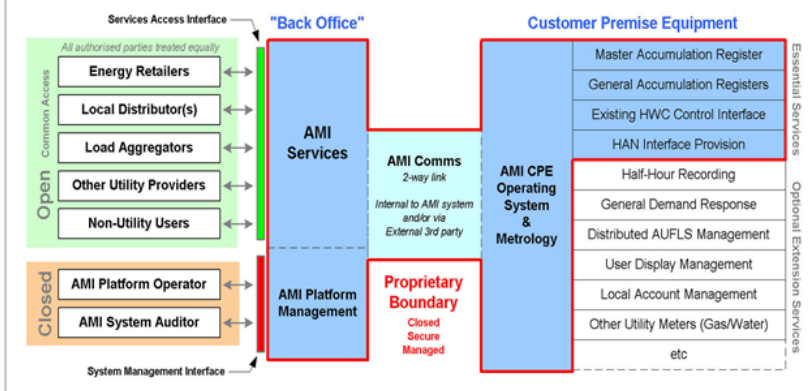
Advanced Metering Infrastructure (AMI)



- Non-mandated AMI roll out 1,772,112 (80.87%) AMI ICPs as at 31 March 2019
- Competitive metering structure, with a number of separate metering participants
- Meter providers for a customer can be switched
- Average monthly installation rate each month averaged over last 6 months is 7,383 ICP identifiers
- Legacy retailer systems handle both legacy and AMI. Some new entrant retailers are AMI only
- Transparency of configuration is therefore essential. Mixture of legacy, smart meters and interval meters, are identified for each consumer in the registry
- AMI Policy and guidelines published in 2008, reinforced with regulation 29 Aug 2013
- AMI prepay in use (2%)

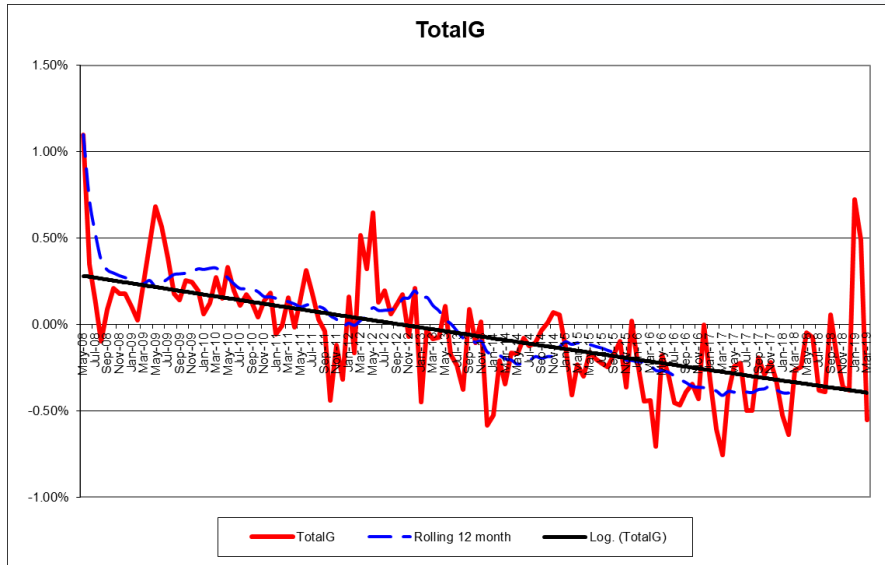
Defining Open AMI Infrastructure

The Encapsulation Model



Unaccounted for electricity (UFE)

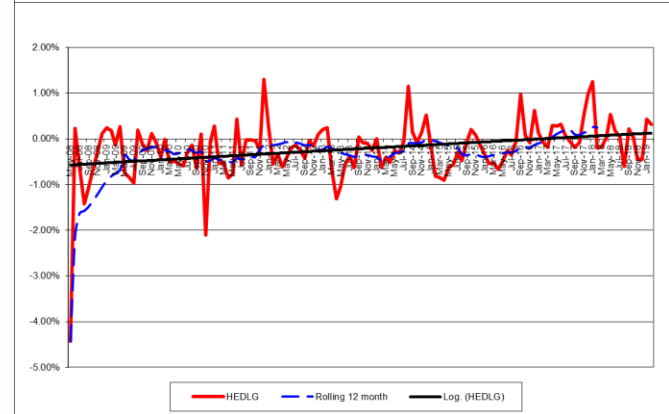
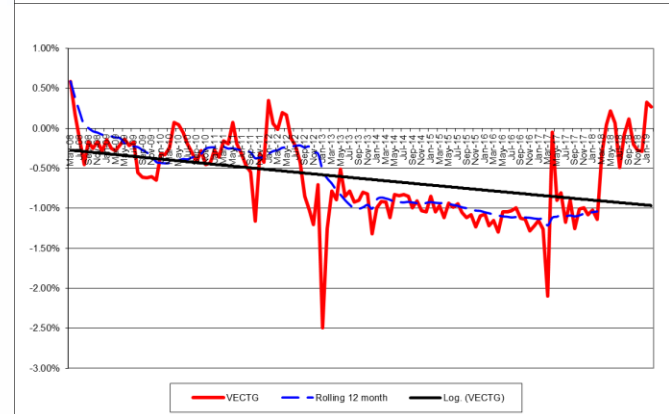
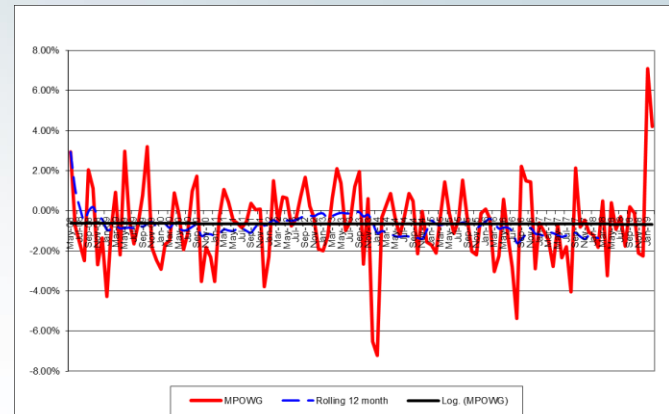
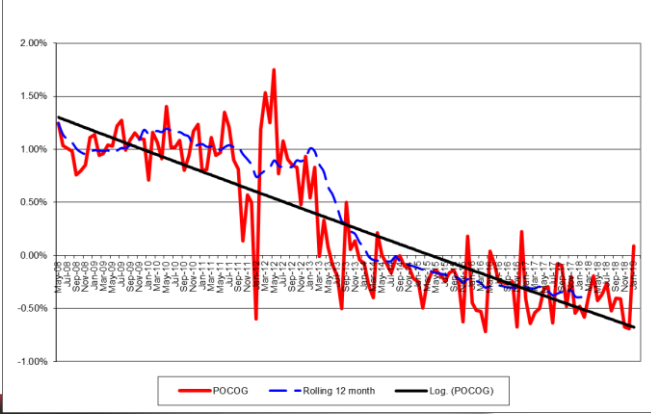
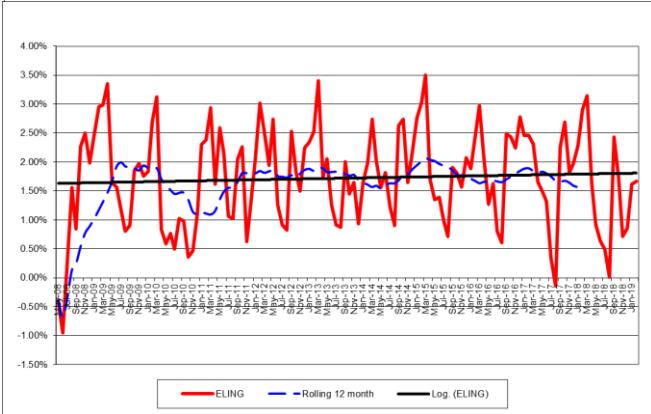
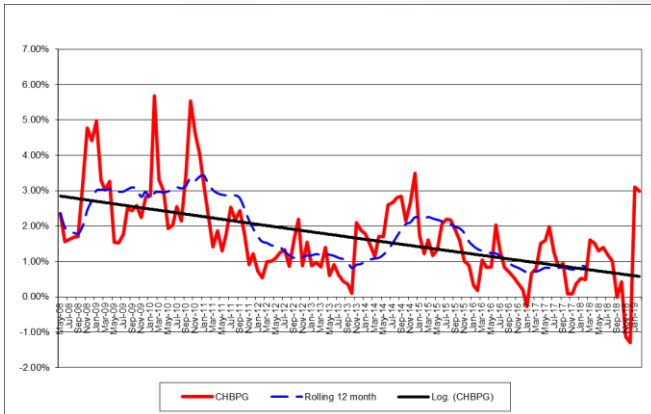
Additional loss factor



Global reconciliation delivers information on overall market settlement accuracy measured by UFE

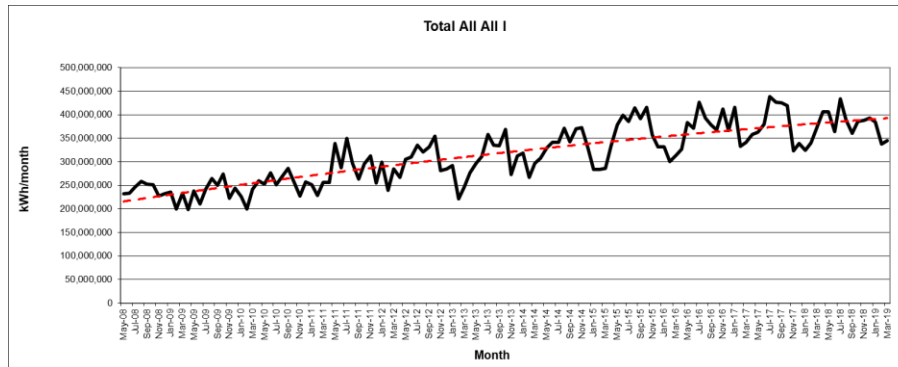
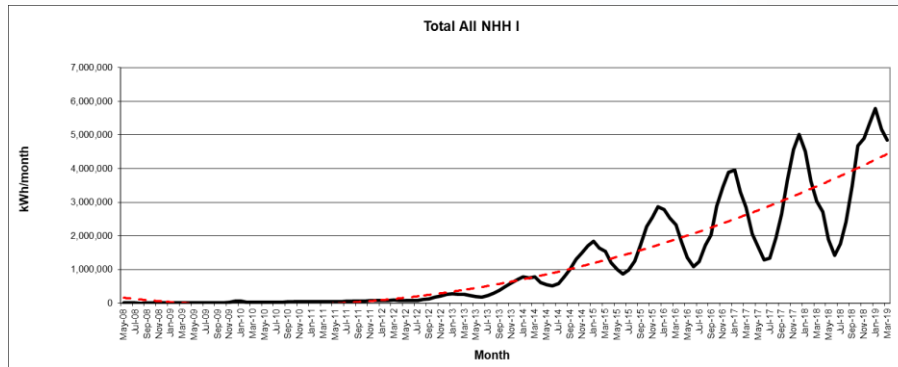
Downward trend as AMI has been rolled out and participant audits have been enforcing accuracy on data handling

- Causers of UFE include
 - inaccurate calculation of network losses
 - inaccurate data handling
 - **inaccurate metering or metering records**
- UFE socialised over all purchases so customers pay for inaccuracy
- Differencing and concept of incumbents used until replaced with full global reconciliation 1 May 2008
- Global – all buyers and sellers on same terms
- Net pool, all electricity bought from, and sold to, the clearing manager
- Market settles HHR and NHH (profiled) volumes
- R0, R1, R3, R7 and R14 monthly resettlements



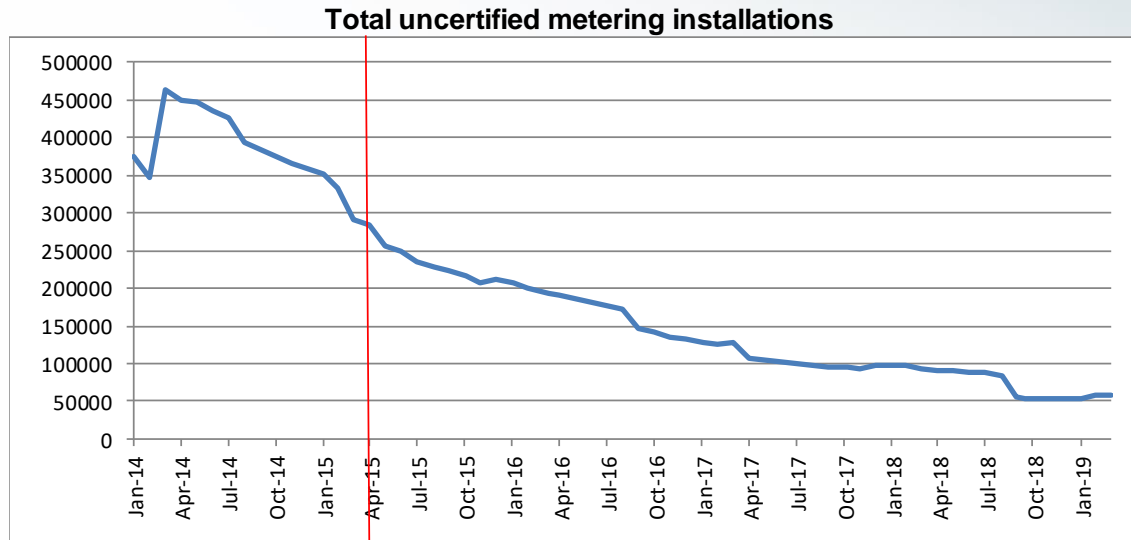
COMPETITION • RELIABILITY • EFFICIENCY

Embedded generation



- NZEM only recognises surplus generation injected into a network
- Embedded generation records held in registry as at 28/02/2019
 - 710 >10kW (1,398.999 MW)
 - 22,568 <10kW (81.773 MW, 80.562 MW is PV)
- Increase per month between
 - 300 and 500 ICPs
 - 1.5 MW and 9 MW
- Regulated connection process in Part 6 of the Code to ensure efficient connection and also to ensure congested areas do not cause power quality issues

Metering installation certifications



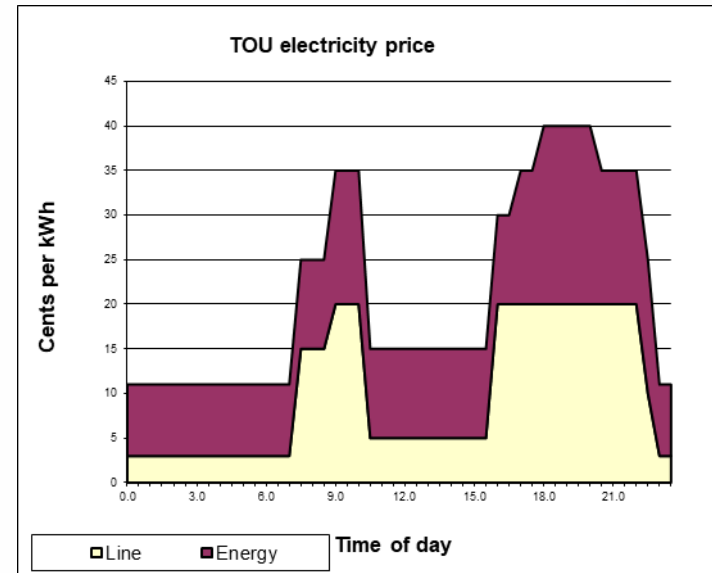
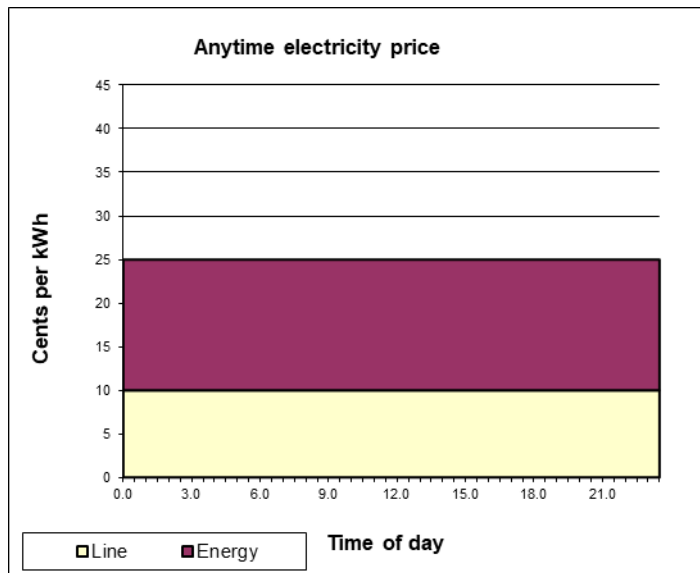
- The Code is the weights and measures requirement for metering
 - All metering components and the complete metering installation must comply with strict Code requirements for accuracy and standards
 - If any a metering installation is not fit for purpose, is inaccurate, has a broken seal, or is modified outside of what the Code allows, certification is cancelled
 - All metering installations were required by the Code to be fully certified by 1 April 2015
 - If an ICP has an uncertified metering installation, and is made active, MEP has 5 BDs to get it certified

Switch process review

- Reviewing all 3 ICP switching processes (distributor, MEP and trader)
- Issues raised that involve MEPs
 - Enable traders to assign a “New” status ICP and notify registry of MEP
 - The provision of initial metering data to a trader is not always timely
 - Meter reading file formats are not standardised
 - The gaining and losing MEPs cannot use the same MEP event date for an MEP switch
 - Transparency on the registry of communicating AMI, non-communicating AMI and C&I metering
 - Use of removal event for a metering component
 - Period of time taken for MEPs to update registry metering records
 - Gaining MEP unable to accept notification and update registry metering records
 - Require MEPs to respond to a registry notification to be the MEP
 - Enable a trader to re-notify the same MEP if an MEP declines a notification in error

Network pricing

- Authority working on cost reflective pricing. It may require
 - Replacement of legacy or re-templating of AMI meters to provide TOU accumulating registers for the TOU time periods, or
 - Use of the HHR data stream to aggregate consumption into the TOU time periods
- AMI enables cost reflective price to defer capital expenditure



1 phase meter on 3 phase installations

- The Code is clear on accuracy requirements
- Authority may consider a grandfathering clause which
 - would apply only to existing installations where the cost or difficulty of installation is prohibitive (additional droppers on a pole may not be considered prohibitive)
 - would need to include inspection of the installation to ensure that measuring 1 phase was accurate

Load control device reminder

(Part 1 definition)

*control device means a device in a **metering installation** that controls either or both of the following:*

*(a) **electricity**—*

*(i) conveyed through the **metering installation**; and*

(ii) used to satisfy controllable load:

*(b) a **meter register** in the **metering installation***

- Control devices that
 - switch meter channels must be certified within that metering installation
 - switch load may be certified or uncertified depending on the MEPs choice
- The Code requires that load control devices that are certified in a metering installation must be recorded in the registry metering records

Load control devices reminder

- The registry allows
 - Discrete load control device components to be recorded
 - Internal to AMI load control device components to be recorded
 - Registry metering records (not mandatory) to include register content codes and periods of availability so that devices operation can be recorded

User: MET1 User - MET1

Participant: MET1 Training - MET1

Update Metering

[Logout](#)[Close](#)

ICP

Switching

Inquiries

Utilities

Help

ICP Number:

Metering Summary

[Refresh summary fields](#)

Attribute	Value
Event Date	20/01/2019
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	2
Meter Multiplier Flag	N

Metering Component (Level 3)

Component Serial Number: [Remove this componer](#)[Add new component - serial number](#)

Attribute	Value
Metering Component Serial Number	1123546L1
Metering Component Type	L - Control Device
Meter Type	
AMI Flag	N
Metering Installation Category	
Removal Date	
Compensation Factor	1
Owner	
Number of Channels	1

Metering Installation (Level 2)

Metering Installation Number: [Remove this installation](#)[Add new installation - number](#)

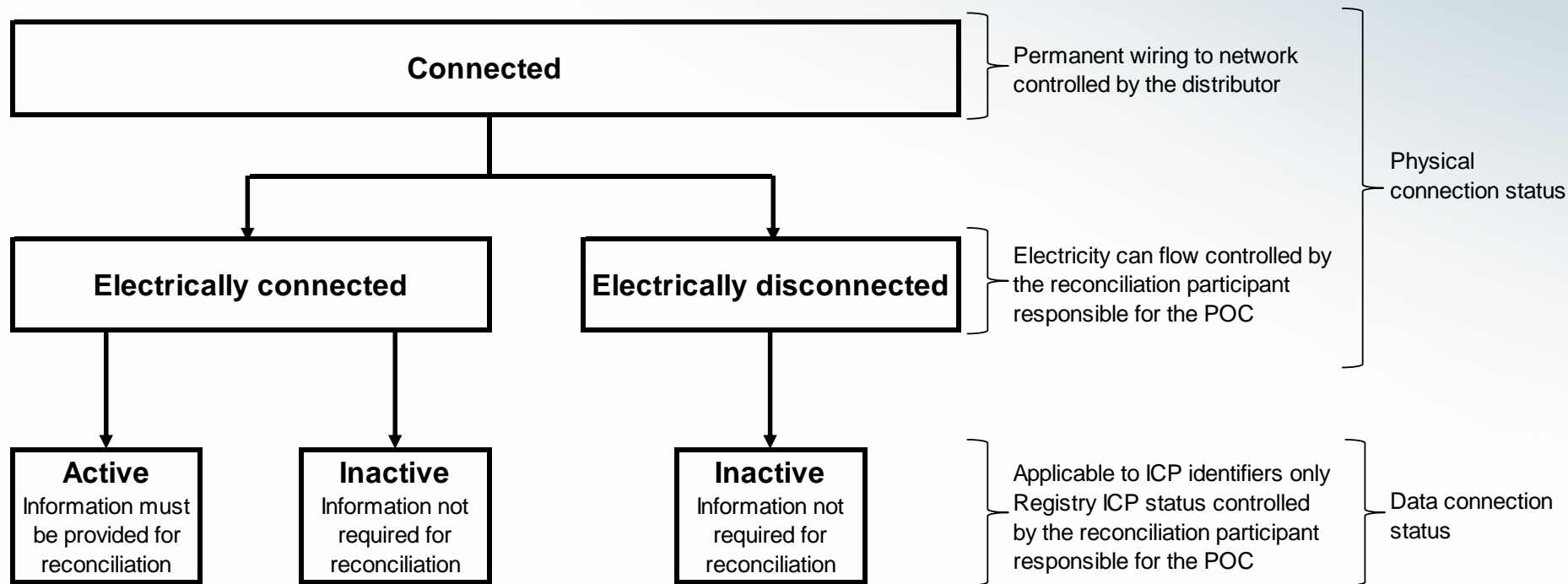
Attribute	Value
Metering Installation Number	1
Highest Metering Category	1
Metering Installation Location Code	FP - FRONT PORCH
ATH Participant Identifier	ATH1 - ATH1 Test
Metering Installation Type	HHR - Half hour
Metering Installation Certification Type	F - Full
Metering Installation Certification Date	02/01/2019
Metering Installation Certification Expiry Date	02/01/2021
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	2

Metering Channel (Level 4)

Metering Channel Number: [Remove this channel](#)[Add new channel - number](#)

Attribute	Value
Channel Number	1
Number of Dials	
Register content code	CN - Controlled - all load on the chann
Period of availability	17
Unit of Measurement	
Energy Flow Direction	
Accumulator Type	
Settlement Indicator	N
Event Reading	

DEFINITIONS – connection and electrical connection



- Code definitions have changed. Some discussion ongoing with ENA
- Refer also to the Connection and electrical connection guidelines

DEFINITIONS – metering data

