METER DATA FILE FORMAT SPECIFICATION NEM12 & NEM13

PREPARED BY: Retail Markets and Metering

VERSION: 1.02

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FINAL

Version Release History

VERSION	DATE	AUTHOR	COMMENTS
0.1	Jan 1998	AEMO	Original NEM01 specification
0.2	Jan 1999	AEMO	Amended NEM01 specification
0.3	21/9/2001	AEMO	NEM02 & NEM03 formats for FRC.
0.4 DRAFT	January 2004	AEMO and National B2B Meter Data Workstream	Created new formats for interval (NEM12) and basic (NEM13) metering data. The new formats reorganise the fields into fewer record types, and include additional fields to provide better support for Type 5 meters and to provide additional meter configuration information. Revision of the data stream identifier fields to remove the current inconsistency of use (RegisterID, NMISuffix, and MDMDataStreamIdentifier fields). Addition of new fields to the NEM12 format for consistency with the NEM13 format (TransCode, RetServiceOrder). Revised approach to the presentation of interval data to reduce the size of the file. Instead of time stamping each interval reading, which adds considerably to the file size, the new file structure sequentially lists each reading (IntervalValue1 . . . n) for each day (IntervalDate). Addition of meter configuration information (DirectionIndicator).
0.5 DRAFT	May 2004	AEMO and National B2B Meter Data Workstream	Various editorial changes to clarify requirements and ensure consistency between the various changes. Added aggregated datastreams to exclusions (1.1.2). Removed B2B documents from list of Related Information (1.3). Added section clarifying .csv and .zip file requirements (2.1.2.1). Added a rule regarding the use of ParticipantID for agents (2.1.2.3, 2.3.1.2, 2.3.2.2). Expanded and reworded the examples in the Date and Time section (2.1.3.1). Added rules for 30 minute interval data (2.1.3.2). Added a rule regarding Nulls in the NEM13 Quantity field (2.1.3.4). Added MeterSerialNumber to NEM12 (2.3.1.3). Amended presentation of QualityMethod and moved it from the 300 record to the 400 record (2.3.1.5). Amended the TransCode values (2.3.1.7, 2.3.2.5, Appendix A). Added Quality Methods and Reason Codes for current and previous reads (2.3.2.4). Allowed TransCode and RetServiceOrder for both current and previous reads (2.3.2.5). Moved UOM details to Appendix B. Amended Reason Flags to remove duplications while retaining existing number series (Appendix E).
0.6 DRAFT	July-November 2004	AEMO and National B2B Meter Data Workstream	Following the 3rd round of Code consultation the following changes were made. Clarified the relationship between data provided in the MDFF file that is available in MSATS (3.3.1). Added an IndexRead field for Type 5 meters (3.3.4 & 4.6). Change the RetServiceOrder field name to RequestID. Clarified the rules regarding the use of Reason Codes (3.3.11). Clarified various field definitions and associated usage rules for fields or records.
0.7	December 2004	AEMO and National B2B Meter Data Workstream	Added UpdateDateTime to 250 Record (5.3) and to examples in Appendix G Changed the RequestID back to RetServiceOrder at request of B2B National Work Group,
0.8	September 2009	AEMO	Updated document to AEMO format.

1.0	July 2013	AEMO	Updated to incorporate SGSD change of NSRD becoming an information field only Put into new AEMO formatting. Updated to correct errors, clarify sections and remove and create new reason codes. Updated with feedback from internal and the MSWG.
1.01	Sept 2013	AEMO	Updated with feedback from initial consultation. Incorporated (where the input of these did not require any system changes) issues raised in the clarifications document. Feedback at the Sept MSWG.
1.02	Oct 2013	AEMO	Update with feedback from 2nd stage consultation.

This document has been created by Retail Markets and Metering and will be reviewed from time to time.

Any queries or suggestions for improvement should be addressed to NEM.MDP@aemo.com.au.

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GLOSSARY

(a) In this document, a word or phrase *in this style* has the same meaning as given to that term in the *Rules* or, if they are not specified in the *Rules,* they have the meaning set out opposite those words, phrases, or acronyms in the table below.

(b) A reference in this document to a provision in the *Rules* is taken to be a reference to that provision as renumbered from time to time.

(c) In this document, words in the singular include the plural and words in the plural include the singular.

(d) In this document, a word or phrase that is *in this style* (i.e. italicised and underlined) is a reference to a specific field or record within the MDFF.

(e) In this document, diagrams are provided as an overview. If there are ambiguities between a diagram and the text, the text shall take precedence.

(f) Unless the context otherwise requires, this document will be interpreted in accordance with Schedule 2 of the *National Electricity Law*.

TERM	MEANING
Service Providers	*Metering Data Providers* (MDPs), *Metering Providers* (MPBs) and *Local Network Service Providers* (LNSPs)
Historical Data	*Metering data* that has been provided for a previous reading period.
MDFF	Meter data file format, the standard format for delivery of *metering data* to *Service Providers* and *Registered Participants*
CSV	Comma Separated Values

1 Introduction

(a) This document defines the Meter Data File Format (MDFF) to be used by *Metering Data Providers* (MDP) for the provision of *metering data* to *Service Providers* and *Registered Participants.*

(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 (eg aseXML B2B transactions).

(c) If there is any inconsistency between this specification and the *Rules* or any of the following procedures or specifications in section 2 of this document, the *Rules*, procedures and specifications will prevail to the extent of that inconsistency.

2 Related policies and Procedures

(a) Metering Data Provider Services Categories D and C for Metering Installation Types 1, 2, 3, 4, 5, 6 and 7 Service Level Procedure

(b) Metrology Procedure: Part B: Metering data validation, substitution and estimation procedure for metering types 1 – 7

(c) National Metering Identifier (NMI) Procedure

(d) Standing Data for MSATS

(e) B2B Procedure: Meter Data Process

(f) B2B Procedure: Technical Delivery Specification

3 General rules and information

(a) The *MDFF* must:

i. be constructed in a *CSV* format;

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

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

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

(b) Due to timing delays with the updating of MSATS, recipients of *MDFF* should be aware the information provided in the *MDFF* may not align to MSATS at the time of receipt.

(c) *AEMO* can make test files available on request, for use by organisations in developing and testing their systems.

(d) Reasonable endeavours must be made to ensure that all *NMI* suffixes associated with a *NMI* for a single read event/date are included in the same 100-900 event block.

4 Technical information

4.1 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.

4.2 File delivery

4.2.1 Delivery via B2B

If using *B2B e-Hub* as the delivery mechanism, refer to the relevant B2B Technical Specifications.

4.2.2 Alternate 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 MSATS Participant ID of the MDP that generates the file.
- To - The MSATS Participant ID of the intended *Registered Participant* or *Service Provider*.
- Extension =.zip (See Compression rules below, refer 4.2.2 b).

(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

4.3 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 5 and 6).

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

4.3.1 Spaces, nulls and commas

(a) Fields must not include leading or trailing spaces.

(b) Where no interval values exist then the *IntervalValue* field must contain a value of zero (0) and the *QualityFlag* field must have a value of "N". A null value is not allowed in 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.

4.3.2 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 characters. eg. "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. eg. 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. eg. 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*.

4.3.3 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 5.3.

(b) 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.

(c) 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

4.3.4 Index read for type 5 meters

(a) The index read is the total *accumulated energy* for a data stream retrieved from a *meter's* register at the time of the *meter* reading event.

(b) *IndexRead* must be provided for *active energy* data streams (Wh).

(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 reading event must be agreed between the relevant *Registered Participant* and *Service Provider*.

4.3.5 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.

(b) A *ReasonCode* must be provided for all intervals and consumption values where the *QualityFlag* value is “S” (substituted data) or “F” (final substituted data).

(c) A *ReasonCode* must be provided for actual reads (*QualityFlag* value of “A”) for all intervals where the *meter* has recorded a power outage (reason code 79) or time reset (reason code 89).

(d) Other *ReasonCodes* may be provided where the *QualityFlag* value is “A”.

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

(f) Only one *QualityMethod* and one *ReasonCode* can be applied to an interval.

(g) Where more than one *ReasonCode* applies to an interval, the MDP should provide the one considered more critical for *Registered Participant* or *Service Provider*

(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 of this document. Obsolete reason codes are provided to support the provision of *historical data* only.

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

4.3.6 Mandatory and required data

The key to the initials used in the Field Requirement column of all Record data tables in sections 5 and 6 is as follows:

Key M = Mandatory (must be provided in all situations).

R = Required (must be provided if this information is available).

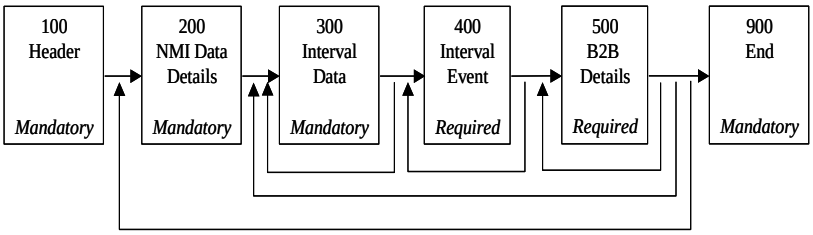
N = Not required (unless specified, can be provided but may be ignored by the recipient).

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

5 Interval meter reading file specification and validation (NEM12)

5.1 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.



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 F for details of the blocking cycle for this file.

5.2 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 MSATS Participant ID of the MDP that generates the file.
ToParticipant	VarChar(10)	M	The MSATS Participant ID of the

			intended *Registered Participant* or *Service Provider*.

5.3 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.
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/R/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 5 metering data when the sender of the MDFF file is the nominated MDP in

Field	Format	Field Requirement	Definition
			MSATS; ▪ Not required for Types 1-4 and type 7 or when sending the data to another MDP (eg meter churn data).
NMISuffix	Char(2)	M	As defined in the National Metering Identifier Procedure E.g. “E1”, “B1”, “Q1”, “K1”.
MDMDataStreamIdentifier	Char(2)	M/N	Defined per the suffix field in the CATS_NMI_DataStream table, e.g. “N1”, “N2” The value must match the value in MSATS. The field must be provided if the *metering data* has or would be sent to *AEMO's* MDM system by the sender. The field is not required when sending the data to another MDP.
MeterSerialNumber	VarChar(12)	M/N	Faceplate serial number as per Standing Data for MSATS. This should be the old *meter* serial number on the *IntervalDate* when the *meter* is replaced. Therefore, the recipient of this information should not dispute the validity of the configuration for *interval metering data* provided on a *meter* change date. 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.

Field	Format	Field Requirement	Definition
IntervalLength	Numeric(2)	M	Time in minutes of each interval period: 1, 5, 10, 15, or 30. Note: While interval periods of 1, 5 or 10 minutes are not currently used in the *NEM*, these periods are allowed by the specification on the basis that they may be introduced in the future.
NextScheduledReadDate	Date(8)	M/N	This date is the next future read date. 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 in this file, MSATS shall prevail.

5.4 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 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 these fields contains multiple values for the *IntervalValues*, the *QualityMethod* in the 300 record must be set to "V" and the 400 record must be provided.

The use of 'V' as the quality method 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 5.5 for details on the use of the 400 records.

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Interval 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: If no data – i.e. null, then set the relevant *IntervalValue* field to zero "0" and set the respective quality flag in the *QualityMethod* field to "N". A negative value is not allowed. The value may contain

Field	Format	Field Requirement	Definition
			decimal places. Exponential values are not allowed.
QualityMethod	VarChar(3)	M	Summary of the data quality & 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 of "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", "N" or "V" then 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", "N", or "E", but can be provided for informational purposes. The field must not be

Field	Format	Field Requirement	Definition
			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. Where all intervals for an *IntervalDate* are forward estimates, the time component of this field must be "00:00:01". When only parts of the *day* are forward estimates, this field is the latest date/time of the intervals that are not forward estimates. This field is not required if the *QualityMethod* is "N"
MSATSLoadDateTime	DateTime(14)	R	This is the date/time stamp the MSATS system returns recording when *metering data* was loaded into MSATS. This date is in the acknowledgement notification sent to the MDP by MSATS.

5.5 Interval event record (400)

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

400,1,28,S14,32,

This record is mandatory where the *QualityFlag* is 'V' in the 300 record or where the quality flag is 'A' and reason codes 79 and 89 are used.

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 length):

400,***1,26***,A,,
400,***27,31***,S53,9,
400,***32,48***,E52,,

Refer 3 d) 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 Appendix C & D). If quality flag = "A" or "N" then no method

Field	Format	Field Requirement	Definition
			required. The quality flag of “V” cannot be used in this record.
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 = “A”,”N” or “E” but can be provided for informational purposes. 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*.

5.6 B2B details record (500)

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

500,S,RETNSRVCEORD1,20031220154500,001123.5

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

Only valid 500 records associated with the current reading period must be provided. For example, a 500 record associated with a substitute reading will become invalid if actual readings subsequently replace the substituted readings.

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. The transaction code value of "O" (i.e. capital letter O) must be used when providing *historical data* and where this information is unavailable.
RetServiceOrder	Varchar(15)	R	The Retailer's service order number associated with the reading event for that *day* (where the reading is directly associated with a B2B Service order request). This information must only be provided to the Retailer who issued the B2B Service order request.
ReadDateTime	DateTime(14)	M/R/N	Actual date/time of the *meter* reading. The date/time the transaction occurred or, for a substitution (quality flag = "S' or "F"), when the reading event should have happened. The time component of the *ReadDateTime* should be the actual time of the attempted read. 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

Field	Format	Field Requirement	Definition
			for forward estimates.
IndexRead	Varchar(15)	R/N	The total recorded *accumulated energy* for a data stream retrieved from a *meter's* register at the time of the *meter* reading event. For Type 5 *metering installations* the MDP must provide the *IndexRead* where collected. Refer section 4.3.4.

5.7 End of data (900)

Example: *RecordIndicator*

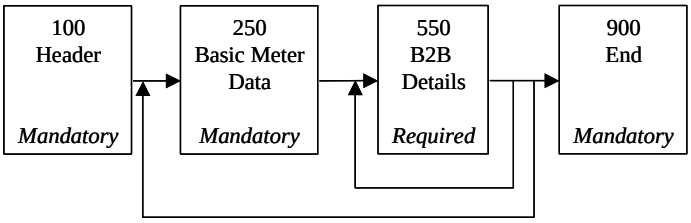
900

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.

6 Basic meter reading file specification and validation (NEM13)

6.1 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 F for details of the blocking cycle for this file.



6.2 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.
DateTime	DateTime (12)	M	File creation date / time.
FromParticipant	VarChar(10)	M	The MSATS Participant ID of the MDP that generates the file.
ToParticipant	VarChar(10)	M	The MSATS Participant ID of the intended *Registered Participant* or *Service Provider*.

6.3 Basic 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,,,000534.5,20040201100030,E64,77,,343.5,kWh,20040509, 20040202125010,20040203000130

Field	Format	Field Requirement	Definition
RecordIndicator	Numeric(3)	M	Basic *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.
RegisterID	VarChar(10)	M	Basic 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 National Metering Identifier Procedure E.g. “11”, “41”.
MDMDataStreamIdentifier	Char(2)	M/N	Defined per the suffix field in the CATS_NMI_DataStream table, e.g. “11”, “41”. The value must match the value in MSATS The field must be provided if the *metering data* has or would be sent to *AEMO’s* MDM system.
MeterSerialNumber	VarChar(12)	M	Faceplate serial number 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*.
PreviousRegisterRe	Varchar(15)	M	*Previous RegisterRead*.

Field	Format	Field Requirement	Definition
ad			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' reading is the earlier of the two readings provided. A forward 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 reading event should have happened. The time component of the *PreviousRegisterReadDateTime* should be the actual time of the attempted read. 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 4.3.5 for more details. Allowed values: Refer Appendix E. Not Required where the quality flag = "A" or "E" but can be provided for informational purposes.
PreviousReasonDescription	VarChar(240)	N/M	Description of *ReasonCode* for *PreviousRegisterRead*. Mandatory where the *PreviousReasonCode* is "0".
CurrentRegisterRea	Varchar(15)	M	Register read.

Field	Format	Field Requirement	Definition
d			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' reading is the later of the two readings provided. It has no specific relationship to the present; for example, it may be in the future if the reading is a forward estimate.
CurrentRegisterReadDateTime	DateTime (14)	M	Actual date/time of the *meter* reading. For forward 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 the reading event should have happened. The time component of the *CurrentRegisterReadDateTime* should be the actual time of the attempted read. 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" then no method flag is required.
CurrentReasonCode	Numeric(3)	M/N	Reason for substitute/estimate or information for *CurrentRegisterRead*. Refer to 4.3.5 for more details. Allowed values: Refer Appendix E. Not Required where the quality flag = "A" or "E" but can be provided for

Field	Format	Field Requirement	Definition
			informational purposes.
CurrentReasonDescription	VarChar(240)	N/M	Description of *ReasonCode* for *CurrentRegisterRead*. Mandatory where the *CurrentReasonCode* is "0".
Quantity	Numeric (sx.y) Refer Section 7.2 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* roll over. 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 should not normally occur and should be treated as an exception requiring investigation.
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 next future read date. 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 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 the MSATS system returns recording when *metering data* was loaded into MSATS. This date is in the acknowledgement notification sent to the MDP by MSATS

6.4 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. The transaction code value of "O" must be used when providing *historical data* and where this information is unavailable.
PreviousRetServiceOrder	Varchar(15)	R	The Retailer's service order 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. The transaction code 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.

6.5 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

Appendices

Appendix A

Transaction codes flags

References to service orders in the table below refer to work done by a *Service Provider* 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 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-energisations service order.
D	De-energisation	De-energisations including De-energisation for Non-payment service order.
E	Forward Estimate	For all Forward Estimates.
N	Normal Read	Scheduled read. Also includes substitutions associated with a scheduled read.
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 configurations (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	15.6
k…	kilo (Thousand)	Numeric	15.3
pf	Power Factor	Numeric	15.2
Wh, VArh, VAh, VAr, VA, V, A, W		Numeric	15

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
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 data. As defined in Metrology Procedure Part B	No method flag is required if this quality flag value is used. A reason code is optional if this quality flag value is used and can be used for informational purposes.
E	Forward estimated data. As defined in Metrology Procedure Part B	A method flag is mandatory if this quality flag value is used. No reason code applies if this quality flag value is used.
F	Final substituted data. As defined in Metrology Procedure Part B	A method flag is mandatory if this quality flag value is used. A reason code is mandatory if this quality flag value is used.
N	Null data. As defined in Metrology Procedure Part B	This value is not permitted in NEM13 files. The interval values must be set to “0” if this quality flag value is used. No method flag applies if this quality flag value is used. No reason code applies if this quality flag value is used.
S	Substituted data. As defined in Metrology Procedure Part B	A method flag is mandatory if this quality flag value is used. A reason code is mandatory if this quality flag value 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 value is used. No reason code applies if this quality flag value is used.

Appendix D

Method flags

This table should be used in conjunction with the AEMO document: 'Metrology Procedure: Part B: Metering data validation, substitution and estimation procedure for metering types 1 – 7'.

METHOD FLAG	MEANING OF METHOD FLAG
11	Type 11
12	Type 12
13	Type 13
14	Type 14
15	Type 15
16	Type 16
17	Type 17
18	Type 18
19	Type 19
51	Type 51
52	Type 52
53	Type 53
54	Type 54
55	Type 55
56	Type 56
57	Type 57
58	Type 58
61	Type 61
62	Type 62
63	Type 63
64	Type 64
65	Type 65
66	Type 66
67	Type 67
68	Type 68
71	Type 71
72	Type 72
73	Type 73
74	Type 74
75	Type 75

Appendix E

Reason codes

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.
1	Meter/equipment changed	Where *metering installation* has changed.
2	Extreme weather conditions	Extreme weather conditions have prevented data collection.
3	Quarantined premises	Premises 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 reader is able to determine that the site is de-en or an interval metered site where the MDP is providing substituted data for a site that is de-en but data streams are left active.
7	Unable to locate meter	The customer premises were found, but unable to locate the *metering installation*.
8	Vacant premises	Data collector believes the property 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 premises being locked.
13	Locked gate	Locked gate at premises 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 premises is preventing access to *metering installation*.
16	Noxious weeds	Noxious weeds at premises are preventing access to *metering installation*.

REASON CODE	REASON CODE DESCRIPTION	DETAILED DESCRIPTION
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 read obtained is less than previous read, 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 reader is able to determine that the main switch has been turned off or interval metered site where the MDP is providing substituted data for a site that the main switch is off but data streams 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 reading provided by the meter reader was incorrect.
24	Substituted/replaced data (data correction)	Interval reading – MDP replaced erroneous data for specific intervals.
25	Unable to locate premises	Unable to locate premises.
26	Negative consumption (generation)	Basic meter where the previous reading is higher than the current reading, generally site will have generation.
27	RoLR	To be used when transferring customers as a result of a Retailer of Last Resort event.
28	CT/VT fault	MDP has corrected data due to a known instrument transformer (CT/VT) fault.
29	Relay faulty/damaged	Data collector has identified the relay device within the *metering installation* is faulty.
31	Not all meters read	Readings for all meters linked to the premises have not been received by the MDP (typically as a result of a non-scheduled reading).
32	Re-energised without readings	Unable to obtain readings due to exceptional circumstances when the site is re-energised outside of standard practice.
33	De-energised without readings	Unable to obtain readings at the time of de-energisation including disconnection for non-payment.
34	Meter not in handheld	Unexpected meter found on premises (new meter on premises or additional meter on premises).
35	Timeswitch faulty/reset required	Data collector has identified the time switching device within the *metering installation* is faulty and

REASON CODE	REASON CODE DESCRIPTION	DETAILED DESCRIPTION
		required resetting.
36	Meter high/ladder required	Meter in a high position requiring a ladder to obtain reading.
37	Meter under churn	MDP has substituted data based on *metering data* not being received from relevant MDP.
38	Unmarried lock	Premises 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 premises.
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.
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 data stream is still active in MSATS.
43	Power outage	Interval meter – 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 substituted data to reflect energy consumption values during testing period.
45	Readings failed to validate	Readings have been loaded into MDP's system, have failed validation and have been substituted.
47	Refused access	The customer refused to provide access when requested.
48	Dog on premises	Data collector has identified that there is a dog on the premises but has been unable to determine if the dog is dangerous.
51	Installation demolished	*Metering installation* no longer exists at the premises.
52	Access – blocked	Used when there are items blocking safe access to the meter or premises.
53	Pests in meter box	Pests have been identified within the meter box that poses a risk to *metering data* accuracy, safety of the installation or a hazard to the meter reader.
54	Meter box damaged/faulty	Data collector identifies that the meter box is damaged or faulty and the mechanical protection or weather proofing of the *metering installation* is

REASON CODE	REASON CODE DESCRIPTION	DETAILED DESCRIPTION
		compromised as a result.
55	Dials obscured	Data collector unable to obtain 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	Data collector has identified that the premises has been illegally connected.
61	Equipment tampered	Data collector 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 data collector has been unable to deliver actual readings.
64	Key required	Data collector typically has access to the key but was unable to obtain/locate at the time of reading.
65	Wrong key provided	Data collector 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 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 reading
71	Probe read error	Data collector unable to read the meter due to the meter probe being unable to extract the metering data.
72	Re-calculated based on actual reads	MDP received actual reads and prior substitutes have been amended.
73	Low consumption	Reading failed validation as being too low based on historical consumption and has been either left as an actual or replaced by a substitute.
74	High consumption	Reading failed validation as being too high based on historical consumption and has been either left as an actual or replaced by a substitute.
75	Customer read	Read provided to the MDP by the customer. (only applicable in jurisdictions where customer reads are allowed).
76	Communications fault	Data collector 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 forward estimations.
78	Null Data	For interval meters where no data was received

REASON CODE	REASON CODE DESCRIPTION	DETAILED DESCRIPTION
		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 consumption 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 consumption exceeding a full 15 or 30 minutes in length.
87	Reset occurred	Resetting of the meter due to re-programming, change of tariff or firmware upgrade etc.
89	Time reset occurred	Where a time reset has occurred within the metering installation.

Appendix F

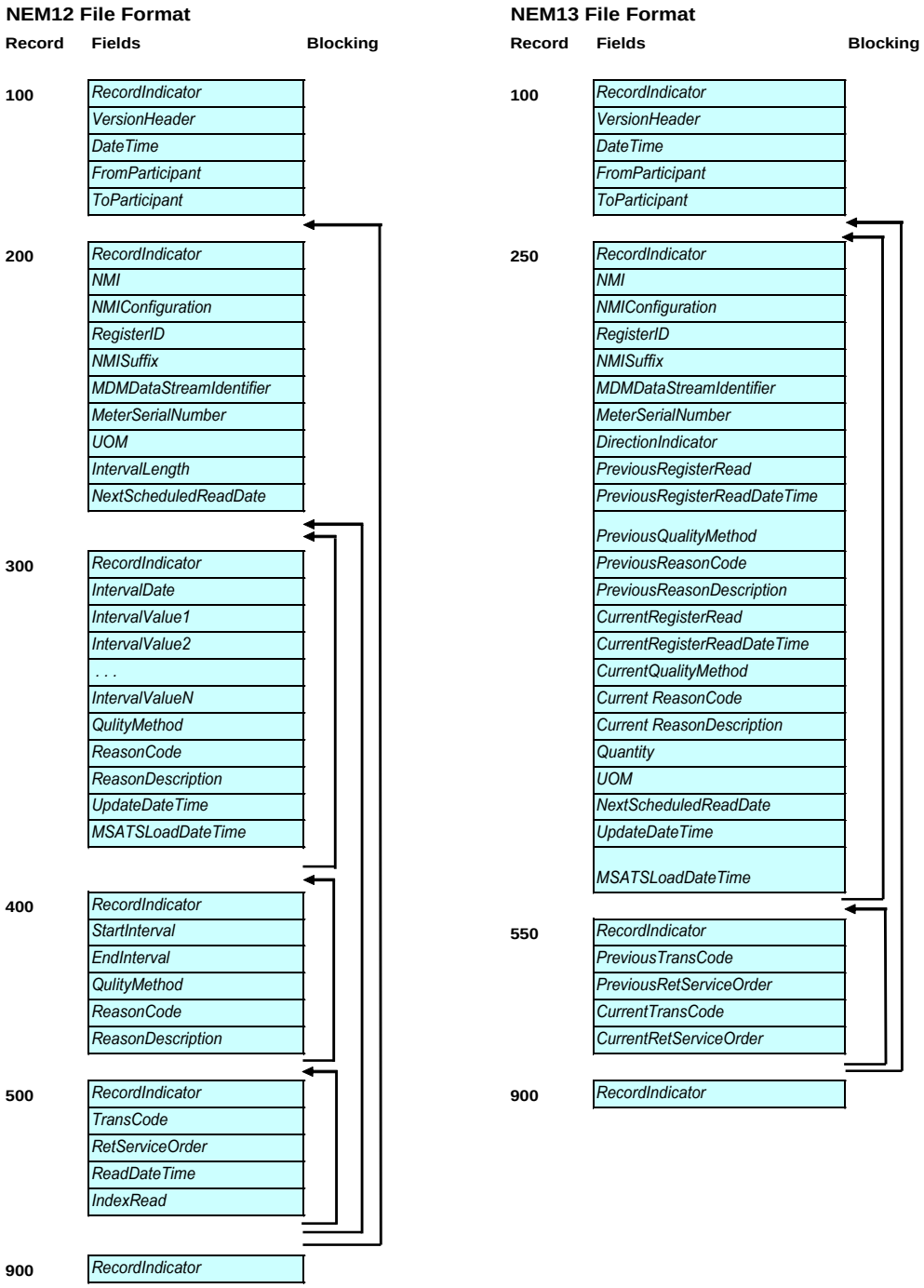
Obsolete reason codes (only to be used when providing *historical data*)

REASON CODE	REASON CODE DESCRIPTION
19	Consumer wanted
30	Meter stop switch on
46	Extreme weather/hot
49	Wet paint
50	Wrong tariff
58	Meter ok – supply failure
70	Probe reports tampering
82	CRC error
83	RAM checksum error
84	ROM checksum error
85	Data missing alarm
86	Clock error alarm
88	Watchdog timeout alarm
90	Test mode
91	Load control
92	Added interval (data correction)
93	Replaced interval (data correction)
94	Estimated interval (data correction)

95	Pulse overflow alarm
96	Data out of limits
97	Excluded data
98	Parity error
99	Energy type (register changed)

Appendix G

Summary of file format and blocking



Appendix H

Example interval data file (NEM12)

1. Actual interval - Remote read meter

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 data stream 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,

300,20040201,1.111,A,,,20040202120025,20040202142516

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

300,20040201,2.222,A,,,20040202120025,

900

2. Substituted interval - Remote read meter

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 data stream suffix.

The *QualityFlag* is 'F' because these are substituted readings that will never be replaced by Actuals 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,F14,32,,20030802125725,20030804025521

200,VBCD000022,E1Q1,2,Q1,,METSER223,kVArh,30,

300,20030801,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,34.567,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,22.123,2311.765,F14,3

2,,20030802125725,

900

3. Interval data – type 5 forward 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 data stream 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 read on 20/12/2003, which is why there is a mixture of Actual and Forward Estimated interval values on that *day*. An Index Read is provided for the date 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 Actual and Forward Estimated data, there is no need to indicate the reason code or description.

The 200 record indicates that the site's next scheduled read date is 25/12/2003.

The 300 records for the kWh register indicated that the data was loaded/updated into the MDP system on 20/12/2003 at 20:35:00 and loaded into MSATS against the N1 data stream 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 Actual and/or Substituted records, followed by approximately 30 Estimated Forecast records (ie. up to the next scheduled read date) for each register.

100,NEM12,200312221300,MDA1,Ret1

200,NNNN123456,E1Q1,001,E1,N1,METSER123,kWh,30,20031225

300,20031219,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,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

300,20031223,17.695,18.972,16.847,20.662,20.694,20.278,17.550,18.275,20.220,21.073,22.586,23.091,22.053,18.649,21.463,21.536,18.642,21.843,22.837,18.894,20.759,18.974,18.714,18.357,16.858,20.079,20.648,19.761,20.035,22.139,20.196,19.199,16.695,20.547,15.331,16.888,17.213,15.653,16.840,16.958,17.133,1

8.711,17.288,19.315,14.873,18.728,16.901,13.580,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

300,20031219,17.461,15.155,15.300,15.321,17.020,18.691,16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.860,15.504,15.779,14.767,17.256,19.324,17.850,14.264,19.835,16.563,15.520,20.235,15.911,18.250,17.259,18.752,16.221,18.408,15.992,16.429,14.313,18.305,15.305,18.933,15.293,18.905,18.616,A,,,20031220203500,

300,20031220,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,V,,,20031220203500,

400,1,31,A,,

400,32,48,E52,,

500,N,,20031220154500,

300,20031221,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,,200312200000001,

300,20031222,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,

300,20031223,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,

300,20031224,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,

300,20031225,15.919,15.843,16.357,16.098,18.796,20.468,16.087,13.070,14.247,14.205,18.302,15.664,15.039,14.909,14.564,15.832,14.717,18.474,13.728,16.217,16.401,19.270,15.112,15.407,14.566,18.966,18.927,16.996,16.484,16.796,18.751,17.390,19.635,16.498,17.434,20.203,18.581,16.188,18.056,17.229,16.914,15.165,19.389,15.905,19.451,14.848,18.240,17.117,E52,,, 200312200000001,

900

4. Multiple NMIs and data streams, remote read meter – (all actual 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 data stream suffix.

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

- Export Wh (E2)

The Wh data is sent to MSATS on the N2 data stream 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 data stream 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,

300,20031204,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,A,,,20031206011132,20031207011022

300,20031205,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,A,,,20031206011132,20031207011022

200,NCDE001111,E1B1Q1E2,2,B1,N1,METSER123,Wh,15,

300,20031204,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,A,,,20031206011132,20031207011022

300,20031205,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,A,,,20031206011132,20031207011022

200,NCDE001111,E1B1Q1E2,3,Q1,,METSER123,VArh,15,

300,20031204,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,A,,,20031206011155,

300,20031205,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,A,,,20031206011155,

200,NCDE001111,E1B1Q1E2,4,E2,N2,METSER456,Wh,15,

300,20031204,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,A,,,20031206011140,20031207011022

300,20031205,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,100,A,,,20031206011140,20031207011022

200,NDDD001888,B1K2,1,B1,N1,METSER991,Wh,15,

300,20031204,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,A,,,20031206011145,20031207011022

300,20031205,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,A,,,20031206011145,20031207011022

200,NDDD001888,B1K2,2,K2,,METSER992,VArh,15,

300,20031204,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,A,,,20031206011155,

300,20031205,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,A,,,20031206011155,

900

5. Remote interval 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 data stream suffix.

100,NEM12,200404201300,MDA1,Ret1

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

300,20040417,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,V,,,20040418203500,20040419003500

400,1,20,F14,76,

400,21,24,A,,

400,25,48,S14,1,

900

6. Metering data for meter change with configuration change – type 5

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 data stream 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 data stream suffix.

100,NEM12,200504121327,MDA1,Ret1

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

300,20040809,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,A,,,20040812013500,20040812100035

200,NCDE007777,E1Q1,2,Q1,,METSER123,kVArh,30,

300,20040809,17.461,15.155,15.300,15.321,17.020,18.691,16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.860,15.504,15.779,14.767,17.256,19.324,17.850,14.264,19.835,16.563,15.520,20.235,15.911,18.250,17.259,18.752,16.221,18.408,15.992,16.429,14.313,18.305,15.305,18.933,15.293,18.905,18.616,A,,,20031220203500,

200,NCDE007777,E1Q1B1,1,E1,N1,METSER123,kWh,30,20040902

300,20040810,18.023,19.150,17.592,24.155,18.568,22.304,19.222,19.032,19.090,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.120,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.470,14.936,17.987,15.751,19.750,16.202,14.733,V,,,20040812013500,20040811120035

400,1,23,A,, **<- Reads from old *meter***

400,24,25,F52,1, **<- While new *meter* being installed**

400,26,48,A,, **<- Reads from new *meter***

500,A,,20040811122500,

200,NCDE007777,E1Q1B1,2,Q1,,METSER123,kVArh,30,20040902

300,20040810,17.461,15.155,15.3,15.321,17.02,18.691,16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.86,15.504,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,V,,,20040812013500,

400,1,23,A,,

400,24,48,F56,1,

500,A,,20040810122500,

200,NCDE007777,E1Q1B1,3,B1,N1,METSER123,kWh,30,20040902

300,20040810,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,17.461,15.155,15.3,15.321,17.02,18.691,16.538,13.949,13.289,13.694,16.042,15.171,16.654,14.146,15.064,14.781,14.549,19.439,16.321,16.178,15.854,16.86,15.504,V,,,20040812013500,20040811120035

400,1,25,F56,1,

400,26,48,A,,

500,A,,20040810122500,

200,NCDE007777,E1B1,1,E1,N1,METSER456,kWh,30,20040902

300,20040811,18.023,19.15,17.592,24.155,18.568,22.304,19.222,19.032,19.09,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.12,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.47,14.936,17.987,15.751,19.75,16.202,14.733,A,,,20040812013500,20040811120035

200,NCDE007777,E1B1,3,B1,N1,METSER456,kWh,30,20040902

300,20040811,18.023,19.15,17.592,24.155,18.568,22.304,19.222,19.032,19.09,22.237,24.350,22.274,20.193,16.615,19.575,20.391,16.459,20.527,21.438,19.327,21.424,16.656,17.616,18.416,16.666,19.961,18.12,18.023,18.588,21.759,17.841,19.548,18.486,21.391,15.656,16.634,16.377,14.246,17.451,15.742,18.038,18.47,14.936,17.987,15.751,19.75,16.202,14.733,A,,,20040812013500,20040811120035

500,A,,20040811125500,

900

7. Transfer occurs on the NSRD for type 5 meter

A site has single type 5 *meter* MET12333. The site transferred between Ret1 and Ret2 on the Next Scheduled Read Date.
As the reading occurred before the transfer completed in MSATS, Ret1 would initially receive the information for the *day* of the read plus the forward 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 forward 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 read and the *day* of the read.

File to Ret1

100,NEM12,200309221133,MDA1,Ret1

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

300,20030921,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,A,,,20030922092231,

300,20030922,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4

,4,4,A,,,20030922092231,

400,1,20,A,,

400,21,48,E52,,

500,N,,20030922083436,00345.67

900

File to Ret2 sent some days later

100,NEM12,200309271133,MDA1,Ret2

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

300,20030922,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4
,4,4,A,,,20030922092231,20030922110607

400,1,20,A,,

400,21,48,E52,,

500,N,,20030922083436,00345.67

900

8. Meter change: type 6 to type 5

A site has single type 6 *meter* MET12333 that was replaced with a type 5 meter (MET34567) on 21/09/2003. Two files will be received by the retailer. The NEM13 file will include the energy up until the type 6 meter was replaced.
The first NEM12 file received by the retailer for this NMI would normally only contain forward estimates for the site. In the example it is assumed that the MDP system does not have the time the *meter* was replaced and therefore would generate forward estimates for the whole *day* using the site's previous ADL.

The second NEM12 file received by the retailer for this NMI would contain the actual data. This would consist of zeros up to the point the type 5 *meter* was energised. All these readings for this *day* are Actuals as they have been extracted from the *meter*.

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,MET45678,kWh,30,20031108

300,20030921,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3
,3,3,E54,,,20030922092231,

900

File 3

100,NEM12,200311091133,MDA1,Ret1

200,NABC001492,E1,001,E1,N1,MET45678,kWh,30,20040208

300,20030921,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,5.961,5.120,6.023,3.588,3.759,3.841,3.548,4.
486,3.391,2.656,2.634,2.377,4.246,5.451,5.742,8.038,1.470,1.936,1.987,1.751,1.750,1.202,1.733,A,,,20031
108102133,

900

Appendix I

Example consumption data file (NEM13)

1. Actual read values

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

2. Normal meter read with forward estimate

100,NEM13,200401101030,MDA1,Ret1

250,VDEF005890,1141,1,11,11,MET12345,E,000888,20040108103055,A,,,000999,20040408000000,E64,,,111,kWh,20040408, 20040409000000,20040109103023

550,N,,E,

250,VDEF005890,1141,2,41,41,MET5678,E,0000950,20040108103055,A,,,0010015,20040408000000,E64,,,65,kWh,20040408, 20040409000000,20040109103023

550,N,,E,

900

3. Meter read 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 read 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,E64,,,7.45,kW,20031108, 20031109090500,20030922093738

550,A,,E,

250,NABC001492,7111,A3,11,11,MET5678,E,000000,20030920000001,A,,,000450,20031108000000,E64,,,450,kWh,20031108, 20031109090000,20030922093738

550,A,,E,

900

4. Historical data values

The first 250 record shows that *historical data* is being provided and the previous read 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 read is not a normal read (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 read 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,,,250,kWh,20040315, 20031123145040,20031124132017

550,T,,N,

900

5. Transfer read

Comment [JK1]: From clarifications document: corrected NSRD

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 next scheduled read date, given the transfer will not have completed at the time the re-energisation read is sent. Note that the retail service order number being provided to the old retailer is the old retailer's number when they requested the de-energisation of the *NMI*. The re-energisation service order number is not sent to the old retailer as they are 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

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 a basic 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 reading for the site, with an actual read (A_1) and forward estimate (E_1) associated with the reading on Date 1.

Step 2: Provision of actual readings (A_1, A_2) for the first period (Date 1-2) and the new forward estimate readings (E_2) for the next meter reading period (Date 2-3).

Step 3: A substitute reading (S_2) is provided for the reading on Date 2, (e.g. reading error). A new actual *meter* reading (A_3) is provided relating to Date 3 as well as forward estimate readings (E_3) 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 (F_1) for Date 2 is changed to a Final. The old retailer may receive this as readings (A_1, F_1) relating to the first period (Date 1-2) or (F_1, A_3) 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	A_1	Date 2	E_1	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