NTESMO

B2B Procedure

Meter data file format specification
NEM12 NEM13

Contents

1 Introduction 3

1.1 Purpose and scope 3

1.2 Definitions and interpretation 3

1.3 Related AEMO documents 3

2 General rules and information 4

3 Technical information 4

3.1 Version details 4

3.2 File delivery 4

3.3 File construction 5

4 Interval meter reading file specification and validation (NEM12) 8

4.1 Blocking cycle 8

4.2 Header record (100) 8

4.3 NMI data details record (200) ..... 9~~8~~

4.4 Interval data record (300) 10

4.5 Interval event record (400) 12

4.6 B2B details record (500) 13

4.7 End of data (900) 14

5 Accumulation meter reading file specification and validation (NEM13) 14

5.1 Blocking cycle 14

5.2 Header record (100) 15

5.3 Accumulation meter data record (250) 15

5.4 B2B details record (550) 18

5.5 End of data (900) 19

Version release history

Version	Date	Comments
1.0	2 October 2023	Initial NT procedure based on NEM version 2.5.
1.1	1 September 2024	Change of effective date only
1.5	1 December 2025	Updated based on NEM version 2.7
1.6	1 November 2026	Updated based on NEM version 3.0

Prepared by:	**NT Electricity System & Market Operator**
Version:	1.6
Effective date:	1 November 2026
Status:	~~Intitial Draft~~Draft
Approved for distribution and use by:	
Approved by:	Simon Middleton
Title:	Senior Manager Electricity Market and Reform
Date:	~~16 March 2026~~25 May 2026

1 Introduction

1.1 Purpose and scope

a. This document specifies the Meter Data File Format (MDFF) to be used by MDPs for the provision of *metering data* to MDPs, *Registered Participants* and NTESMO.

b. The MDFF can be used for the provisioning of *metering data* held in "standalone" files and for *metering data* held as CSV data blocks in other defined formats (e.g. aseXML *B2B transactions*).

c. This document has effect only for the purposes set out in the NT NER. The NT NER prevails over this MDFF to the extent of any inconsistency.

1.2 Definitions and interpretation

The Communications Guideline:

a. is incorporated into and forms part of this document; and

b. should be read with this document.

The NT Procedures are based on the equivalent MSATS and B2B procedure documents from the National Electricity Market (NEM). To maintain document alignment where a section or element of the NEM MSATS and B2B procedures is not used in the NT procedures this has been replaced with the phrase 'Not used in the NT Procedures' rather than that section or element be deleted from the NT Procedures.

1.3 Related AEMO documents

Title	Location
Communications Guideline	www.ntesmo.com.au/library/procedures
NMI Procedure	www.ntesmo.com.au/library/procedures
Standing Data for MSATS	www.ntesmo.com.au/library/procedures
B2B Procedure: Meter Data Process	www.ntesmo.com.au/library/procedures
B2B Procedure: Technical Delivery Specification	www.ntesmo.com.au/library/procedures

2 General rules and information

The MDFF must:

a. be constructed in a CSV format;

   i. contain only a single Header (100) record;

   ii. contain a single End (900) record; and

   iii. contain NEM12 or NEM13 formatted data, but not both.

b. Due to delays with the updating of MSATS, recipients of an MDFF file should be aware that the information provided in the MDFF file might not align with MSATS at the time of receipt.

c. The MDP must ensure that all NMI suffixes associated with a *NMI* for any *IntervalDate* are included in the same 100-900 event block.

3 Technical information

3.1 Version details

a. The file format for *interval metering data* is "NEM12". The *VersionHeader* field in the 100 header record indicates this information.

b. The file format for *accumulated metering* data is "NEM13". The *VersionHeader* field in the 100 header record indicates this information.

3.2 File delivery

3.2.1 Delivery via B2B

If using *B2B e-Hub* as the delivery mechanism, refer to the relevant B2B Procedure: Technical Delivery Specification.

3.2.2 Alternative delivery method

a. File naming standard:

   i. The file name is not case sensitive.

   ii. The symbol # is to be used as a delimiter and must not be used within any of the file header fields.

   iii. Using the file as a standalone file the following file naming convention will be adopted:

   - VersionHeader#Unique ID#From#To.csv
   - Example = nem12#0123456789012345#mda1#retail1.csv Where:
     - > VersionHeader - 5 alphanumeric characters - "NEM12" or "NEM13".
     - > VersionHeader must match the *VersionHeader* in the 100 Header Record(s).

- Unique ID – Up to a maximum of 36 alphanumeric characters. This must be a unique identifier.
- From – The Participant ID of the MDP that generates the file.
- To - The Participant ID of the intended *Registered Participant*, MDP, ’.

b. Compression:

i. Data files may be delivered as compressed files with a “.zip” extension, providing the 'zlib' standard is used to manage the compression.

ii. Files must not be password protected.

iii. Using the file as a standalone file the following file naming convention will be adopted:

- VersionHeader#Unique ID#From#To.zip
- Example = nem12#0123456789012345#mda1#retail1.zip

3.3 File construction

a. The values in a field are not case sensitive, except where allowed values are specified as an enumerated list in the record definition tables (refer sections 4 and 5).

b. All record lines must end in a carriage return and line feed (CRLF).

3.3.1 Spaces, nulls and commas

a. Fields must not include leading or trailing spaces.

b. A null value is not allowed in the IntervalValue field of the NEM12 file or the quantity field of the NEM13 file.

c. A comma is required between all fields, even if the field is null.

d. Commas are not permitted in any data field.

3.3.2 Date and time

a. All components of the *DateTime* fields are two digits.

b. *Date*(8) format means a reverse notation date field (i.e. CCYYMMDD) with no separators between its components (century, years, months and days). The "8" indicates that the total field length is always 8 character -. e.g. "20030501" is the 1st May 2003.

c. *DateTime(12)* format means a reverse notation date-time field (i.e. CCYYMMDDhhmm) with no separators between its components (century, years, months, days, hours and minutes). The "12" indicates that the total field length is always 12 characters - e.g. 200301011534 is 15:34 on 1st January 2003.

d. *DateTime(*14) format means a reverse notation date-time field (i.e. CCYYMMDDhhmmss) with no separators between its components (century, years, months, days, hours, minutes and seconds). The "14" indicates that the total field length is always 14 characters - e.g. 20030101153445 is 15:34.45 on 1st January 2003.

e. The time standard for the end of the day is 00:00 of the following *day*.

3.3.3 Interval metering data

a. *Interval metering data* is presented in time sequence order, with the first Interval for a day being the first Interval after midnight for the interval length that is programmed into the meter. Refer to the *IntervalLength* field in 4.3.

b. For 5-minute data:

   i. The first Interval (1) for a *meter* programmed to record 5-minute *interval metering data* would relate to the period ending 00:05 of the *IntervalDate*.

   ii. The last Interval (288) for a *meter* programmed to record 5-minute *interval metering data* would relate to the period ending 00:00 of the *IntervalDate+1*.

c. For 15-minute data:

   i. The first Interval (1) for a *meter* programmed to record 15-minute *interval metering data* would relate to the period ending 00:15 of the *IntervalDate*.

   ii. The last Interval (96) for a *meter* programmed to record 15-minute *interval metering data* would relate to the period ending 00:00 of the *IntervalDate+1*.

d. For 30-minute data:

   i. The first Interval (1) for a *meter* programmed to record 30-minute *interval metering data* would relate to the period ending 00:30 of the *IntervalDate*.

   ii. The last Interval (48) for a *meter* programmed to record 30-minute *interval metering data* would relate to the period ending 00:00 of the *IntervalDate+1.*

3.3.4 Index read for type 4A and type 5 metering installations

The rules around index reads for type 4A and type 5 *metering installations.*

a. The index read is the total accumulated metering data for a Datastream retrieved from a meter's register at the time of collection.

b. *IndexRead* must be provided for *active energy* Datastreams (Wh) when collected.

c. *Registered Participants* must not raise a Validation query with the MDP relating to any *IndexRead* value.

d. The *IndexRead* must be exclusive of meter multipliers. This value must be in the format displayed on the meter and, where available, include any leading or trailing zeros.

e. The provision of an *IndexRead* for any time other than the current Meter Reading must be agreed between the relevant Registered Participant and MDP.

f. The latest *IndexRead* only must be provided where more than one has been collected on the Meter Reading date.

3.3.5 Reason code

The following rules apply to the use of reason codes:

a. The MDP must apply the *ReasonCode* that most accurately reflects the reason for supplying the code or based on the hierarchical structure agreed with the FRMP.

b. A *ReasonCode* must be provided for all Intervals and consumption values where the *QualityFlag 'S' (substituted metering data)* or 'F' (final *substituted metering data*).

c. A *ReasonCode* must be provided for Actual Meter Readings (*QualityFlag* 'A') for all Intervals where the *meter* has recorded a Remote De-energisation (reason code 91) Power Outage Alarm (reason code 79), Power Outage (reason code 43), time reset (reason code 89), or tamper (reason code 61).

d. The reason code 79 'Power Outage Alarm',91 'Remote De-Enerisation' and 43 'Power Outage' takes primacy of all other codes that may concurrently occur against the interval.

e. Other *ReasonCodes* may be provided where the *QualityFlag* value is 'A'.

f. Multiple Interval event records (400 record) are allowed for each *interval metering data* record (300 record) where more than one *ReasonCode* is applicable to the *day's* Meter Readings.

g. Only one *QualityMethod* and one *ReasonCode* can be applied to an Interval.

h. Where the *QualityMethod* is 'V' (variable data) a *ReasonCode* is not to be provided.

i. The complete list of available reason codes, with accompanying descriptions, and obsolete reason codes are detailed in Appendix E and Appendix F.

j. Quality flag meanings and relationships with other fields are detailed in Appendix C.

3.3.6 Mandatory and required data

The key to the initials used in the Field Requirement column of all Record data tables in sections 4 and 5 is as follows:

Key

M	=	Mandatory (must be provided in all situations).
R	=	Required (must be provided if this information is available).
N	=	Not required (unless specified, can be provided but may be ignored by the recipient).

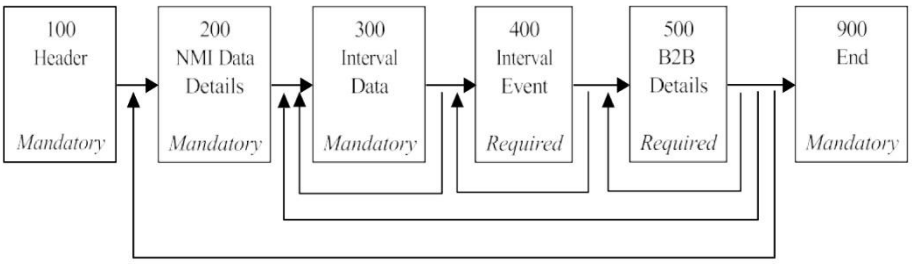
Where more than one initial is used in the 'Field Requirement' column, the 'Definitions' column provides clarification on the scenarios where each initial applies.

4 Interval meter reading file specification and validation (NEM12)

4.1 Blocking cycle

The blocking of the records must be in accordance with the following diagram; i.e. in the order of 100,200,300,400,500,900 records.

For example: If any data changes in the 200 record, a new 200 record must be provided for the subsequent 300 record (e.g. if the UOM, *IntervalLength* or *NMISuffix* changes).



The 400 & 500 records are required in certain circumstances. Refer to Appendix G for details of the blocking cycle for this file.

4.2 Header record (100)

Example: *RecordIndicator,VersionHeader,DateTime,FromParticipant,ToParticipant*

100,NEM12,200301011534,MDP1,Retailer1

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Header record indicator. 1 per file (100-900 record set). A 100 record must have a matching 900 record. Allowed value: 100.
VersionHeader	VarChar(5)	M	Version identifier. Details the version of the data block and hence its format. Allowed value: NEM12.
DateTime	DateTime (12)	M	File creation date/time.
FromParticipant	VarChar(10)	M	The Participant ID of the MDP that generates the file.
ToParticipant	VarChar(10)	M	The Participant ID of the intended *Registered Participant*, MDP.

4.3 NMI data details record (200)

Multiple 300-500 record blocks are allowed within a single 200 record.

Example: *RecordIndicator,NMI,NMIConfiguration,RegisterID,NMISuffix,MDMDataStreamIdentifier, MeterSerialNumber,UOM,IntervalLength,NextScheduledReadDate*

200,VABD000163,E1Q1,1,E1,N1,METSER123,kWh,30,20040120

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	*NMI* data details record indicator. Allowed value: 200.
Field	Format	Field Requirement	Definition
NMI	Char(10)	M	*NMI* for the *connection point*. Does not include check-digit or *NMI* suffix.
NMIConfiguration	VarChar(240)	M	String of all *NMISuffixes* applicable to the *NMI*. The *NMIConfiguration* must represent the actual configuration of the Site. Where there is a *NMI* configuration change, all active channels on any part of the *day* must be provided.
RegisterID	VarChar(10)	M/N	Interval Meter register identifier. Defined the same as the *RegisterID* field in the CATS_Register_Identifier table. The value should match the value in MSATS. e.g. "1", "2", "E1", "B1". The *RegisterID* is: Mandatory for type 4, 4A and type 5 *metering data* when the sender of the MDFF file is the Current MDP. Not required for types 1-3 and type 7 or when sending *metering data* to another MDP (eg Meter Churn data).
NMISuffix	Char(2)	M	As defined in the NMI Procedure e.g. "E1", "B1", "Q1", "K1".
MDMDataStreamIdentifier	Char(2)	M/N	Not used in the NT proedures, Field will be left blank in the meter data file
MeterSerialNumber	VarChar(12)	M/N	The Meter Serial ID of the *meter* installed at a Site. If the *meter* is replaced, the Meter Serial ID of the new *meter* will apply on and from the IntervalDate when the *meter* is replaced. Not required for type 7 *metering installations*, logical *meters*, Historical Data, or where multiple *meters* are summated to form a single *RegisterID*.
UOM	VarChar(5)	M	Unit of measure of data. Refer Appendix B for the list of allowed values for this field.
IntervalLength	Numeric(2)	M	Time in minutes of each Interval period: 5, 15, or 30.
NextScheduledReadDate	Date(8)	M/N	This date is the NSRD. This field is not required for remotely read *meters*.

This field is not required where the *meter* will not be read again (eg *meter* removed, *NMI* abolished, MDP will no longer be the MDP).

The NSRD provided in this file is accurate at the time the file is generated (noting this may be subject to change e.g. if route change etc.). MSATS is the database of record, therefore, should there be a discrepancy between the NSRD Date in this file, MSATS shall prevail.

4.4 Interval data record (300)

Example: *RecordIndicator,IntervalDate,IntervalValue1 . . . IntervalValueN, QualityMethod,ReasonCode,ReasonDescription,UpdateDateTime,MSATSLoadDateTime*

300,20030501,50.1, . . . ,21.5,V,,,20030101153445,20030102023012

300 records must be presented in date sequential order. For example, with a series of Meter Readings for a period, the current record is the next incremental *IntervalDate* after the previous record. Or, where data for individual, non-consecutive days is sent, the *IntervalDate* for each 300 record is later than the previous one.

Where the same *QualityMethod* and *ReasonCode* apply to all *IntervalValues* in the 300 record, the

QualityMethod, ReasonCode and *ReasonDescription* in the 300 Record must be used. If either of the QualityMethod or ReasonCode fieldscontain multiple values for the *IntervalValues*, the *QualityMethod* in the 300 record must be set to "V" and the 400 record must be provided.

Where the quality flag is "A" for the entire day and *ReasonCodes* 43, 61, 79 or 89 are used for parts of the day, the *QualityMethod* in the 300 record must be set to "V" and the 400 record must be provided.

The use of 'V' as the QualityMethod in this example indicates the *QualityMethod*, *ReasonCode* or *ReasonDescription* vary across the day and will be provided, for each Interval, in the 400 records that would immediately follow this record. Refer 4.5 for details on the use of the 400 records.

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	*Interval metering data* record indicator. Allowed value: 300.
IntervalDate	Date(8)	M	Interval date.
IntervalValue1 . . . ***IntervalValueN***	Numeric(sx.y) Refer Appendices – Appendix B for details on the format of this number.	M	*Interval metering data.* The total amount of *energy* or other measured value for the Interval inclusive of any multiplier or scaling factor. The number of values provided must equal 1440 divided by the *IntervalLength*. This is a repeating field with individual field values separated by comma delimiters. Allowed value rules: A negative value is not allowed. The value may contain decimal places. Exponential values are not allowed.

Field	Format	Field Requirement	Definition
QualityMethod	VarChar(3)	M	Summary of the data quality and Substitution/Estimation flags for all *IntervalValues* contained in this record. The *QualityMethod* applies to all *IntervalValues* in this record. Where multiple *QualityMethods* or *ReasonCodes* apply to these *IntervalValues*, a quality flag 'V' must be used. Format: In the form QMM, where quality flag ('Q) = 1 character and method flag (MM) = 2 character. Allowed values: See quality and method tables (Appendix C & D). If quality flag = 'A' or 'V' no method flag is required.
ReasonCode	Numeric(3)	M/N	Summary of the reasons for Substitute/Estimate or information for all *IntervalValues* contained in this record. The *ReasonCode* applies to all *IntervalValues* in this record. Not required if quality flag = 'A' or 'E', but can be provided for information. The field must not be populated if quality flag = 'V'. Allowed values: Refer Appendix E.
ReasonDescription	VarChar(240)	N/M	Description of *ReasonCode*. Mandatory where the *ReasonCode* is '0'.
UpdateDateTime	DateTime(14)	M/N	The latest date/time that any updated *IntervalValue* or *QualityMethod* for the *IntervalDate*. This is the MDP's version date/time that the *metering data* was created or changed. This date and time applies to data in this 300 record.
MSATSLoadDateTime	DateTime(14)	R	This is the date/time stamp MSATS records when *metering data* was loaded into MSATS. This date is in the acknowledgement notification sent to the MDP by MSATS.

4.5 Interval event record (400)

Example: *RecordIndicator,StartInterval,EndInterval,QualityMethod,ReasonCode,ReasonDescription*

400,1,28,S14,32,

This record is mandatory where the *QualityMethod* is 'V' in the 300 record

The *StartInterval/EndInterval* pairs must be presented in ascending record order. The *StartInterval/EndInterval* period must cover an entire day without gaps or overlaps. For example, (based on a 30-minute Interval):

400,***1,26***,A,,

400,***27,31***,S53,9,

400,***32,48***,E52,,

Example where quality flag = "A" and *ReasonCodes* are 43, 61, 79, 91 or 89:

400,***1,54***,A,,

400,***55,60***,A,61,

400,***61,62***.A,89,

400,***63,288***,A,,

Refer section 2 (c) for further rules regarding the use of this record.

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Interval event record indicator. Allowed value: 400.
StartInterval	Numeric(4)	M	The first Interval number that the *ReasonCode/QualityMethod* combination applies to. The *StartInterval* must be less than or equal to the *EndInterval.*
EndInterval	Numeric(4)	M	The last Interval number that the *ReasonCode/QualityMethod* combination applies to.
QualityMethod	VarChar(3)	M	Data quality & Substitution/Estimation flag for metering data. The *QualityMethod* applies to all *IntervalValues* in the inclusive range defined by the *StartInterval* and *EndInterval*. Format: In the form QMM, where quality flag (Q) = 1 character and method flag (MM) = 2 character Allowed values: See quality and method tables (refer Appendices C & D). If quality flag = "A" no method flag is required. The quality flag of "V" cannot be used in this record.

Field	Format	Field Requirement	Definition
ReasonCode	Numeric(3)	M/N	Reason for Substitute/Estimate or information. The *ReasonCode* applies to all *IntervalValues* in the inclusive range defined by the *StartInterval* and *EndInterval*. Not required if quality flag = "E" but can be provided for information. Allowed values: Refer Appendix E.
ReasonDescription	VarChar(240)	N/M	Description of *ReasonCode*. Mandatory where the *ReasonCode* is "0". The *ReasonDescription* applies to all *IntervalValues* in the inclusive range defined by the *StartInterval* and *EndInterval*.

4.6 B2B details record (500)

Example: *RecordIndicator,TransCode,RetServiceOrder,ReadDateTime,IndexRead*

500,S,RETNSRVCEORD1,20031220154500,001123.5

This record is mandatory where a manual Meter Reading has been performed or attempted.

Only valid 500 records associated with the current Meter Reading period must be provided. For example, a 500 record associated with a Substitute will become invalid if Actual Metering Data subsequently replace the Substitutes.

This record must be repeated where multiple *TransCodes* or *RetServiceOrders* apply to the day.

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	B2B details record indicator. Allowed value: 500.
TransCode	Char(1)	M	Indicates why the recipient is receiving this *metering data*. Refer Appendix A for a list of allowed values for this field. A value of 'O' (i.e. capital letter O) must be used when providing Historical Data and where this information is unavailable.
RetServiceOrder ***ReadDateTime***	Varchar(15) DateTime(14)	R M/R/N	The Service Order number associated with the Meter Reading. Actual date/time of the Meter Reading. The date/time the transaction occurred or, for a Substitution (quality flag = 'S' or 'F'), when the Meter Reading should have occurred. The time component of the *ReadDateTime* should be the actual time of the attempted Meter Reading. If this is not available the value of the time component must be 00:00:01. The *ReadDateTime* is required when providing Historical Data and not required for Estimates.
IndexRead	Varchar(15)	R/N	The total recorded *accumulated energy* for a Datastream retrieved from a meter's register at the time of collection. For type 4A and type 5 *metering installations* the MDP must provide the *IndexRead* when collected. Refer section 3.3.4.

4.7 End of data (900)

Example: *RecordIndicator*

900

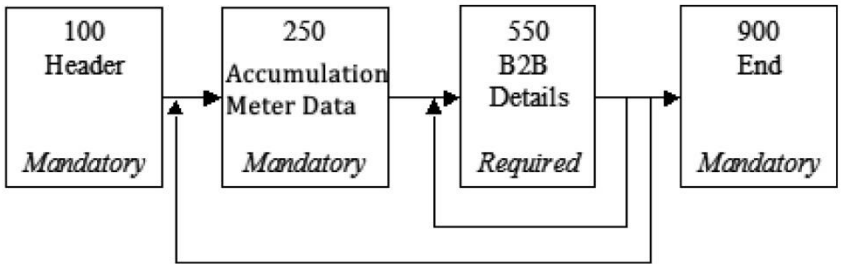
Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	This is the end of record indicator for the record set commencing with the previous 100 record. Allowed Value: 900.

5 Accumulation meter reading file specification and validation (NEM13)

5.1 Blocking cycle

The blocking must be in accordance with the following diagram i.e. in the order of 100, 250, 550, 900 records.

The 550 record is required in certain circumstances.



Refer to Appendix G for details of the blocking cycle for this file.

5.2 Header record (100)

Example:

RecordIndicator,VersionHeader,DateTime,FromParticipant,ToParticipant

100,NEM13,200301011534,MDP1,Retailer1

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Header record indicator. 1 per file (100-900 record set). A 100 record must have a matching 900 record. Allowed value: 100.
VersionHeader	VarChar(5)	M	Version identifier. Details the version of the data block and hence its format. Allowed value: NEM13. File creation date/time.
DateTime	DateTime (12)	M	File creation date/time.
FromParticipant	VarChar(10)	M	The Participant ID of the MDP that generates the file.
ToParticipant	VarChar(10)	M	The Participant ID of the intended Registered Participant, MDP .

5.3 Accumulation meter data record (250)

Example: *RecordIndicator,NMI,NMIConfiguration,RegisterID,NMISuffix,MDMDataStreamIdentifier,MeterSerialNumber,DirectionIndicator,PreviousRegisterRead,PreviousRegisterReadDateTime,PreviousQualityMethod,PreviousReasonCode,PreviousReasonDescription,CurrentRegisterRead,CurrentRegisterReadDateTime*

,CurrentQualityMethod,CurrentReasonCode,CurrentReasonDescription,Quantity,UOM,NextScheduledReadDate,UpdateDateTime,MSATSLoadDateTime

250,1234567890,1141,01,11,11,METSER66,E,000021.2,20031001103230,A,,,000534.5,20040201100

030,E64,77,,343.5,kWh,20040509, 20040202125010,20040203000130

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Accumulation Meter record indicator. Allowed value: 250.
NMI	Char(10)	M	*NMI* for the *connection point*. Does not include check-digit or *NMI* suffix.
NMIConfiguration	VarChar(240)	M	String of all applicable *NMISuffixes* for the *NMI*. The *NMIConfiguration* must represent the actual configuration of the Site.

Field	Format	Field Requirement	Definition
RegisterID	VarChar(10)	M	Accumulation meter register identifier. Defined the same as the *RegisterID* field in the CATS_Register_Identifier table. The value should match the value in MSATS. e.g. "1", "2".
NMISuffix	Char(2)	M	As defined in the NMI Procedure - e.g. "11", "41".
MDMDataStreamIdentifier	Char(2)	M/N	Not used in the NT procedures. Field will be left blank in the meter data file.
MeterSerialNumber	VarChar(12)	M	Meter Serial ID as per Standing Data for MSATS.
DirectionIndicator	Char(1)	M	A code to indicate whether this register records "Import" or "Export". Allowed values: 'I' = Import to grid, 'E' = Export from grid "Import" means that *energy* normally flows from the *connection point* to the grid. "Export" means *energy* normally flows from the grid to the *connection point.*
PreviousRegisterRead	Varchar(15)	M	*Previous RegisterRead*. Example of values: 1234567.123 or 0012456.123. Values must include any leading zeros and trailing zeros as per the physical dial format. Values must be exclusive of *meter* multipliers. The 'previous' Meter Reading is the earlier of the two Meter Readings provided. An Estimate cannot be provided in the *PreviousRegisterRead* field. Refer Appendix I for examples of the use of this field.
PreviousRegisterReadDateTime	DateTime (14)	M	Actual date/time of the Meter Reading. The date/time the transaction occurred or, for a substitution (quality flag = 'S' or 'F'), when the Meter Reading should have occurred. The time component of the *PreviousRegisterReadDateTime* should be the actual time of the attempted Meter Reading. If this is not available the value of the time component must be 00:00:01.
PreviousQualityMethod	VarChar(3)	M	Data quality & Substitution/Estimation flag for *PreviousRegisterRead.* Format :In the form QMM, where quality flag (Q) = 1 character and method flag (MM) = 2 character. Allowed values: See quality and method tables (refer Appendix C & D) If quality flag = "A" then no method flag is required.
PreviousReasonCode	Numeric(3)	M/N	Reason for Substitute/Estimate or information for *PreviousRegisterRead*. Refer to section 3.3.5 for more details. Allowed values: Refer Appendix E. Not Required where the quality flag = "A" or "E" but can be provided for information.
PreviousReasonDescription	VarChar(240)	N/M	Description of *ReasonCode* for *PreviousRegisterRead*. Mandatory where the *PreviousReasonCode* is "0".

Field	Format	Field Requirement	Definition
CurrentRegisterRead	Varchar(15)	M	Register read. Example of values: 1234567.123 or 0012456.123. Values must include any leading zeros and trailing zeros as per the physical dial format. Values must be exclusive of *meter* multipliers. The 'current' Meter Reading is the later of the two Meter Readings provided. It has no specific relationship to the present; for example, it may be in the future if the Meter Reading is an Estimate.
CurrentRegisterReadDateTime	DateTime (14)	M	Actual date/time of the Meter Reading. For Estimates, the date should be equal to or greater than the *NextScheduledReadDate*, with a time component of 00:00:00 (ie, date(8) + 000000). The date/time the transaction occurred or, for a Substitution (quality flag = 'S' or 'F'), when Meter Reading should have occurred. The time component of the *CurrentRegisterReadDateTime* should be the actual time of the attempted Meter Reading. If this is not available the value of the time component must be 00:00:01. Refer Appendix I for examples of the use of this field.
CurrentQualityMethod	VarChar(3)	M	Data quality & Substitution/Estimation flag for *CurrentRegisterRead*. Format: In the form QMM, where quality flag (Q) = 1 character and method flag (MM) = 2 character. Allowed values: See quality and method tables (refer Appendix C & D). If quality flag = "A", no method flag is required.
CurrentReasonCode	Numeric(3)	M/N	Reason for Substitute/Estimate or information for *CurrentRegisterRead*. Refer to section 3.3.5 for more details. Allowed values: Refer Appendix E. Not Required where the quality flag = 'A' or 'E' but can be provided for information.
CurrentReasonDescription	VarChar(240)	N/M	Description of *ReasonCode* for *CurrentRegisterRead*. Mandatory where the *CurrentReasonCode* is '0'.
Quantity	Numeric (sx.y) Refer to Appendix B for details on the format of this number.	M	The computed quantity, after the application of any multiplier value and taking account of any *meter* rollover. For *energy* values (e.g. watt hours or var hours) this is measured between the *CurrentRegisterRead* and *PreviousRegisterRead* (*CurrentRegisterRead* value less *PreviousRegisterRead* value corrected for the register multiplier). For non-*energy* (demand) values, it is the *CurrentRegisterRead* corrected for the register multiplier. A negative value must not be provided.
UOM	VarChar(5)	M	Unit of Measure for the *Quantity* value. Refer Appendix B for the list of allowed values for this field.
NextScheduledReadDate	Date(8)	M/N	This date is the NSRD. This field is not required where the *meter* will not be read again (e.g. *meter* removed, *NMI* abolished, MDP will no

Field	Format	Field Requirement	Definition
			longer be the MDP). The NSRD provided in this file is accurate at the time the file is generated (noting this may be subject to change e.g. if route change etc.). MSATS is the database of record, therefore, should there be a discrepancy between the NSRD in this file, MSATS shall prevail.
UpdateDateTime	DateTime (14)	M	The latest date/time for the updated *CurrentRegisterRead* or *CurrentQualityMethod*. This is the MDP's version date/time that the *metering data* was created or changed. This date and time applies to data in this 250 record.
MSATSLoadDateTime	DateTime (14)	R	This is the date/time stamp MSATS records when *metering data* was loaded into MSATS. This date is in the acknowledgement notification sent to the MDP by MSATS

5.4 B2B details record (550)

Example:

RecordIndicator,PreviousTransCode,PreviousRetServiceOrder,CurrentTransCode, CurrentRetServiceOrder

550,N,,A,

This record is not required if both the *PreviousTransCode* and *CurrentTransCode* are "N" and there are no service orders corresponding to the *PreviousRegisterRead* or *CurrentRegisterRead* readings.

This record must be repeated where multiple *TransCodes* or *RetServiceOrders* apply to the *PreviousRegisterRead* or *CurrentRegisterRead*.

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	B2B details record indicator. Allowed value: 550.
PreviousTransCode	Char(1)	M	Indicates why the *PreviousRegisterRead* was collected. Refer Appendix A for a list of allowed values for this field. A value of "O" must be used when providing Historical Data and where this information is unavailable.
PreviousRetServiceOrder	Varchar(15)	R	The *retailer's ServiceOrderRequest* number associated with the *PreviousRegisterRead* reading (where the *metering data* is directly associated with a *ServiceOrderRequest*). *This information must only be provided to the requesting retailer.*
CurrentTransCode	Char(1)	M	Indicates why the *CurrentRegisterRead* was collected. Refer Appendix A for a list of allowed values for this field. A value of "O" must be used when providing Historical Data and where this information is unavailable.

CurrentRetServiceOrder	Varchar(15)	R	The *retailer's* Service Order number associated with the *CurrentRegisterRead* reading (where the *metering data* is directly associated with a B2B *service order request*). *This information must only be provided to the requesting retailer.*

5.5 End of data (900)

Example: *RecordIndicator*

900

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	This is the end of record indicator for the record set commencing with the previous 100 record. Allowed Value: 900.

Appendix A Transaction code flags

References to service orders in the table below refer to work done by an MP, MDP, or LNSP as the result of a *retailer's* ServiceOrderRequest or at its own initiation.

TransCode	Action	Comments
A	*Alteration*	*Any action involving the alteration of the metering installation at a Site. This includes a removal of one meter and replacing it with another and all new connections and 'Add/Alts' Service Orders.*
C	*Meter Reconfiguration*	*'Meter Reconfiguration' Service Order. This includes off-peak (Controlled Load) timing changes. This does not apply to the removal of the meter.*
G	*Re-energisation*	*'Re-energisation' Service Order.*
D	*De-energisation*	*'De-energisation', including 'De-energisation for Non-payment' Service Order.*
E	*Estimate*	*For all Estimates.*
N	*Normal Read*	*Scheduled collection of metering data. Also includes the associated Substitutions.*
O	*Other*	*Include 'Meter Investigation' & 'Miscellaneous' Service Orders.* *This value is used when providing Historical Data and where the TransCode information is unavailable.*
S	*Special Read*	*'Special Read' Service Order.*
R	*Removal of meter*	*This is used for meter removal or supply abolishment where the meter has been removed and will not be replaced. This excludes situations involving a meter changeover or where a meter is added to an existing configuration (these are considered to be alterations).*

Appendix B. Format & unit of measure field details

Format of differing types of data

The following table specifes the format and maximum number of characters that apply to the data shown in the *IntervalValue* (300 record) and *Quantity* (250 record) fields.

Other data types do not have specific defined format.

UOM Type		Format	CHARACTER LENGTH
M…	**mega (Million)**	Numeric	15.7
k…	**kilo (Thousand)**	Numeric	15.4
pf	**Power Factor**	Numeric	15.3
Wh, VArh, VAh, VAr, VA, V, A, W		Numeric	15.1

Allowed Values in the UOM field

The allowed values for UOM are not case sensitive.

Allowed Values	Description
MWh	megawatt hour
kWh	kilowatt hour
Wh	watt hour
MVArh	megavolt ampere reactive hour (megavar hour)
kVArh	kilovolt ampere reactive hour
VArh	volt ampere reactive hour
MVAr	megavolt ampere reactive
kVAr	kilovolt ampere reactive
VAr	volt ampere reactive
MW	megawatt
kW	kilowatt
W	watt
MVAh	megavolt ampere hour
kVAh	kilovolt ampere hour
VAh	volt ampere hour
MVA	megavolt ampere
kVA	kilovolt ampere

Allowed Values	Description
VA	volt ampere
kV	kilovolt
V	volt
kA	kiloampere
A	ampere
pf	Power Factor

Appendix C Quality flags

Quality Flag	Meaning of Quality Flag	Relationship with other fields
A	Actual Metering Data. As defined in the NT NER	No method flag is required if this quality flag is used. A reason code is mandatory and must be provided for all Intervals where the meter has recorded a power outage (reason code 79), time reset (reason code 89), or tamper (reason code 61) if this quality flag is used.
E	Forward estimated data. As defined in the NT NER	A method flag is mandatory if this quality flag is used. No reason code applies if this quality flag is used.
F	Final substituted data. As defined in the nT NER	A method flag is mandatory if this quality flag is used. A reason code is mandatory if this quality flag is used.
S	Substituted data. As defined in the NT NER	A method flag is mandatory if this quality flag is used. A reason code is mandatory if this quality flag is used.
V	Variable data. This is not a formal quality flag held against individual data items. This value may only be used as part of the QualityMethod field in the 300 record.	This value is not permitted in NEM13 files. No method flag applies if this quality flag is used. No reason code applies if this quality flag is used. Variable data. This is not a formal quality flag held against individual data items. This value may only be used as part of the *QualityMethod* field in the 300 record.

Appendix D. Method flags

Refer to the NT NER. Method flags are the numeric values that relate directly to the numeric values in substitution types, as defined in the NT NER.

Appendix E. Reason codes

These reason codes are designed to encourage consistency across the NT, allowing more efficient operation of electricity services for price of supply.

Reason Code	Reason Code Description	Detailed Description
0	Free text description	For use in the case that other reason code descriptions cannot be reasonably utilised e.g. system issues which prevent collection or delivery of market data.
1	Meter/equipment changed	Where *metering installation* has changed.
2	Extreme weather conditions	Extreme weather conditions have prevented data collection e.g. floods/storms/bushfires.
3	Quarantined premises	Premises under quarantine or lockdown preventing access to *metering installation* e.g. pandemic.
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 and was unable to access the meter.
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*.

Reason Code	Reason Code Description	Detailed Description
15	Overgrown vegetation	Overgrown vegetation at Site is 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.
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.

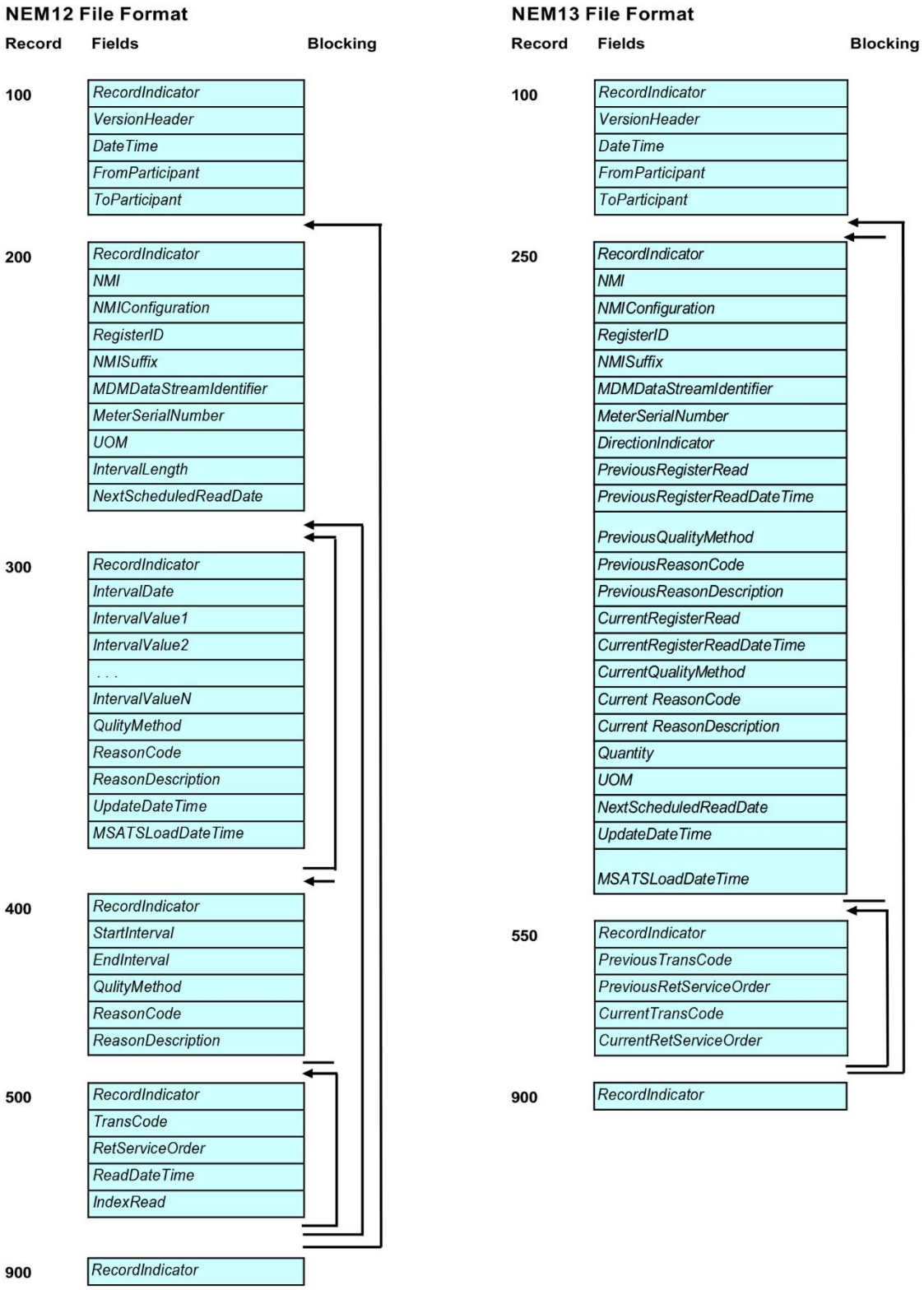
Reason Code	Reason Code Description	Detailed Description
37	Meter under churn	MDP has Substituted data based on *metering data* not being received from relevant MDP.
38	Unmarried lock	Site has two or more locks, one of which is a power industry lock and they have not been interlocked together correctly 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	Data collector observed that livestock is roaming free on the premises and could potentially be hazardous, or access wasn't obtained due to potential for livestock to escape. This refers to farm animals.
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.

Reason Code	Reason Code Description	Detailed Description
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.
67	Transfer	Meter Reading provided to enable customer transfer.
68	Zero consumption	Where a Site has known zero consumption and the Site is not de-energised 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.
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.

Reason Code	Reason Code Description	Detailed Description
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*.
91	Remote De-energisation	A small customer premise is remotely de-energised by the metering installation
100	Incorrect Meter Multiplier	For use when correcting data when the incorrect meter multiplier was originally applied
101	Temporarily Connection Point unmetered	For use when a connection point has been temporarily unmetered (eg mains by-pass)
102	Customer By-Pass	For use when the customer has by-passed the meter
103	Network By-Pass	For use when the Network by passed the meter to get supply to the customer because they believe the meter is faulty
104	Transposed Channel	For use when meter data streams have been transposed (eg ToU with controlled load)
105	Transposed Channel - UoM Correction	For use when data channels have been transposed (eg KWH with KVARH);
106	Transposed Channel – Reverse Polarity	For use when meter has been wired in reverse from install or where reverse polarity alarm occurs effectively swapping registration between export and import registers
107	Transposed Meter	For use when correcting data as a result of crossed meters
108	Network by-pass extreme weather	For use when the network by passed the meter to get supply to the customer because an extreme weather event has affected the meter
109	Defined load method	For use where Retailer/LNSP provide profile data based on off-market meter or other measured data that best represents the connection point load.

Appendix F. Not used in the NT procedures

Appendix G. Summary of file format and blocking



Appendix H. Example internal data file (NEM12)

Interval metering data – Metering installations with remote acquisition

This file contains a single *NMI* (VABD000163) and one *meter*.

The *meter* (METSER123) has two registers that measure:

- Export kWh (E1)
- Export kVArh (Q1)

The kWh data is sent to MSATS on the N1 Datastream suffix.

The 'Quality Method', 'Reason Code' and 'Reason Description' is the same for all Intervals in the *day* so they can be indicated on the 300 record, without any need for 400 records.

100,NEM12,200405011135,MDA1,Ret1

200,VABD000163,E1Q1,1,E1,N1,METSER123,kWh,30,

300,20040201,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.11

12,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.

1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112

,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,1.1112,A,,,20040202120025,2004020214 2516

200,VABD000163,E1Q1,2,Q1,,METSER123,kVArh,30,

300,20040201,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.22

21,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.

2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221

,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,2.2221,A,,,20040202120025,

900

Substituted interval metering data – Metering installations with remote acquisition of metering data

This file contains a single *NMI* (VBCD000022) and *one meter*.

The *meter* (METSER223) has two registers that measure:

- Export kWh (E1)
- Export kVArh (Q1)

The kWh data is sent to MSATS on the N1 Datastream suffix.

The *QualityFlag* is 'F' because these are substituted metering data that will never be replaced by 'A' given the meter has been damaged.

The *QualityMethod, ReasonCode* and *ReasonDescription* is the same for all Intervals in the day so they can be indicated on the 300 record, without any need for 400 records.

100,NEM12,200309010132,MDA1,Ret1

200,VBCD000022,E1Q1,1,E1,N1,METSER223,kWh,30,

300,20030801,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,
2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.3
12,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,2.312,

2.312,F14,32,,20030802125725,20030804025521
200,VBCD000022,E1Q1,2,Q1,,METSER223,kVArh,30,
300,20030801,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.5
67,34.567,34.567,34.567,34.567,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,2
2.123,22.123,22.123,2311.765,2311.765,2311.765,2311.765,2311.765,2311.765,2311.765,2
311.765,2311.765,2311.765,2311.765,2311.765,2311.765,2311.765,2311.765,2311.765,231
1.765,2311.765,F14,32,,20030802125725,
900

Interval metering data – Manually read interval metering installation estimate

This file contains a single *NMI* (NNNN123456) and one *meter*.

The *meter* (METSER123) has two registers that measure:

- Export kWh (E1)
- Export kVArh (Q1)

The kWh data is sent to MSATS on the N1 Datastream suffix.

The 100 record indicates that the file was created on 22/12/2003 at 13:00 by the Participant 'MDA1' and the data is for the Participant 'Ret1'.

The data shows that the *meter* was probed as a normal Meter Reading on 20/12/2003, which is why there is a mixture of 'A' and 'E Interval values on that day. An 'Index Read' is provided for the date and time that the *meter* was probed. The 'Quality Code/Method' is therefore set to 'V' on the 300 records for that date and the subsequent 400 records are used to indicate the quality and method for each Interval. As the Intervals only contain 'A' and 'E' data, there is no need to indicate the reason code or description.

The 200 record indicates that the NSRD is 25/12/2003.

The 300 records for the kWh register indicated that the data was loaded/updated into the *metering data services database* on 20/12/2003 at 20:35:00 and loaded into MSATS against the N1 Datastream suffix on the 21/12/2003 at 00:35:00.

The 500 record indicates that the meter was actually read on 20/12/2003 at 15:45.

For a manually read Interval Meter that is read monthly, a file will usually contain approximately 30 'A' and 'S' records, followed by approximately 30 'Estimated Forecast' records (ie. up to the NSRD) for each register.

100,NEM12,200312221300,MDA1,Ret1
200,NNNN123456,E1Q1,001,E1,N1,METSER123,kWh,30,20031225
300,20031219,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.2
74,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,1
9.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.45

1,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,A,,,20031220203500,20031221003500

300,20031220,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,V,,,20031220203500,20031221003500

400,1,31,A,,

400,32,48,E52,,

500,N,,20031220154500,0012300.5

300,20031221,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,E52,,,
200312200000001,20031221003500

300,20031222,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,E52,,,
200312200000001,20031221003500

300,20031223,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,E52,,,
200312200000001,20031221003500

300,20031224,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,E52,,,
200312200000001,20031221003500

300,20031225,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,18.711,17.288,19.315,14.873,18.728,16.901,13.580,E52,,,
200312200000001,20031221003500

200,NNNN123456,E1Q1,002,Q1,,METSER123,kVArh,30,20031225

300,20031219,17.461,15.155,15.300,15.321,17.020,18.691,16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.860,15.504,15.779,14.767,1

7.256,19.324,17.850,14.264,19.835,16.563,15.520,20.235,15.911,18.250,17.259,18.752,16.221,18.40
8,15.992,16.429,14.313,18.305,15.305,18.933,15.293,18.905,18.616,A,,,20031220203500,
300,20031220,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,V,,,20031220203500,
400,1,31,A,,
400,32,48,E52,,
500,N,,20031220154500,
300,20031221,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,,200312200000001,
300,20031222,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,
300,20031223,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,
300,20031224,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,
300,20031225,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.6
64,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,1
8.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.05
6,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,
900

Multiple NMIs and datastreams, metering installations with remote acquisition – (all actual metering data)

The 100 record indicates that the file was created on 7/2/2004 at 09:11 by the Participant 'MDA1' and the data is for the Participant 'Ret1'.

The first NMI (NCDE001111) has two meters.

The first *meter* (METSER123) has three registers that measure:

- Export Wh (E1)

- Import Wh (B1)
- Export VArh (Q1)

The net Wh data is sent to MSATS on the N1 Datastream suffix.

The second *meter* (METSER456) has one register that measures:

- Export Wh (E2)

The Wh data is sent to MSATS on the N2 Datastream suffix.

The data was loaded/updated in the MDP system at 6/12/2003 at 01:11:32 and loaded by MSATS on 7/12/2003 at 01:10:22.

The second NMI (NDDD001888) has two *meters*.

The first *meter* (METSER991) has one register that measures:

- Import Wh (B1)

The Wh data is sent to MSATS on the N1 Datastream suffix.

The second *meter* (METSER992) has one register that measures:

- Import varh (K2)

100,NEM12,200402070911,MDA1,Ret1

200,NCDE001111,E1B1Q1E2,1,E1,N1,METSER123,Wh,15,

300,20031204,10,10,10

50,50,A,,,20031206011155,

300,20031205,50,50,50

Interval metering data – Remote read metering installations with remote acquisition of metering data – Multiple QualityMethod/ReasonCode combination

This file contains a single NMI (CCCC123456) and one *meter*.

The *meter* (METSER123) has one register that measures:

- Export kWh (E1)

The kWh data is sent to MSATS on the N1 Datastream suffix.

100,NEM12,200404201300,MDA1,Ret1

200,CCCC123456,E1,001,E1,N1,METSER123,kWh,30,

300,20040417,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.2
74,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,1
9.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.45
1,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,V,,,20040418203500,200404190
03500

400,1,20,F14,76,

400,21,24,A,,

400,25,48,S14,1,

900

Metering data for meter change with configuration change – Manually read interval metering installation

Historical Data provided for a *Registered Participant* request relating to *NMI* NCDE007777 for a period where a *meter* change occurred at 12:25pm on 10/8/2004. The new *meter* installed had a changed configuration. This example data block relates to Historical Data, hence index reads are not needed.

The old meter (METSER123) has two registers that measure:

- Export Wh (E1)
- Export varh (Q1)

The net Wh data is sent to MSATS on the N1 Datastream suffix.

The new *meter* (METSER456) has two registers that measure:

- Export Wh (E1)
- Import Wh (B1)

The net Wh data is sent to MSATS on the N1 Datastream suffix.

100,NEM12,200408121327,MDA1,Ret1

200,NCDE007777,E1Q1,1,E1,N1,METSER123,kWh,30,

300,20040809,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.2
74,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,1

9.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.45
1,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,A,,,20040812013500,200408121
00035
200,NCDE007777,E1Q1,2,Q1,,METSER123,kVArh,30,
300,20040809,17.461,15.155,15.300,15.321,17.020,18.691,16.538,13.949,13.289,13.694,16.042,15.1
71,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.860,15.504,15.779,14.767,1
7.256,19.324,17.850,14.264,19.835,16.563,15.520,20.235,15.911,18.250,17.259,18.752,16.221,18.40
8,15.992,16.429,14.313,18.305,15.305,18.933,15.293,18.905,18.616,A,,,20031220203500,
200,NCDE007777,E1B1,1,E1,N1,METSER456,kWh,30,20040902
300,20040810,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.2
74,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,1
9.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.45
1,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,V,,,20040812013500,200408111
20035
400,1,23,A,, **<- Reads from old *meter***
400,24,25,F52,5, **<- While new *meter* being installed 400**,26,48,A,, **<- Reads from new *meter* 500**,A,,20040811122500,
200,NCDE007777,E1B1,3,B1,N1,METSER456,kWh,30,20040902
300,20040810,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,17.461,15.155,15.3,15.321,17.02,18.691,
16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.1
78,15.854,16.86,15.504,V,,,20040812013500,20040811120035
400,1,25,F56,9,
400,26,48,A,,
500,A,,20040810122500,
200,NCDE007777,E1B1,1,E1,N1,METSER456,kWh,30,20040902
300,20040811,18.023,19.15,17.592,24.155,18.568,22.304,19.222,19.032,19.09,22.237,24.350,22.274,
20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.9
61,18.12,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.
742,18.038,18.47,14.936,17.987,15.751,19.75,16.202,14.733,A,,,20040812013500,20040811120035
200,NCDE007777,E1B1,3,B1,N1,METSER456,kWh,30,20040902
300,20040811,18.023,19.15,17.592,24.155,18.568,22.304,19.222,19.032,19.09,22.237,24.350,22.274,
20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.9
61,18.12,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.
742,18.038,18.47,14.936,17.987,15.751,19.75,16.202,14.733,A,,,20040812013500,20040811120035
500,A,,20040811125500,
900

Transfer occurs on the NSRD for manually read interval metering installation

A Site has single type 5 *meter* MET12333 and it transferred between Ret1 and Ret2 on the NSRD.

As the Meter Reading occurred before the transfer Completed in MSATS, Ret1 would initially receive the information for the *day* of the read plus the Estimates. Once the transfer has completed, the MDP would send the data for the *day* on the read (which is the *day* of the transfer) to the new *retailer* (Ret2). The Estimates would also be sent to Ret2 at this point. The file sent to Ret2 has an *MSATSLoadDateTime* as the data has accepted by MSATS before this file was generated.

As this is a transfer on NSRD there is no Retailer Service Order Number (*RetServiceOrder*)

This example has the data for the *day* before the Meter Reading and the *day* of the Meter Reading.

File to Ret1 **100**,NEM12,200309221133,MDA1,Ret1

200,NABC001492,E1,001,E1,N1,MET12333,kWh,30,20031208

300,20030921,3,3,3

File 1 100,NEM13,200309221131,MDA1,Ret1

250,NABC001492,11,A1,11,11,MET12333,E,000555,20030820103030,A,,,000777,20030921113030,A,,

,222,kWh, 20031108, 20030922113030,

550,N,,A,

900

File 2 100,NEM12,200309221133,MDA1,Ret1

200,NABC001492,E1,001,E1,N1, MET34567,kWh,30,20031108

300,20030921,3,3,3

11,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,
1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.111,1.1

Appendix I. Example accumulation data (NEM13)

Actual meter readings

100,NEM13,200401101030,MDA1,Ret1

250,VABC005890,11,1,11,11,METSER123,E,006342.8,20031005093055,A,,,007654.9,20040107100333

,A,,,1312.1,kWh,20040407, 20040108100333,20040108091133

900

Normal meter reading with estimate

100,NEM13,200401101030,MDA1,Ret1

250,VDEF005890,1141,1,11,11,MET12345,E,000888,20040108103055,A,,,000999,20040408000000,E6

4,,,111,kWh,20040408, 20040409000000,20040109103023

550,N,,E,

250,VDEF005890,1141,2,41,41,MET5678,E,0000950,20040108103055,A,,,0010015,20040408000000,E

64,,,65,kWh,20040408, 20040409000000,20040109103023

550,N,,E,

900

Meter reading and meter change

This example shows a Site with two *meters* (MET12333 and MET2555), one of which was replaced after being destroyed (MET12333).

The *meter* that was not destroyed has a demand register with a multiplier (ie. current read has no relationship to previous Meter Reading within the 250 record). Note that the *RegisterID* on the new *meter* (MET5678) does not match that of the *meter* it replaced.

100,NEM13,200309211030,MDA1,Ret1

250,NABC001492,7111,A1,11,11,MET12333,E,000777,20030820103030,A,,,001000,20030920000001, F64,28,,233,kWh,, 20030921000001,20030922093738

550,N,,A,

250,NABC001492,7111,A2,71,71,MET2555,E,000545,20030820103030,A,,,000877,20030920145427,A

,,,8.77,kW,20031108, 20030921145427,20030922093738

550,N,,A,

250,NABC001492,7111,A2,71,71,MET2555,E,000877,20030920145427,A,,,000745,20031108000000,E

64,,,7.45,kW,20031108, 20031109090500,20030922093738

550,A,,E,

250,NABC001492,7111,A3,11,11,MET5678,E,000000,20030920000001,A,,,000450,20031108000000,E

64,,,450,kWh,20031108, 20031109090000,20030922093738

550,A,,E,

900

Historical data values

The first 250 record shows that Historical Data is being provided and the previous Meter Reading is known to have occurred on a date that was not part of the normal scheduled reading cycle, but the MDP system does not know the actual TransCode to apply. In this case, the 550 record will indicated the Meter Reading is not a normal Meter Reading (ie. on the scheduled cycle) by the use of the 'O' TransCode.

The second 250 record shows that Historical Data is being provided and the previous Meter Reading was tagged by the MDP system at the time with a TransCode of 'T', even though this TransCode is obsolete it can still be provided for Historical Data.

100,NEM13,200401101030,MDA1,Ret1

250,NABC001492,11,A1,11,11,MET12333,E,000555,20030420153330,A,,,000777,20030620103030,A,,

,222,kWh,20040315, 20030621103030,20030622103030

550,O,,N,

250,NABC004444,11,2,11,11,MET5678,E,000000,20030920000000,A,,,000250,20031122145040,A,,,25

0,kWh,20040315, 20031123145040,20031124132017

550,T,,N,

900

Transfer read

This example shows an "opening read" for a Site with single *meter* with two registers that was re- energised as a result of a Service Order from the *retailer*. This transaction is an example of what the new *retailer* will receive when they become the Current FRMP.

Data provided to new retailer.

100,NEM13,200309011030,MDA1,Ret1

250,NABC001492,4111,1,11,11,MET12333,E,000777,20030829103030,A,,,000777,20030829103030,A,

,,0,kWh,20031108,20030830100001,20030830113738 550,D,SO987654,G,

250,NABC001492,4111,1,11,11,MET12333,E,000777,20030829103030,A,,,001000,200311090000000,
E64,,,223,kWh,20031108,20030830100001,20030830113738

550,G,SO134567,E,

250,NABC001492,4111,2,41,41,MET12333,E,000545,20030829103030,A,,,000545,20030829103030,A,

,,0,kWh,20031108,20030830100001,20030830113738 550,D,SO987654,G,

250,NABC001492,4111,2,41,41,MET12333,E,000545,20030829103030,A,,,000877,200311090000000,
E64,,,332,kWh,20031108,20030830100001,20030830113738

550,G,SO134567,E,

900

Data provided to old retailer.

The old *retailer* would initially be provided with a forecast to the NSRD, given the transfer will not have completed at the time the re-energisation Meter Reading is sent. Note that the Service Order number being provided to the old *retailer* is the old *retailer's* number when it requested the de- energisation of the *NMI*. The re-energisation Service Order number is not sent to the old *retailer* as it is not the originator of the Service Order.

100,NEM13,200308311030,MDA1,Ret0

250,NABC001492,4111,1,11,11,MET12333,E,000677,20030720153445,A,,,000777,20030829103030,A,,,100,kWh,20031108,20030830100001,20030830113738

550,D,SO987654,G,

250,NABC001492,4111,1,11,11,MET12333,E,000777,20030829103030,A,,,001000,20031109000000,E64,,,223,kWh,20031108,20030830100001,20030830113738

550,G,,E,

250,NABC001492,4111,2,41,41,MET12333,E,000455,20030720153445,A,,,000545,20030829103030,A,,,90,kWh,20031108,20030830100001,20030830113738

550,D,SO987654,G,

250,NABC001492,4111,2,41,41,MET12333,E,000545,20030829103030,A,,,000877,20031109000000,E64,,,332,kWh,20031108,20030830100001,20030830113738

550,G,,E,

900

	Previous Register Read		**Current Register Read**		**Files to Retailer 1 or 2**
	Date	**Reading**	**Date**	**Reading**	

Appendix J. Example of use of the register read fields

The tables below show examples of how the 'Current' and 'Previous Register Read' fields are populated for an Accumulation Metered site. The scenario also includes a transfer of the Site to a new *retailer* on Date 3.

There are 4 steps to the scenario:

Step 1: The initial Meter Reading for the Site, with an Actual Meter Reading (A1) and Estimate (E1) associated with the Meter Reading on Date 1.

Step 2: Provision of Actual Meter Readings (A1, A2) for the first period (Date 1-2) and the new Estimate readings (E2) for the next Meter Reading period (Date 2-3).

Step 3: A Substitute (S2) is provided for the Meter Reading on Date 2, (e.g. Meter Reading error). A new Actual Meter Reading (A3) is provided relating to Date 3 as well as Estimates (E3) for the next period (Date 3-4).

The Date 3 Meter Reading is also used to facilitate transfer to the new *retailer*.

Step 4: The 'Substitute' (F1) for Date 2 is changed to a 'Final'. The old *retailer* may receive this as Meter Readings (A1, F1) relating to the first period (Date 1-2) or (F1, A3) for the second period (Date 2- 3).

	Date 1 Reading 1	Date 2 Reading 2	Date 3 Reading 3	Date 4 Reading 4
Step 1	A_1	E_1		
Step 2	A_1	A_2	E_2	
Step 3	A_1	S_2	A_3	E_3
Step 4	A_1	F_1	A_3	E_3

	Previous Register Read		Current Register Read		Files to Retailer 1 or 2
	Date	**Reading**	**Date**	**Reading**	
Step 1	Date 1	A1	Date 2	E1	1
Step 2	Date 1	A_1	Date 2	A_2	1
	Date 2	A_2	Date 3	E_2	1
Step 3	Date 2	A_1	Date 2	S_2	1
	Date 2	S_2	Date 3	A_3	1
	Date 3	A_3	Date 4	E_3	2
Step 4	Date 2	F_1	Date 3	A_3	1
		OR		OR	
	Date 1	A_1	Date 2	F_1	1

B2B Procedure

Contact

Power and Water – 1800 245 092 from 8am to 5pm weekdays.
Market Operator – 08 8985 8566
Email: market.operator@powerwater.com.au

NTESMO