momentum energy

Understanding your interval meter data report.

Our guide to untangling your NEM12 spreadsheet.

Your meter data report follows a standard industry format that all power companies stick to. This guide explains how the report is set up, to help you find the information you're looking for.

The interval meter data report has two parts: a summary of your overall energy use, and a more technical detailed report.

The information in your meter data report may look slightly different from what's shown in this guide (for example, if you have solar).

Each meter data report is for a single National Meter Identifier (NMI). If you have more than one NMI, you'll need to request separate reports for each one.

The summary report

The Interval Meter Summary Report gives an overall view of your energy use. It has three parts:

- Summary table
- Energy flows graph
- Average daily load profiles graph

Summary table

A controlled load could be something like hot water which heats at times controlled by your distributor

Sometimes your meter data provider isn't able to get a meter read (for example a locked gate or other access issue). If this is the case, the meter data provider will supply an estimated read.

Your NMI (or National Metering Identifier) is your electricity connection point and is unique to your property

These amounts are how much electricity was used (in kilowatt hours) in the period between the dates

This number is how much electricity was generated in the period between the dates, such as any solar energy you've exported to the electricity grid

This column shows if each read is based on actual data (N) or if the data has been estimated (Y)

A	B	C	D	E	F	G	H	I	J	K
NMI	Meter Serial	Unit of Measure	From Date	To Date	General Supply	Controlled Load	Generation	Maximum demand	Maximum demand unit of measure	Includes Estimates
10012345678	4140376	kWh	01/09/2024	30/09/2024	621.768	0.000	0.000	5.308	kW	N
10012345678	4140376	kWh	01/10/2024	31/10/2024	510.541	0.000	0.000	3.638	kW	N
10012345678	4140376	kWh	01/11/2024	30/11/2024	505.912	0.000	0.000	4.558	kW	N

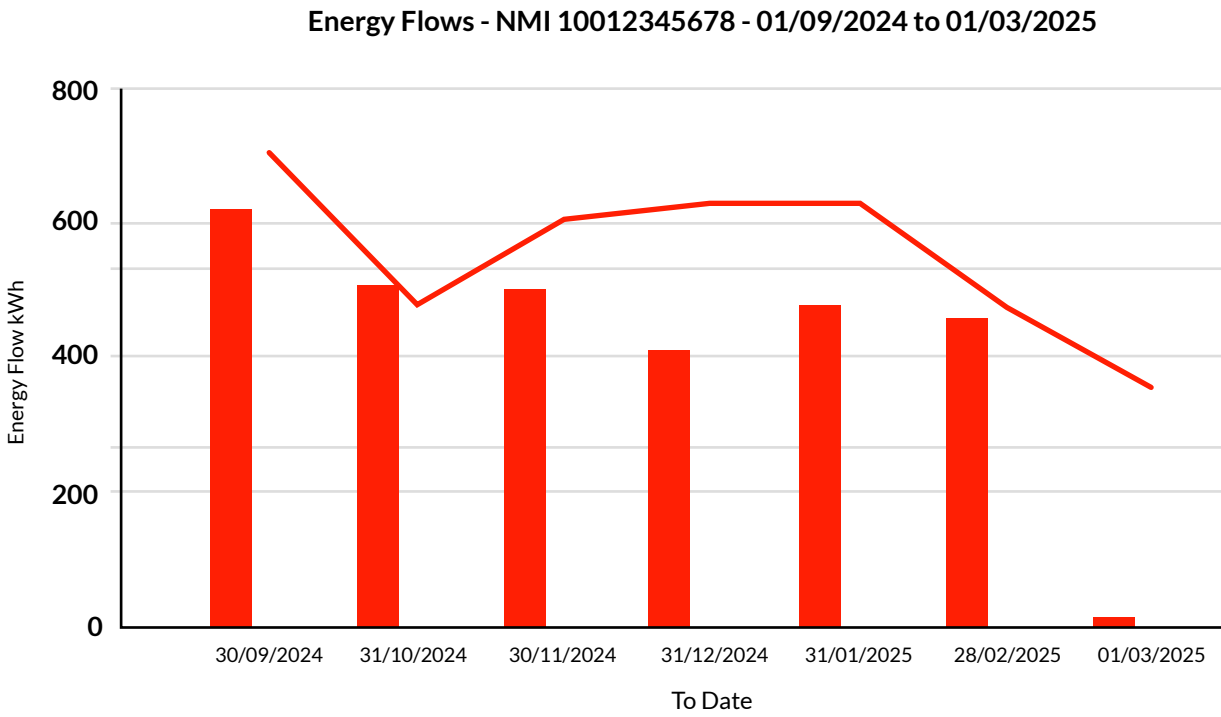
Each meter on your property will have it's own serial number. If you have more than one meter they'll all be listed here

These dates show the period of usage/ generation in each row

This column shows the highest usage (in kW) of any interval in the period, if it went for **one hour**. For example the highest 15 min interval, multiplied by four

Energy flows graph

This graph shows a visual summary of the information from the data table.



This axis shows the total amount of electricity used (and generated, if applicable) in kilowatt hours. It should be read against the bars in the graph

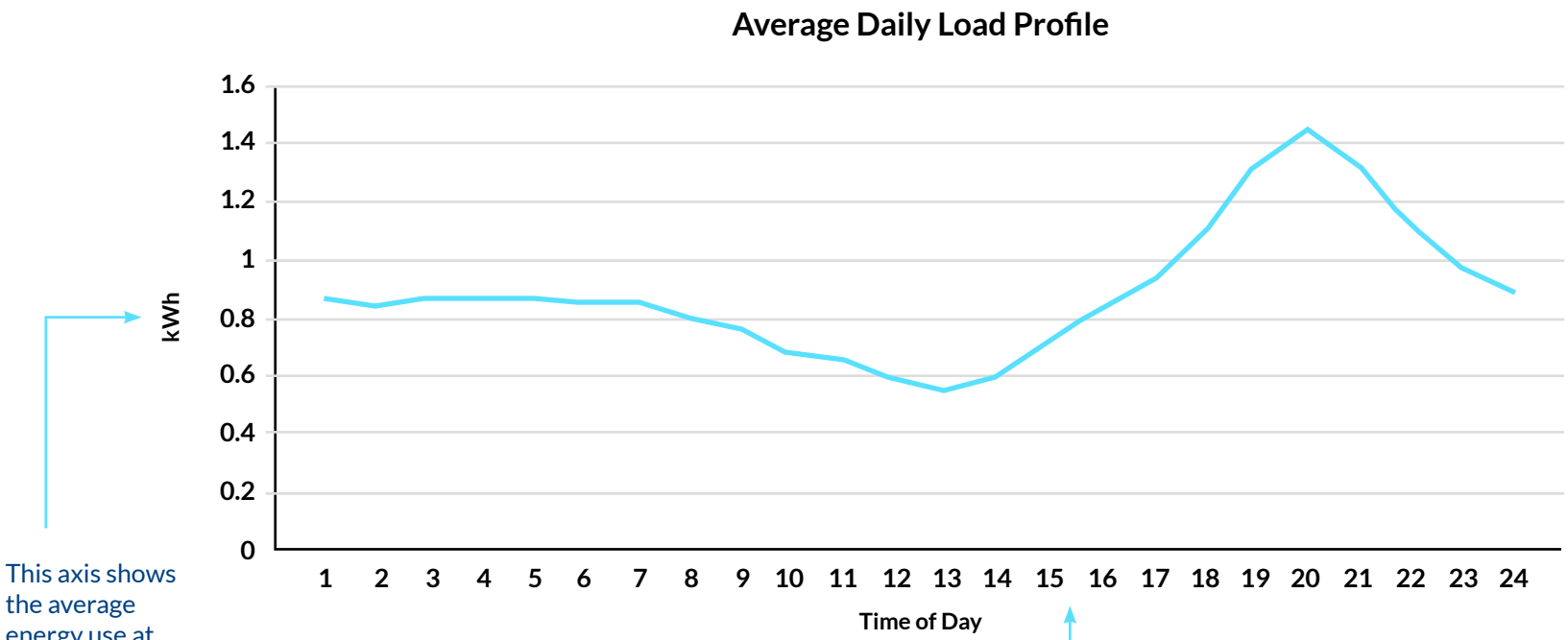
This axis shows the maximum demand (in kilowatts), and should be read against the line in the graph

These are the *To Dates* from the table. They tell you the end of the date range being shown in the bars above

The key identifies which bars in the graph relate to general supply, controlled load and generation (if applicable), and maximum demand

Average daily load

This graph shows your average energy use across different times of the day. This can help you spot habits that impact when you use the most energy and highlight chances to reduce or shift your use to cheaper times (depending on your tariff). It can also help you decide if another tariff might fit your energy habits better.



This axis shows the average energy use at that time of day.

Note that these usage amounts are averages for the report period. Individual days will differ, as will other times of year.

This axis is the hour of day, in 24hr time (starting from midnight).

The detailed report

The Interval Meter Detailed Report is more complex than the summary report and contains a half hourly breakdown of your energy usage and generation by meter register.

This report is developed for retailers, third party energy solutions providers and energy users with detailed industry knowledge. It may be challenging to understand as someone less familiar with the energy market, but it can be useful for tariff or energy efficiency analysis.

Note that times are displayed in eastern standard time (EST). If you're being billed on a time-based tariff, you'll need to adjust them to your time zone (including +1 hr during daylight savings).

RECORDS

In the far-left column, you'll see the numbers 100, 200, 300, 400, 500 and 900. These are called 'records' and contain different types of data.

100 RECORD: the headline

The 100 record is like the headline for your document. It has the title (this meter data report is known as a 'NEM12'), the time and date it was generated, the identifier for the company who sent the data to us, and our company identifier.

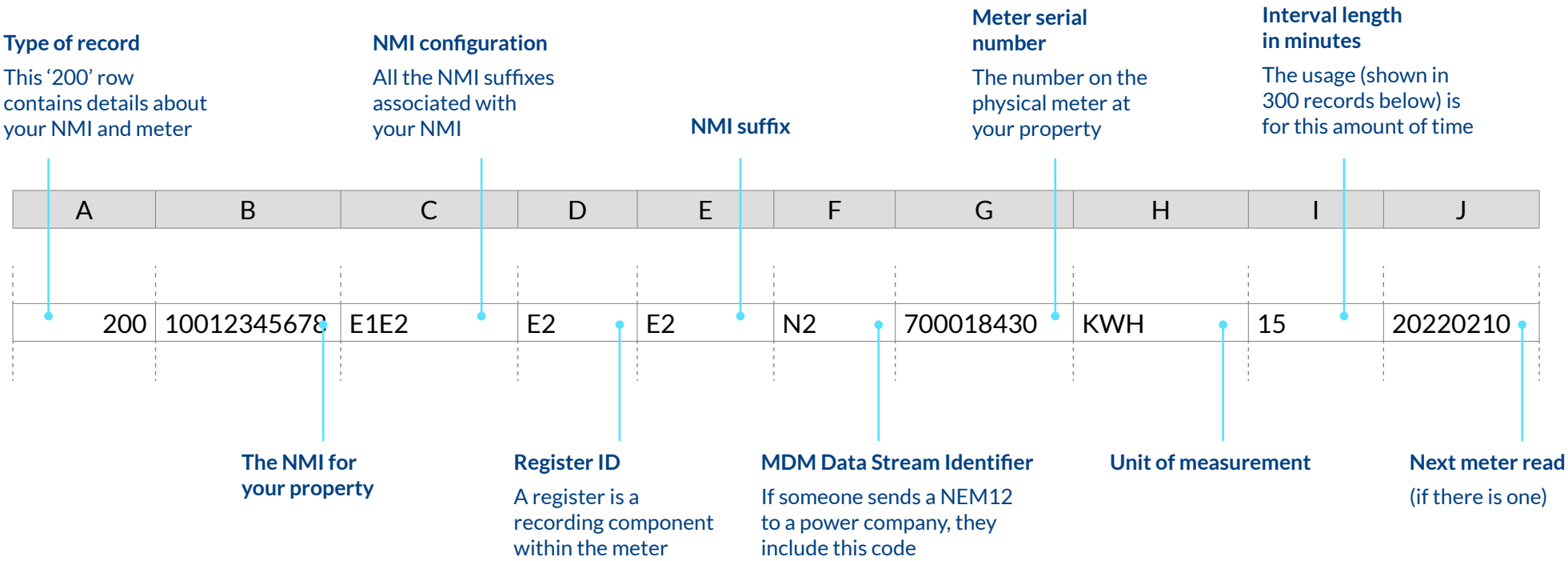
A	B	C	D	E	F	G	H	I
100	NEM12	2.02202E+11	ACTIVMDP	MOMCOMPANY				
200								
300								
300								
300								
200								
300								
400								

200 RECORD: your NMI data

Your National Metering Identifier (NMI) is the unique electricity connection point to your property. The NMI data captures what different activities (eg. types of usage or generation) are happening on the property.

An '*NMI suffix*' represent the different ways you use or generate electricity, for example things like peak usage, off-peak usage, or solar generation. Usage starts with an E, generation starts with a B and if you're on a demand tariff, it will start with a Q.

For every type of activity that happens at your meter, there'll be a 200 record.



300 RECORD: your usage data

This row shows the usage (or generation) data for the energy activity (the 'NMI suffix') shown in the 200 row above, as well as the kind of reads they were.

If a substitute read is taken, you might also see a reason code. This explains why an actual read wasn't provided . A full list of reason codes is on page 14.

In this example, if a usage cell showed '1.26' that would mean 1.26 kWh had been used in that 15 minute period on 3 July 2024.

Depending on you interval period, your row (which is 24 hours of data) will contain:

5 min interval: 288 usage cells per row.
15 min interval: 96 usage cells per row.
30 min interval: 48 usage cells per row.

Type of record

This '300' row contains your usage (or generation) data

Usage

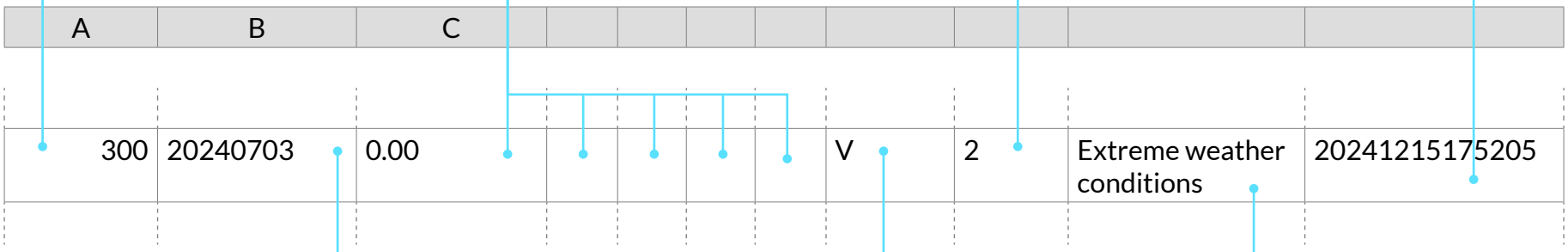
Each cell from here until *Read quality* represents your usage in each time period (the *interval length* shown in the 200 record)

Reason code

If a substitute read is used, this code explains why

Date and time

The date the data was generated in YYYYMMDDHHMMSS format. This field might be left blank



Date

The data in the following columns was read on this date (YYYYMMDD), starting from midnight

Read quality

How the usage data was provided. Common examples are:

A = Actual
E = Estimated
S, F = Substituted
V = Varied

Reason description

Sometimes a full description (rather than just the reason code) will be provided

400 RECORD: read quality information

If the read quality in your 300 record shows V (for 'varied'), you'll also see a 400 record which shows a breakdown of which intervals were actual, substituted or otherwise. 400 records address every interval in ascending order, and they spread over multiple rows to do so.

Type of record

'400' means this row contains more details on the quality of the reads in the '300' record

End interval

Each cell from here until the *Read quality* column represents your usage for the given interval (as shown in the 200 record)

Reason code

If a substitute read is used, this code explains why (see page 14)

A	B	C							
400	1	44					F19	2	Extreme weather conditions
400	45	96					A		

Start interval

The data in the columns that follow are readings taken on this date, starting from midnight

Read interval

What kind of read was used. If S or F (for substituted), they may be followed with a code that describes the calculation method for generating the substitute

Reason description

Sometimes a full description (rather than just the reason code) will be provided too

500 RECORD: requested meter reads

You will see a 500 record if your retailer has requested a manual meter reading (including if it was attempted but not successful).

Type of record
The '500' row shows details about any requested manual meter reads

Read reason code
A code for why the meter read was requested (see page 18)

Read date/time
The day and time the read was performed, attempted or substituted (in format YYYYMMDDHHMMSS)

Index read
The cumulative total of kWh recorded by the meter

A	B	C	D	E
500	S	RETNSRVCEORD1	20241220154500	001123.5
900				

Request number
Your retailer keeps a 'service order' number associated with the meter read request

900 RECORD: the full stop

The 900 record signifies the end of this data report (which began with the 100 record).

Read quality codes

Here's what the letters in the *Read quality* column of your 300 and 400 records mean.

Read quality code	Meaning
A – Actual	Read is based on an actual meter read
S – Substituted	Where an actual read can't be taken, a substitute is calculated (often alongside a code to explain how it was calculated)
F – Final substituted	The same as a substituted read, although unlike a normal substitute read is unlikely to be replaced
V – Varied	Multiple read types were taken throughout the day
N – No data exists	No data found, usually when a meter is disconnected
E – Forward estimate	A substitute for a future read, usually shown alongside a calculation code. Forward estimates are usually used for settlement purposes

Calculation codes (or substitute types)

If you see a number alongside the 'S' or 'F' for substitute reads, it's a code for the way the substitute was calculated. More details on these are provided by AEMO here.

Reason codes for substitute reads

These codes explain why a substituted read was used. Reason codes come from the Australian Energy Market Operator (AEMO) and are supplied by the meter service provider in your area.

0	**Free text description** For use in the case that other reason code descriptions cannot be reasonably utilised.
1	**Meter/equipment changed** Where metering installation has changed.
2	**Extreme weather conditions** Extreme weather conditions have prevented metering data collection.
3	**Quarantined premises** Site under quarantine preventing access to metering installation.
4	**Dangerous dog** Dog has been identified as posing an immediate hazard to metering installation access.
5	**Blank screen** Electronic meter has blank display, could be powered off or faulty display but unable to determine.
6	**De-energised premises** Blank screen on an electronic meter where the meter reader can determine that the site is de-energised or an interval metered site where the MDP is providing substituted metering data for a site that is de-energised but datastreams are left active.
7	**Unable to locate meter** The site was found, but unable to locate the metering installation.
8	**Vacant premises** Meter reader believes the site is vacant.
9	**Under investigation** An issue with the metering installation has been identified and is under investigation.
10	**Lock damaged unable to open** Unable to open lock due to damage and the lock is preventing access to the metering installation.
11	**In wrong route** Unable to obtain reading due to the metering installation being in the wrong route.
12	**Locked premises** Unable to obtain access to metering installation due to site being locked.
13	**Locked gate** Locked gate at site is preventing access to metering installation.
14	**Locked meter box** Locked meter box is preventing access to metering installation.
15	**Overgrown vegetation** Overgrown vegetation at site is preventing access to metering installation.
16	**Noxious weeds** Noxious weeds at site are preventing access to metering installation.
17	**Unsafe equipment/location** The equipment or the location of the metering installation has been identified as unsafe (other than meter being high).
18	**Read less than previous** Current meter reading obtained is less than previous meter reading, no evidence of tampering and no reverse energy observed.

Meter read codes

20	**Damaged equipment/panel** The equipment or the panel of the metering installation has been damaged but has not been identified as unsafe.
21	**Main switch off** Blank screen on an electronic meter where the meter reader can determine that the main switch has been turned off, or interval metered site where the MDP is providing substituted metering data for a site that the main switch is off but datastreams are left active.
22	**Meter/equipment seals missing** One or more seals are missing from the metering installation, no tampering has been identified.
23	**Reader error** MDP identified that meter reading provided by the meter reader was incorrect.
24	**Substituted/replaced data (data correction)** Interval meter reading – MDP replaced erroneous data for specific intervals.
25	**Unable to locate premises** Unable to locate site.
26	**Negative consumption (generation)** Accumulation meter where the previous meter reading is higher than the current meter reading, generally site will have generation.
27	**RoLR To be used when transferring** End user as a result of a RoLR event.
28	**CT/VT fault** MDP has corrected data due to a known instrument transformer (CT/VT) fault.
29	**Relay faulty/damaged** Meter reader has identified the relay device within the metering installation is faulty.

31	**Not all meters read** Readings for all meters linked to the site have not been received by the MDP (typically as a result of a non-scheduled meter reading).
32	**Re-energised without readings** Unable to obtain meter readings due to exceptional circumstances when the Site is re-energised outside of standard practice.
33	**De-energised without readings** Unable to obtain meter readings at the time of de-energisation including disconnection for non-payment.
34	**Meter not in handheld** Unexpected meter found on site (new meter or additional meter).
35	**Timeswitch faulty/reset required** Meter reader has identified the time switching device within the metering installation is faulty and required resetting.
36	**Meter high/ladder required** Meter in a high position requiring a ladder to obtain meter reading.
37	**Meter under churn** MDP has substituted data based on metering data not being received from relevant MDP.
38	**Unmarried lock** Site has two or more locks, one of which is a power industry lock and they have not been interlocked together correctly to allow access to the site.
39	**Reverse energy observed** Reverse energy observed where site isn't expected to have reverse energy.
40	**Unrestrained livestock** Meter reader observed that livestock is roaming free on site and could potentially be hazardous, or access wasn't obtained due to potential for livestock to escape.

Meter read codes

41	**Faulty meter display/dials** Display or dials on the meter are faulty and site is not de-energised nor is the display blank on an electronic meter.
42	**Channel added/removed** MDP obtained metering data for a channel that has been added or substituted metering data where a channel has been removed but the datastream is still active in MSATS.
43	**Power outage** Interval meter – metering data for intervals have been substituted due to power not being available at the metering installation.
44	**Meter testing** MDP identifies meter has been under testing regime and has provided substituted metering data to reflect energy consumption during testing period.
45	**Readings failed to validate** Meter Readings have been loaded into MDP's system, but have failed validation and have been substituted.
47	**Refused access** The end user refused to provide access when requested.
48	**Dog on premises** Meter reader has identified that there is a dog on the site but has been unable to determine if the dog is dangerous.
51	**Installation demolished** Metering installation no longer exists at the site.
52	**Access – blocked** Used when there are items blocking safe access to the meter or site.
53	**Pests in meter box** Pests have been identified within the meter box that poses a risk to metering data accuracy, safety of the metering installation or a hazard to the meter reader.
54	**Meter box damaged/faulty** Meter reader identifies that the meter box is damaged or faulty and the mechanical protection or weather proofing of the metering installation is compromised as a result.
55	**Dials obscured** Meter reader unable to obtain meter reading due to meter dials being obscured, meter face painted over, viewing panel in locked meter box with pvc panel misted over/faded/mouldy etc. No evidence of tampering.
60	**Illegal connection** Meter reader has identified that the site has been illegally connected.
61	**Equipment tampered** Meter reader identified that the metering installation has been tampered with and the recording of energy consumption may have been affected as a result.
62	**NSRD window expired** Where the NSRD window has expired and the meter reader has been unable to deliver actual meter readings.
64	**Key required** Meter reader typically has access to the key but was unable to obtain/ locate the key at the time of meter reading
65	**Wrong key provided** Meter reader has been provided with a key but the key no longer opens the lock.
68	**Zero consumption** Where a site has known zero consumption and the site is not deenergised in MSATS but no energy is flowing to the meter.
69	**Reading exceeds substitute** Re-substituted data that has been modified to improve the smoothing of energy to align with the next actual meter reading.

Meter read codes

71	**Probe read error** Data collector unable to collect the metering data due to the meter probe being unable to extract the metering data.
72	**Re-calculated based on actual metering data** MDP received actual meter readings and prior substitutes have been amended.
73	**Low consumption** Meter reading failed validation as being too low based on historical data and has been either left as an actual or replaced by a substitute.
74	**High consumption** Meter reading failed validation as being too high based on historical data and has been either left as an actual or replaced by a substitute.
75	**Customer read** Meter reading provided to the MDP by the end user. (Only applicable in jurisdictions where end user meter Readings are allowed).
76	**Communications fault** Meter reader attempted to read the meter but was unable due to not being able to remotely communicate with the meter.
77	**Estimation forecast** Optional reason code that can be applied to estimations.
78	**Null data** For interval meters where no metering data was received and substitutes created to cover this period.
79	**Power outage alarm** For interval meters where a power outage has been detected by the meter.
80	**Short interval alarm** For interval meters where the time in the meter is slow and has now been corrected, resulting in the interval metering data not being a full 15 or 30 minutes in length.
81	**Long interval alarm** For interval meters where the time in the meter is fast and has now been corrected, resulting in the interval metering data exceeding a full 15 or 30 minutes in length.
87	**Reset occurred** Resetting of the meter due to re-programming, change of configuration or firmware upgrade etc.
89	**Time reset occurred** Where a time reset has occurred within the metering installation.

Transaction codes

These codes are shown in the 500 record and specify why a retailer has requested a meter read.

Transaction code	Meaning
A – Alteration	Alteration of the metering installation, this includes a removal of one meter and replacing it with another
C – Meter reconfiguration	This includes off-peak (controlled load) timing changes (does not apply to the removal of the meter)
G – Re-energisation	Connecting energy to the meter
D – De-energisation	Disconnecting energy to the meter, including for non-payment
E – Estimate	All estimated meter reads
N – Normal read	A meter read as normally sceduled (includes associated substitutions)
O - Other	Includes meter investigations or miscellaneous meter reads (used for historical data where other reason codes aren't available)
S - Special read	For example, for move in/out, or as requested after an estimated or incorrect read
R - Removal of meter	Meter removal or supply abolishment

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