MSATS PROCEDURE:

MDM PROCEDURES

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Approved for distribution and use by:

APPROVED BY:	PETER GEERS
TITLE:	EXECUTIVE GENERAL MANAGER, MARKETS

SIGNED:

DATE: / / 20

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1.0	29 July 2004	Final Determination
2.0	3rd Sept 2007	Updated reference to Rules from Code and other minor changes and the introduction of FRC in Queensland
3.0	13th May 2009	Updated to include the NSP2 role for reports and the inclusion of the RM26 Substitution and Estimation Report
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3.2	6th December 2010	Minor Changes to the "Processing Overview" section 3.3.4 to reflect the changes in MDM process to store and use previous substituted calculated data. Addition of the Data Collection Type Code to Section 6.
3.3	1 December 2017	Updated to capture changes related to the National Electricity Amendment (Expanding competition in metering and related services) Rule 2015 No. 12 and National Electricity Amendment (Embedded Networks) Rule 2015 No. 15~~Incorporate Metering Competition rule changes~~

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APPENDIX A. MDM DATA LOAD TRANSACTION PROCESS 26

1. INTRODUCTION

1.1 Purpose and Scope

Thi~~ese~~ ~~are~~is the MSATS Procedure – MDM Procedures made under clause 7.16.2 of the National Electricity Rules (**NER**) (**Procedures**).

These Procedures have effect only for the purposes set out in the NER. The NER and the *National Electricity Law* prevail over these Procedures to the extent of any inconsistency.

1.2 Definitions and Interpretation

The Retail Electricity Market Procedures – Glossary and Framework:

(a) is incorporated into and forms part of these Procedures; and

(b) should be read with these Procedures.

1.3 Related Documents

Title	Location
CATS Procedures	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Market-Settlement-and-Transfer-Solutions
WIGS Procedures	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Market-Settlement-and-Transfer-Solutions
Metrology Procedure: Part A	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Metrology-Procedures-and-Unmetered-Loads
Metrology Procedure: Part B	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Metrology-Procedures-and-Unmetered-Loads
CATS Hints and Tips	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Market-Settlement-and-Transfer-Solutions/MSATS-CATS-Hints-and-Tips
NMI Procedures	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Retail-and-Metering/National-Metering-Identifier-Procedure
MSATS User Interface Guides	http://www.aemo.com.au/Electricity/Policies-and-Procedures/Market-Settlement-and-Transfer-Solutions/MSATS-Participant-User-Interface-Guides
Service Level Procedure ~~-~~ (MDP)	http://www.aemo.com.au/Electricity/Retail-and-Metering/Metering-Services
Service Level Procedure ~~-~~ (MP)	http://www.aemo.com.au/Electricity/Retail-and-Metering/Metering-Services
aseXML Guidelines	http://www.aemo.com.au/About-the-Industry/Information-Systems/aseXML-Standards/aseXML-Guidelines

2. OBLIGATIONS

2.1. General Obligations

(a) Data access - An MSATS Participant (other than AEMO) must not seek access through MSATS to the data pertaining to a *NMI* unless that person has, or had, a known and commercial relationship with the *NMI*.

(b) Use of facility - An MSATS Participant (other than AEMO) must not use a facility provided in MSATS for a purpose other than allowed by these Procedures.

(c) Timeliness - MSATS Participants must ensure that the transfer of data for *settlement* purposes is achieved ~~within~~ in accordance with AEMO's ~~published~~ *timetable*.

2.2. AEMO

AEMO must:

(a) Maintain the TNI records in MSATS including the assignment of each TNI to a Profile Area in MDM;

(b) Input and update in MDM as appropriate, the *marginal loss factors* (MLFs) associated with the TNI Codes;

(c) Register new profiles as defined by *metrology procedure* and their sample *meters* if applicable;

(d) Perform the profile calculation, profile application, and settlement aggregation process within MDM to provide *settlement ready data* to AEMO's *settlements* system in accordance with the *timetable.*

3. MDM FUNCTIONALITY

3.1. Introduction

MDM comprises two broad areas of functionality – setup functionality and processing functionality. This section outlines the basic features of this functionality.

The setup functions are performed initially, whilst commissioning the MDM system, or periodically at random intervals. The processing functionality is performed regularly as work that is preliminary to each *settlement* run.

3.2. Setup Functionality

3.2.1. Profile Areas

A Profile Area in MDM is defined by a list of TNIs that AEMO assigns to that Profile Area~~.~~

~~The Profile Area defines the area where a~~and is given a Profile Name~~ is applicable~~.

~~A Profile Area will at all times have at least one TNI associated with it.~~

Every TNI must be assigned to a Profile Area. The TNIs must be assigned to Profile Areas in accordance with the *metrology procedure*.

Initially, Profile Areas are based loosely on *distribution network* boundaries.

3.2.2. Characteristics of Profiles

A *profile* can be broadly classified into two different types: NSLP and non-NSLP.

The only type of *profiles* that are currently used in MSATS is the NSLP, and the Controlled Load Profiles in NSW, QLD and SA. Each non-NSLP (e.g. Controlled Load profile) is assigned a unique Profile Name.

Note that a dummy Profile Name of NOPROF (for no *profile*) has been created for interval Datastreams so that MSATS can enforce a requirement that all Datastreams have a Profile Name assigned to them.

3.2.3. Characteristics of the NSLP Profile

The NSLP calculation process for each Profile Area can be summarised as follows:

(a) Summate all of the *energy* of the defined system load datastreams for that Profile Area after adjusting the *energy* by the *marginal loss factor* (**MLF**).

(b) Subtract the *energy* of all of the non-system load interval Datastreams for that Profile Area after adjusting the *energy* by the MLF and the DLF. Note this will include any *Embedded Generator* interval Datastreams and any Basic Meters or un*metered connection points* that have been profiled externally to MSATS (these *meters* will have active interval Datastreams assigned to them in MSATS).

(c) Subtract any non-interval (Basic Meter) Datastreams for that Profile Area that have non NSLP Profile Names tagged ~~as~~ to be "peeled-off". This requires the Basic Meter Datastreams' *accumulated energy* to be converted to interval Datastreams by applying the non NSLP profile

to the *energy* readings after adjusting the *accumulated energy* by the MLF and the DLF. This tagging is made when the non NSLP Profile Name is assigned to that Profile Area.

The NSLP profile uses a number of parameters to define how missing *metering data* is substituted by MDM.

The following table provides a description of the various parameters that can be defined when the NSLP is being set up.

PARAMETER	DESCRIPTION
Season Type	Each profile is assigned a Season Type model that divides the year into groups of time. In MDM a single season is used.
Day Type	Each profile is assigned a Day type model that divides a week into groups of time. In MDM a seven day type is used.
Date Exceptions	Date Exceptions are a set of days when the normal day types will not apply i.e. list of national public holidays. For example, for a holiday that falls on a weekday the system can be configured to use the value from a weekend instead of the normal weekday profile. The exceptions and the day type to be applied on respective exceptions are configured in the database.

3.2.4. Characteristics of Non-NSLP Profiles

A non NSLP profile is defined by the relationship between a number of attributes. These attributes are:

(a) A **data source** that defines the interval Data-streams to be used for calculation of the profile shape. This includes the period during which the profile is valid.

(b) A **method** that defines how a data source is substituted where no interval data exists.

(c) A **name** that identifies the profile by linking the above attributes.

The following table provides a description of the various parameters that are defined when a profile method is being set up.

PARAMETER	DESCRIPTION
Season Type	Each profile is assigned a Season type model that divides the year into groups of time. In MDM a single season is used.
Day Type	Each profile is assigned a Day type model that divides a week into groups of time. In MDM a seven day type is used.
Date Exceptions	Date Exceptions are a set of days when the normal day types will not apply i.e. list of national public holidays. For example, for a holiday that falls on a weekday the system can be configured to use the value from a weekend instead of the normal weekday profile. The exceptions and the day type to be applied on respective exceptions are configured in the database.

3.2.5. Settlement Data Scenarios

There are 4 basic Types of **Settlement Data Scenarios** that are processed in MDM and the results are provided to AEMO's Market Management System (MMS) from which the market settlement *statements* are calculated and posted. These are:

(a) Preliminary (Posted from MMS in trading week + 5 *business days*)

(b) Final (Posted from MMS in trading week plus 18 *business days*)

(c) Routine Revision 1 (Posted from MMS in trading week + approximately 20 weeks) – denoted R20

(d) Routine Revision 2 (Posted from MMS in trading week + approximately 30 weeks) – denoted R30.

In addition, Special Settlement Scenarios can be run when AEMO Settlements determine that a *special revised statement* is required to be calculated (e.g. as per clause 3.15.19 of the National Electricity Rules). These special runs will have parameters set for the objective of the run. For example, if at 24 weeks after the settlement week, it was determined that data used in the R20 run was incorrect a new scenario for that trading week could be run with data available at week 24.

A scenario defines the basic parameters for that settlement type such as the length of time either side of the settlement period to freeze the profile.

The input parameters of a scenario include:

(e) Scenario Name

(f) Scenario Type (as above)

(g) Profile freeze cut off period. This defines the period for which the system will freeze the Net System Load Profile (NSLP) (currently set to 15 weeks).

The relationship between the date ranges used in creating the Settlement Data Scenario can be seen in the following diagram.

Figure 1 Example – R20 settlement

SCENARIO/PARAMETER	PRELIMINARY	FINAL	R20	R30
SCENARIO TYPE	**PRELIM. RUN**	**FINAL RUN**	**ROUTINE REVISION 1**	**ROUTINE REVISION 2**
Number of days before the Case End date to start freezing NSLP	393	379	267	197
Number of days before the Case End date to stop freezing NSLP	112	91	-21	-91
NSLP Calculation	Y	Y	Y	Y
Use Frozen NSLP Profile	Y	Y	Y	Y
Cut Off Start (number of days prior to Case Start Date to get metering data)	386	372	260	197
Cut Off End (number of days after Case End Date to get metering data)	0	14	126	189

A Settlement Data Scenario is like a folder that contains different Settlement Cases for a particular Settlement Type.

The input parameters of each Settlement Case include:

(h) 'Data As of Now' or

(i) 'Data As Of Date/time' (data run based on data that existed at a defined point in time). This is not normally defined as generally the settlement case run will use the latest data available at the time that the case starts processing.

(j) Process cut off start/end date periods. This defines the boundaries of the oldest data date and the latest cut off date for metering data used in the processing.

(k) Case start/end date (this is the settlement date range – normally one week).

(l) Scheduled (whether run is to be run now or if it is to be scheduled). The Settlement Case begins to run automatically when the scheduled time is reached.

3.2.6. MDM Settlement Data Processing

Settlement Data Processing consists of profile calculation (Profile Preparation Service for non NSLP and NSLP), profile application (Basic Meter Profiling for non NSLP and NSLP) and settlement energy (load) aggregation.

For the purposes of Settlement Data Processing, Data-streams can be categorised into four types. Different processes are applied to the respective types at different times during Settlement data Processing. These are:

(a) Interval Datastreams. These are all used in the NSLP calculation (i.e. all first and second tier consumer data interval streams).

(b) Non-Interval Datastreams that have a non NSLP profile name assigned and are peeled off during the NSLP calculations. These are used in the NSLP calculation.

(c) Non-Interval Datastreams that have a NSLP profile type. These are only used in the settlement load aggregation process.

(d) Non-Interval Datastreams that have a non NSLP profile name assigned and are not peeled off during NSLP calculations. These are only used in the settlement load aggregation process.

3.2.7. Processing Functionality

The purpose of this clause is to provide an overview of the functionality and operation of the MDM Settlement Data Processing. This consists of a number of basic functional blocks that can broadly be described as a Profile Preparation Service, Basic Meter Profiling, and Load Aggregation.

3.2.8. Profile Preparation Service (PPS)

Create Profile Shape

A profile shape is used to derive trading-interval level consumption of energy from an accumulation meter reading. The purpose of PPS is to prepare Net System Load Profiles (NSLP) with or without peel-off and to prepare non Net System Load Profiles.

The preparation of a profile shape is triggered when a settlement case begins to run. The process accepts a list of Profiles and Profile periods as inputs. For all input profiles, profile names are retrieved from the MDM database. For each profile name, profile data sources are identified and are validated against the CATS database (NMI standing data). After successful validation of the input data, PPS will invoke an appropriate algorithm (method) to calculate the profile shape data and store it in the MDM database. These generated profile shapes will be used to profile basic meter readings.

Profiles may also be generated externally and provided to MDM, for example, by an MDP.

3.2.9. Basic Meter Profiling (BMP)

Apply Profile Shape to ~~Basic~~ Accumulation Meters

The purpose of BMP is to apply profile shape data to non interval Datastream (Basic Meter) *metering data* to create half-hourly profiled *interval metering data*. This is required for all Tier 2 Data~~-~~streams and those Tier 1 Data~~-~~streams needed for NSLP Peel-off The profile shape data may have been calculated by MDM or externally generated and delivered to MDM.

This process validates the existence of profile shape data for each profile name for the settlement period. If any data is missing, substituted values are calculated for the missing periods.

After the successful validation of profile shape data, all non interval Data~~-~~streams associated with the profile name are selected and validated for the existence of cumulative *metering data* for the *settlements* period. Any periods that are missing cumulative *metering* data are substituted by MDM. The cumulative *metering data* and the relevant Profile Shape data is used to generate *interval metering data* for *settlements* purposes.

3.2.10. Settlement Load Aggregation

Aggregate Metering Data for Settlement Purposes

The purpose of the settlement load aggregation process is to take *metering data* from wholesale and second tier customer interval Datastreams, and second tier customer *interval metering data* produced from the Basic Meter Profiling (BMP) process and to aggregate them by FRMP, *Local Retailer*, MDP, TNI, and Datastream type. Note that DLFs are applied in this process.

This aggregated data is then further aggregated by FRMP, *Local Retailer*, and TNI and then loaded into AEMO's Settlement system. Non-aggregated *generation* data is also loaded into AEMO's *settlements* system.

3.2.11. Processing Overview

The *settlement ready data* processing task is initiated by establishing and scheduling a 'Settlement Data Case'. An outline of the process is as follows:

(a) When the scheduled start time of the 'Settlement Data Case' is reached the process commences by initialising all tables it requires.

(b) The system initialises the NSLP process to determine the NSLP shape for the Profile Areas.

Steps 3 to 8 outline how the NSLP calculation is performed.

(c) The first step of calculating the NSLP is to create the profile shapes for the non NSLP profiles that are to be peeled off during the NSLP calculation. This process works out what profiles need to be created and for what period they are needed. The system uses data sources to create the profile shape (these are defined as part of the setup of the profile as detailed in section 3.2.4). For each half-hour it looks to see if a corresponding value exists within the data source. If any *metering data* does not exist in the system, MDM will calculate a substitute for the data source.

(d) The next step of calculating the NSLP is to calculate the Usage Factors for the non-interval Datastreams that are to be included in the NSLP peel off calculation (i.e. with a Profile Name that is not NSLP). Usage Factors are calculated by dividing the Datastream's cumulative *energy* by the sum of the interval values for the profile shape over that cumulative energy's start and end date range. If cumulative *energy* is not available for the calculation period, MDM will calculate a substitute. The cumulative *energy* value could be supplied by the MDP as either an actual Meter Reading or substitute or estimate. It is at this point that the DLF is applied.

(e) The system will then check active interval Datastreams for missing data from MDP's. Where a previous MDM stored substitute exists, this will be used. Where no previous MDM stored substitute exists and the interval datastreams' *metering data* is not available or profile shape interval data is not supplied, the system will use a proxy day profiling methodology to substitute the *energy* for profiling and *settlements* purposes. The proxy day will select values from the most recent day of the same day type and season type as the day being modelled. If no Historic Data is available, the system will use ADL divided by 48 for each ~~*trading interval*~~TI. The system will then store the Substituted data in the table as an MDM substitute for use in future *settlements* runs (**Case ID**).

(f) After missing *metering data* has been substituted by MDM, the system will work out the interval consumption load for each non interval Datastream. This is done by applying the Usage Factor created in step 4 for each Datastream to the profile shape data value for the same period created in step 3.

(g) The system will then aggregate the data to derive the NSLP shape for each Profile Area. The NSLP shape will be calculated from the earliest non locked down profile period to the cut off end date as defined in the Case ID. Once derived, the NSLP shape is stored in the MDM database.

(h) After the NSLP shape has been calculated the settlement load aggregation process will be undertaken. This follows a similar process to the NSLP process and commences with substituting load for second tier non-interval Datastreams.

(i) The next step in the final aggregation is to calculate Usage Factors for all non-interval second tier Datastreams that were not included in the NSLP calculation. How Usage Factors are calculated is discussed further in Step 4. In addition, the DLF will be applied at this step.

(j) Next, the system will calculate the basic meter interval load for each non-interval Datastream by applying Usage Factors to the profile shape values that corresponds to that Datastream's assigned Profile Name

(k) Finally, the system will aggregate data for all wholesale and second tier Datastreams. These may be interval or non-interval Datastreams. The output from the load aggregation run is stored in MDM using load aggregation scenario and case as a unique identifier. It stores data for customer load and *interconnectors* aggregated at TNI, FRMP, LR, MDP and Datastream type level. It will also collect non aggregated data for *Generators*.

(l) The output from the final step will be placed in interface files for loading into AEMO's *settlements* system.

(m) The normal weekly process will consist of 4 *settlements* runs. Additional runs may be performed on an ad-hoc basis.

Figure 2 Process Flow Diagram for a Settlement Data Case

4. MAINTENANCE OF TNI AND PROFILE AREA

4.1. Introduction

This section outlines the information that is required by MSATS to create and maintain Profile Areas. This function can only be performed by AEMO.

The creation and maintenance of a TNI is performed in the CATS section of MSATS. The creation of a Profile Area and maintenance of Profile Area attributes is performed in the MDM section of MSATS.

4.2. Create a Profile Area

If a Jurisdiction Code and TNI Code have been entered into CATS and MDM, AEMO must provide the following information:

(a) The name of the Profile Area.

(b) The start date for the Profile Area.

(c) The end date for the Profile Area (normally 31/12/9999).

(d) The TNIs that will be assigned to the Profile Area.

AEMO may edit the dates for which a TNI will be applicable for a Profile Area (by default all TNI dates are set to the Start and End dates for the Profile Area).

4.3. Maintain Profile Area Attributes

For a Profile Area (viewable from the “Profile Area – List” screen under Profile Preparation section of browser), AEMO must input some of the following information:

(a) The revised end date for which the Profile Area is to be valid, or

(b) The revised list of TNIs that will be associated with the profile Area.

5. LOAD DATA – NON-INTERVAL NMI DATASTREAM

5.1. Conditions Precedent

Any submitted data that has a version datetime equal to or earlier than any data that already exists in MDM will be rejected.

5.2. MDP Obligations

For any active non-interval NMI Datastream in CATS, the MDP must:

(a) Where there is one or more existing *metering data* records for the Datastream, ensure that the start date of the data being loaded aligns with the end date of the existing record (start date equals previous record end date plus one).

(b) Submit an aseXML message containing the *metering data* csv payload for the specific NMI Datastream and *settlements* date. The message will include nomination of:

- The date of submittal of the data
- NMI
- Datastream suffix
- The data From Date
- The data To Date
- MDP
- MDP version datetime
- Energy Value in kWh units
- Status flag

(c) Acknowledge first and second level validations in MSATS by responding ~~as per~~in accordance with the aseXML Guidelines ~~document~~.

6. LOAD DATA – INTERVAL NMI DATASTREAM

6.1. Conditions Precedent

Any submitted data that has a Version Datetime equal to or earlier than any data that already exists in MDM will be rejected.

6.2. MDP Obligations

For any active interval NMI Datastream in CATS, the MDP must:

(a) Submit an aseXML message containing the *metering data* csv payload for the specific NMI Datastream and *settlements* date. The message will include nomination of:

- The date of submittal of the data
- NMI
- Datastream suffix
- *Settlements* Date
- MDP
- MDP version datetime
- Energy Values in kWh units
- Status flag for each interval of the data
- Data Collection Type Code (DCTC)

(b) Acknowledge first and second level validations in MSATS

6.3. Load Sample Meter Data for Defined NMI Datastreams

The process for loading sample *metering data* is similar to “Load Data – Interval NMI Datastream”. The only difference is that the Datastream type defined in CATS is “P”, and the aseXML csv payload tag in the MDM data load file for NMI Data-stream types “P” is <csvProfileData>.

6.4. Load Externally Calculated Profile Shape

The process for loading external profile shape data is similar to “Load Data – Interval NMI Datastream”. The only difference is that the Datastream type defined in CATS is “P”, and the aseXML csv payload tag in the MDM data load file for NMI Data-stream types “P” is <csvProfileData>.

7. DEFINE PROFILE

~~7.1. Application~~

~~This process is used for defining the data source(s), methodology and name for the identification of a new non NSLP Profile. The new profile is defined in MDM by using the interactive interface. This function can only be performed by AEMO.~~

~~7.2.~~7.1. Define the Data Source

If the appropriate data source NMI Datastreams do not exist they must first be defined in CATS (refer CATS Procedures) before this procedure can be implemented.

If there is an active list of NMI Datastream data sources in CATS, AEMO must provide the following information:

(a) Data source name

(b) Sampling period start date that is not earlier than the current system date.

(c) Sampling period end date that is not earlier than the start date (normally set to 31/12/9999).

(d) At least one *NMI* and suffix that identifies data to be used for calculation of the profile shape.

(e) Weight for each *NMI* and associated suffix, as a numeric value between 0.00 and 1.00.

~~7.3.~~7.2. Define the Profile Method

MDM has been set up to use only one profile methodology. This is the seven-day type methodology.

~~7.4.~~7.3. Define the Profile Name

If:

(a) the Jurisdiction has approved the creation of the proposed profile; and

(b) the data source/s and profile method have been defined,

AEMO must provide the following information:

(c) A unique Profile Name

(d) Start date

(e) Profile method name

(f) Data source name

(g) Applicable Profile Areas, and

AEMO may provide ~~the following information:~~ an

~~(h)~~ ~~E~~end d~~D~~ate that is not earlier than the start date. The screen will default the end date to the high date (31-Dec-9999).

8. PROFILE CALCULATION

~~8.1. Application~~

~~This process is used for defining a 'Settlement Data Scenario', defining a 'Settlement Data Case', and submitting the case to run. Transactions are submitted to MSATS by using the interactive interface. This function can only be performed by AEMO.~~

~~8.2.~~8.1. Settlement Data Scenario

The purpose of this section is to define the parameters that are required to create *settlements ready data*. This involves the creation of Settlement Data Scenarios that identify the relationship between key parameters.

~~If the scenario type has been defined AEMO who is creating a new~~To create a New Settlement Data Scenario, AEMO must provide the following information:

(a) The Settlement Data Scenario Name, which must be unique.

(b) The Settlement Data Scenario Type.

(c) The number of *days* before the Case End Date to start freezing the NSLP.

(d) The number of *days* before the Case End Date to stop freezing the NSLP.

(e) Whether the NSLP is to be calculated in this Settlement Data Scenario.

A Settlement Data Scenario may be edited by the AEMO user who created the Scenario, by the system administrator, or by AEMO super users.

Conditions precedent are:

(f) A Settlement Data Scenario has been selected

(g) No cases/runs have been processed under this scenario

To edit the Settlement Data Scenario the following information must be provided:

(h) The Settlement Data Scenario Type

(i) The number of ~~calendar~~ *days* before the Case End Date to start freezing the NSLP

(j) The number of ~~calendar~~ *days* before the Case End Date to stop freezing the NSLP

(k) Whether the NSLP is to be calculated in this Settlement Data Scenario

A Settlement Data Scenario may be deleted by the AEMO user who created the Scenario, by the system administrator, or by AEMO super users.

Conditions precedent are:

(l) A Settlement Data Scenario has been selected

(m) No cases/runs have been processed under this scenario

~~8.3.~~8.2. Settlement Data Cases

The purpose of this section is to define the parameters that are required to establish a Settlement Data Case.

If the scenario to be used has been defined, AEMO must provide the ~~following information:~~

~~(a)~~ ~~The~~ Settlement Data Scenario under which the Case should be run.

AEMO may edit a Settlement Data Case by providing the same information as required for when a Settlement Data Case is created as long as the Settlement Data Case is uncommitted (not scheduled). Once the Settlement Data Case has been committed, an edit is not possible.

9. REPORTS

9.1. Introduction

This section describes the reports from MDM that are available to Participants. More information can be found in the Participant User ~~Reference~~Interface Guides to MSATS.

The reports described in this section are:

MDM RM9	Actual Versus Estimate Data Report
MDM RM11	Missing Data Report
MDM RM13	NMI Data ~~S~~streams History Report
MDM RM14	MDP Data version Comparison Report
MDM RM15	Count of Multiple Versions Report
MDM RM16	Level 1 Settlement Reconciliation Report
MDM RM17	Level 3 Settlement Reconciliation Report for Non-Aggregated Data
MDM RM18	Interval Data Report
MDM RM20	PPS Report
MDM RM21	Level 2 Settlement Reconciliation Report
MDM RM22	Data Estimation Report
MDM RM26	MDP Substitution and Estimation Report
MDM RM27	Level 2 Settlement Reconciliation Report (Automatically produced with settlement case approval)

9.2. Report Outlines

Report Name:

MDM RM9 Actual Versus Estimate Data Report

~~**Purpose:**~~

The purpose of the Actual versus Estimate Data report is to allow AEMO and Participants to compare the number of Estimates and Actual Meter Readings in the system. The output is for either accumulation~~consumption~~ or Interval Meters and can be further restricted to only those Meter Readings supplied by a particular MDP.

Parties that have access to the report:

AEMO, FRMP, LR, MDP.

Information that must be submitted with the report request:

- Start date and end date
- Data type, whether interval or ~~consumption~~ accumulation (non-interval)
- The 'As at' date and time for the data being requested
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

The MDP. This limits the report to records related to this MDP.

Report Outputs:

- MDP
- Settlement Date
- Count of number of non actual reads
- Count of total number of reads
- Percent (%) of non actual reads
- Report sequence number

Report Name:

MDM RM11 Missing Data Report

~~**Purpose:**~~

The purpose of the Missing Data report is to allow AEMO and Participants to find out what *metering data* is missing from MDM.

Parties that have access to the report:

AEMO, FRMP, LR, MDP.

Information that must be submitted with the report request:

- Start date and end date
- *NMI* (Optional)
- MDP
- The 'As at' date and time for the report being requested (only used if NMI is specified)
- The last sequence number. This specifies the starting point of the report.
- Data type, whether interval or accumulation~~consumption~~ (non-interval)
- *NMI* selection, whether all *NMIs* or Second Tier NMIs only

Report Outputs:

- MDP
- Settlement date
- NMI
- Suffix
- Report sequence number

Report Name:

MDM RM13 NMI Data ~~S~~streams History Report

~~**Purpose:**~~

The purpose of the NMI Data ~~S~~streams History report is to allow AEMO and Participants to retrieve the history of a NMI Datastream's *metering data* for a specified period. This report will return all versions of *metering data* that exist in the system for that *NMI* for days within the report period.

Parties that have access to the report:

AEMO, MC~~RP~~, FRMP, LR, LNSP, ENM, NSP2, MPB, MPC, MDP.

Information that must be submitted with the report request:

- Start date and end date
- Data type, whether interval or accumulation~~consumption~~ (non-interval)
- NMI
- The 'As at' date for the data being requested
- The last sequence number. This specifies the starting point of the report.

Report Outputs:

- Settlement Date (for Interval Meters) or Start Date and End Date (for Accumulation Meters)
- NMI
- Suffix
- Load Time
- MDP Version Date
- MDP
- Value(s)
- Read type flag(s)
- Report sequence number

Report Name:

MDM RM14 MDP Data Version Comparison Report

~~**Purpose:**~~

This report allows the comparison of *meter readings* loaded on 2 separate date times for a single *NMI*. This report will return all data loaded for suffixes of a particular *NMI* on each of the 2 load date times (supplied as inputs) If 'only report on differences' was supplied as an input parameter only reads that are different between the 2 dates will be returned. Otherwise all *meter readings* loaded on the 2 load date times for suffixes of the input *NMI* will be returned.

Parties that have access to the report:

AEMO, ~~RP(~~MC~~)~~, FRMP, LR, LNSP, ~~(~~ENM~~)~~, NSP2, MPB, MPC, MDP.

Information that must be submitted with the report request:

- Start date and end date
- NMI
- Date time load 1
- Date time load 2
- Data Type (interval or accumulation~~consumption~~ (non-interval))

- Report where difference is not zero (Y/N)
- As at date time
- The last sequence number. This specifies the starting point of the report.

Report Outputs:

This output is depending on whether the report only on differences parameter was true.

(A) Interval Data

(1) Report Only Differences

A difference exists when any of the read type flags are different or any of the values are different between 2 reads.

- Only 1 record returned – Return no data in the output
- 2 records exist with no differences exist – Return no data in the output
- Difference exist – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP
  - MDP Version Date for Load Time 1
  - Load Time 1
  - Values 1..48 for load time 1
  - Read Type Flags for load time 1
  - MDP Version Date for Load Time 2
  - Load Time 2
  - Values 1..48 for load time 2
  - Read Type Flags for load time 2
  - Differences between values for load time 1 and load time 2
  - Differences between read type flags for load time 1 and load time 2 Any difference in the read type flags will be indicated by a ‘1’ and a lack of difference will be indicated by a ‘0’.

(2) Not Report Only Differences

- 1 record returned – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP
  - MDP Version Date
  - Load Time
  - Values 1..48
  - Read Type Flags
- 2 records returned – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP

- MDP Version Date for Load Time 1
- Load Time 1
- Values 1..48 for load time 1
- Read Type Flags for load time 1
- MDP Version Date for Load Time 2
- Load Time 2
- Values 1..48 for load time 2
- Read Type Flags for load time 2
- Differences between values for load time 1 and load time 2
- Differences between read type flags for load time 1 and load time 2 Any difference in the read type flags will be indicated by a '1' and a lack of difference will be indicated by a '0'.

(B) Non-Interval Data

(1) Report Only Differences

A difference exists when the read type flag or the values are different between the 2 reads.

- Only 1 record returned – Return no data in the output
- No differences exist – Return no data in the output
- Difference exist – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP
  - MDP Version Date for Load Time 1
  - Load Time 1
  - Value for load time 1
  - Read Type Flags for load time 1
  - MDP Version Date for Load Time 2
  - Load Time 2
  - Value for load time 2
  - Read Type Flag for load time 2
  - Difference between value for load time 1 and load time 2
  - Difference between read type flag for load time 1 and load time 2. A difference in the read type flag will be indicated by a '1' and a lack of difference will be indicated by a '0'.

(2) Not Report Only Differences

- 1 record returned – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP
  - MDP Version Date
  - Load Time
  - Value

  - Read Type Flag
- 2 records returned – Return
  - NMI
  - Suffix
  - Settlement Date
  - MDP
  - MDP Version Date for Load Time 1
  - Load Time 1
  - Value for load time 1
  - Read Type Flags for load time 1
  - MDP Version Date for Load Time 2
  - Load Time 2
  - Value for load time 2
  - Read Type Flag for load time 2
  - Difference between value for load time 1 and load time 2
  - Difference between read type flag for load time 1 and load time 2. A difference in the read type flag will be indicated by a '1' and a lack of difference will be indicated by a '0'.

Report Name:

MDM RM15 Multiple Versions Report

~~Purpose:~~

The purpose of this report is to provide information on the number of versions of *metering data* that have been supplied to the system by an MDP. If the number of versions is supplied as an input the output will contain all *NMIs* and suffixes with that number of versions or greater. If a number of versions is not supplied the output will return a count of all *NMIs* and suffixes with by number of versions supplied. This report is available to AEMO and all active Participants.

Parties that have access to the report:

AEMO, MC, FRMP, LR, LNSP, ~~/~~ENM, NSP2, MPB, MPC, MDP.

Information that must be submitted with the report request:

- Start date and End date
- MDP
- Data Type (interval or accumulation~~consumption~~ (non-interval))
- The 'As at' date and time
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- NMI
- Number of versions

Report Outputs:

There are three Output Formats for this report. The one that will be used depends on whether the user specified the no of versions in the input.

The report output when No of Versions is included for Interval data will have

- NMI and NMI Suffix
- Settlement Date
- Count of number of Versions
- Sequence number

The report output when No of Versions is included for Non-Interval data will have

- Start Date
- End Date
- NMI and NMI Suffix
- Count of number of Versions
- Sequence number

The report outputs when number of versions is not specified will have

- Settlement Date
- Count of number of Versions
- Count of number of NMI datastreams with that Number of Versions
- Sequence number

Report Name:

MDM RM16 Level 1 Settlement Reconciliation Report

~~Purpose:~~

The report provides aggregated *interval metering data* grouped by TNI, FRMP, LR, MDP, and Datastream type that was used during a *settlements* run. Source data for this report includes data supplied by an MDP and that produced as an output of a settlements run and includes data from interval Datastreams and accumulation~~consumption~~ Datastreams.

Parties that have access to the report:

AEMO, FRMP, LR, and MDP.

Information that must be submitted with the report request:

- Settlement Case ID. Defines the required settlement run.
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- Start date and end date. If the Start date and end date is not provided, data will be provided covering the entire period defined by the Settlement Case ID.

Report Outputs:

- Settlement date
- Creation date/time
- TNI, FRMP, LR, MDP
- Datastream type
- Data for Period 1 through to Period 48
- Report sequence number

Report Name:

MDM RM17 Level 3 Settlement Reconciliation for Non-Aggregated Data

Purpose:

The report provides interval data for all suffixes of a particular *NMI* that was used during a *settlements* run. Source data for this report includes data supplied by an MDP and that produced as an output of a

settlements run and includes data from interval Datastreams and accumulation~~consumption~~ Datastreams.

Parties that have access to the report:

AEMO, FRMP, LR, and MDP.

Information that must be submitted with the report request:

- NMI. This limits the output to suffixes of this NMI.
- Settlement Case ID. Defines the required settlement run.
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- Start date and end date. The default is the entire period defined by the Settlement Case.

Report Outputs:

- Settlement date
- NMI and suffix
- Creation date/time
- Data for Period 1 through to Period 48
- Read type flags
- Report sequence number

Report Name:

MDM RM18 Electricity Interval Data Report

~~**Purpose:**~~

The purpose of this report is to allow AEMO and Participants to retrieve all the *metering data* for a particular combination of TNI, FRMP, LR, and MDP. The output of the report will return the Meter Readings of all suffixes for *NMIs* of the combination. This report will only contain *interval metering data.*

Parties that have access to the report:

AEMO, MC, FRMP, LR, LNSP, ~~/~~ENM, NSP2, MPB, MPC, MDP.

Information that must be submitted with the report request:

- Start date and end date.
- TNI
- FRMP
- LR
- MDP
- The 'As at' date and time for the data being requested
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- *NMI*. This limits the output to suffixes of this *NMI*.
- MDP version. This limits the output to metering data that have the specified MDP version date time.

Report Outputs:

- MDP
- MDP version date
- NMI and suffix
- Settlement date

- Load date/time
- Data for Period 1 through to Period 48
- Read type flags
- Report sequence number

Report Name:

MDM RM20 PPS Report

~~**Purpose:**~~

The purpose of this report is to allow AEMO and Participants to retrieve profile shape data. It will firstl return all NSLP profiles that cover the report period. It will then return the profile shape covering the report period which would be used for each Profile Area in a *settlements* run. The output can be limited to those profiles used in a case run or by Profile Name.

Parties that have access to the report:

All Participants

Information that must be submitted with the report request:

- Start date and end date, compulsory if Case ID is not supplied.
- The 'As at' date and time for the data being requested, if Case ID is not supplied.
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- Start date and end date, if Case ID is supplied.
- Settlement Case ID. Limits output to that case.
- Profile name. Limits output to that profile.

Report Outputs:

- Profile name
- Profile area
- Settlement date
- Load time/Creation time
- Data for Period 1 through to Period 48
- Report sequence number
- Locked
- Settlement Case

Report Name:

MDM RM21 Level 2 Settlement Reconciliation Report

MDM RM27 Level 2 Settlement Reconciliation Report (Automated on Settlement Case Approval)

~~**Purpose:**~~

For a *settlements* run this report will provide the daily totals of load data for each TNI's (supplied as an input) *NMIs*. The *NMIs* returned are restricted to those *NMIs* that have the same LR that was supplied as an input to this report. The output can also be further restricted to those *NMIs* with a certain MDP.

For the Automated RM27 report produced on Approval of a Settlement case, this report will provide the daily totals of load data for all *NMIs* for all TNI combinations for all MDPs.

Parties that have access to the report:

- AEMO
- A Participant must be assigned roles of MDP, FRMP or LR to the NMIs.

Information that must be submitted with the report request for the RM21 report:

- Settlement Case ID
- TNI
- LR
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request for the RM21 report:

- Start date and end date
- MDP. Further limits the output to NMIs associated with the specified MDP.

Report Outputs:

- TNI
- LR
- MDP
- *Settlements* date
- *NMI*
- Daily total energy
- Report sequence number
- DataStream Type
- MSATS Substitution Indicator

Report Name:

MDM RM22 Data Estimation Report

~~**Purpose:**~~

The purpose of this report is to allow AEMO and Participants to obtain details of Substitutions that have been made during a *settlements* run for missing *interval metering data* and Accumulation Meter readings

Parties that have access to the report:

- AEMO
- A Participant that has a MDP, FRMP or LR association with the Substituted NMI Datastream.

Information that must be submitted with the report request:

- Settlement Case ID
- The last sequence number. This specifies the starting point of the report.

Information that may be submitted with the report request:

- Start date and end date. The default is the entire period defined by the Settlement Case ID.

Report Outputs:

- Settlement Date
- *NMI* and suffix
- Creation date time
- Substituted value for each interval
- Report sequence number

Report Name:

MDM RM26 MDP Substitution and Estimation Report

~~**Purpose:**~~

The purpose of this report is to allow AEMO and MDPs to obtain details of Substitutions and Estimations that are still current in MDM for a specified settlement week.

Parties that have access to the report:

AEMO, MDP

Information that must be submitted with the report request:

- Start and end dates
- Interval or Accumulation~~Consumption~~

Report Outputs:

Interval

- NMI and suffix
- *Settlements* Date
- FRMP
- LR
- MDP
- FLAG

Accumulation~~Consumption~~

- *NMI* and suffix
- Start and end date
- FRMP
- LR
- MDP
- FLAG
- kWh

APPENDIX A. MDM DATA LOAD TRANSACTION PROCESS

Following is a summary of the transactions for each participant in a metering data exchange to MDM in order of operation.

ROLE	SCENARIO ACTIONS	VERIFICATION TASKS
MDP	MDP to submit aseXML message (within a zip file) containing the csv metering data payload for the specified NMI datastream and settlement date into their inbox	Confirm that acknowledgments have been received (.ack file written to outbox with same file name)
MSATS	Message receipt and transaction receipt .ack file created	.ack file written to MDP outbox with same file name as input zip file. If the zip file is submitted via the browser the acknowledgement response is received on the browser.
MDP	Delete .zip file from inbox	.zip file deleted from inbox
MSATS	Remove ack file from inbox	.ack file is deleted from outbox
MSATS	Second level validation .zip file produced	.zip file written to MDP outbox
MDP	MDP downloads copy of transaction receipt validation .zip file and acknowledges file	ack file written to MDP inbox with same file name as input zip file (if acknowledged via browser this step may be omitted)
MSATS	Delete .zip file from participant outbox	zip file is deleted from outbox
MDP	Remove ack file from inbox	ack file is deleted from inbox