SPECIAL SITES AND TECHNOLOGY RELATED CONDITIONS WITHIN THE NATIONAL ELECTRICITY MARKET

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VERSION RELEASE HISTORY

Version	Effective Date	Summary of Changes
1.0	1 April 2011	Initial Version
1.1	1 December 2017	Updated to incorporate AEMO's new drafting principles.
1.2	1 December 2017	Final Version
2.0	6 February 2022	Updated to incorporate amendments for National Electricity Amendment (Global Settlement and Market Reconcilliation) Rule 2018 No 14

CONTENTS

1. INTRODUCTION

1.1. Purpose and Scope

This Special Site or Technology Related Conditions document is made under the clause 7.8.12 of the NER. This document:

- describes situations where special site or technology related conditions exist in the *NEM*;
- defines the different categories of these situations; and
- provides a list of these.

This document has effect only for the purposes set out in the NER. The NER and the National Electricity Law prevail over this document 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 this document; and

(b) should be read with this document.

1.3. Related AEMO Documents

Title	Location
Retail Electricity Market Procedures – Glossary and Framework	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering
Metrology Procedure: Part A	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metrology-Procedures-and-Unmetered-Loads
Metrology Procedure: Part B	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metrology-Procedures-and-Unmetered-Loads
Service Level Procedure (MP)	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes
Service Level Procedure (MDP)	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes
CATS Procedures: NMI Procedure	https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes

2. WHAT IS A SPECIAL SITE

As stated in clause 7.8.12(a) of the NER, AEMO may determine that special arrangements are required to support the integrity of the collection and processing of *metering data* from nominated *metering installations*, referred to as special sites or technology related conditions. These are determined by AEMO and *published* in this document (Special Sites).

AEMO will only consider special *metering* arrangements where Participants, having investigated all other NEM compliant *metering* arrangements, determine them not suitable.

3. CHARACTERISTICS OF SPECIAL SITES

AEMO determines that a Special Site exists where:

(a) metering installations at transmission network connection points require complex configurations and these metering installations are related to all of the connection point metering installations at the transmission node. These metering installations are identified by the specific TNI Code for these transmission network connection points;

(b) interconnector connection points are associated with physical and virtual (logical) metering installations (i.e. all interconnectors). These metering installations will be identified by the specific unique TNI Code for these interconnector connection points;

(c) metering installations relate to Market Generator connection points with complex configurations. These metering installations will be identified by the respective published Market Generator Connection Point ID[1];

(d) metering installations relate to cross boundary connection points between adjacent distribution networks with physical and virtual (logical) metering installations (i.e. all cross boundary connection points). Cross boundary connection points are referenced to respective transmission network connection points, and in all cases are found to be included in the complex configuration of connection points already classified as Special Sites. These metering installations will be identified by the specific TNI Code for the transmission network connection points to which they are related.

4. SPECIAL SITE CATEGORIES

AEMO considers that there are 5 categories of Special Site. Table 1 specifies each type by reference to clause 7.8.12(a) of the NER:

Table 1 Special Site Categories

Type	Description	NER Reference
Type A	*Connection point(s)* with a complex metrology configuration.	7.8.12(a)(1)
Type B	*Connection point(s)* where the physical location or relativities of the involved *metering installations* to the *connection points*(s) requires a complex algorithm for the compensation or correction of *metering data*.	7.8.12(a)(1)
Type C	Multiple *metering installations* and *meters* pertaining to multiple *connection points*, using one *communications interface* where congestion could occur and there is a risk to obtaining *metering data* efficiently.	7.8.12(a)(2)

[1] Connection Point ID related to *Market Generators* is as *published* in AEMO's List of Regional Boundaries and Marginal Loss Factors, available at: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Loss-factor-and-regional-boundaries/#dlfcodes.

Type D	Cross boundary/border *supply* points between *distribution networks* where logical or virtual *connection points* are required to settle *energy* flows.	7.8.12(a)(4)
Type E	*Connection points* in relation to *interconnectors*.	7.8.12(a)(3)

Examples of existing Special Sites are provided in Appendix A. The configurations in these examples are to support legacy arrangements that existed prior to the establishment of the NEM. They are not to be taken as arrangements that can be applied to new sites.

5. PROCESS

An MC, LNSP or FRMP for a *connection point* may request AEMO to remove a Special Site following alteration to the *connection point*(s) or *metering installation*(s) or its *metering data* collection arrangements. AEMO will assess the request, consult with affected Participants and if AEMO considers it appropriate, remove the Special Site from the relevant list in section 6.

An MC, LNSP or FRMP may send to AEMO a request to remove a Special Site via email to supporthub@aemo.com.au.

AEMO will inform all *Registered Participants*, MDPs, MPs and ENMs of any changes to the list of Special Sites via an AEMO Communication.

6. SPECIAL SITES

6.1. Transmission Special Site Connection points

All physical and virtual *metering installations* located at *transmission network connection points* associated with the following TNI Codes are classified as a Special Sites.

TNI Name	TNI Code	Type A	Type B	Type C	Type D	Type E
Canberra	ACA1	X	X			
Albury	NALB		X			
ANM	NANM		X			
Burrinjuck	NBU2		X			
Coffs Harbour	NCH1		X			
Coleambally	NCLY		X			
Cooma	NCMA		X			
Deniliquin	NDN7		X			
Dorrigo	NDOR		X			
Dapto (Integral)	NDT1			X		
Dapto (CE)	NDT2			X		
Dunoon (CE)	NDUN		X			
Griffith	NGRF		X			
Liddell	NLD3		X			
Broadwater PS	NLS2		X			
Lismore (CE)	NLS2		X			
Meadowbank (EA)	NMBK	X	X			

TNI Name	TNI Code	Type A	Type B	Type C	Type D	Type E
Muswellbrook	NMRK	X				
Murrumburrah	NMRU		X			
Munyang	NMY1		X			
Munyang	NMYG		X			
Narrabri	NNB2		X			
Inverell	NNVL		X			
Pt Macquarie	NPMQ		X			
Pyrmont	NPT1		X			
Tomago	NTMG	X	X	X		
Terranora (CE)	NTNR		X			
Taree (CE)	NTR2		X			
Tenterfield	NTTF		X			
Vales Pt. (EA)	NVP1		X			
Williamsdale	NWDL	X	X			
Wagga	NWG2		X			
BHP (Waratah) (EA)	NWR1		X			
Columboola - Condamine PS	QCND	X	X			
Cairns City	QCNS		X			
Wandoan South (NW Surat)	QWST	X	X			
Berri (Powercor)	SBE1		X		X	
Blanche (Powercor)	SBL1		X		X	
Blyth West	SBLW		X			
Cathedral Rocks Wind Farm	SCRK		X			
Kanmantoo	SKAN		X			
Leigh Creek	SLCC		X			
Leigh Creek South	SLCS		X			
Mannum - Adelaide Pipeline 1	SMA1		X			
Mannum - Adelaide Pipeline 2	SMA2		X			
Mannum - Adelaide Pipeline 3	SMA3		X			
Murray Bridge - Hahndorf Pipeline 1	SMH1		X			
Murray Bridge - Hahndorf Pipeline 2	SMH2		X			
Murray Bridge - Hahndorf Pipeline 3	SMH3		X			
Millbrook	SMLB		X			
Morgan to Whyalla Pumping Station	SMW2	X	X			
Woomera	SWMA		X			
Newton	TNT3		X			
Lemonthyme	TSH1		X			
Wilmot11	TSH1		X			
Alcoa Portland	VAPD		X			

TNI Name	TNI Code	Type A	Type B	Type C	Type D	Type E
Altona	VATS	X		X		
Ballarat	VBAT	X		X		
Bendigo	VBE2	X		X		
Bendigo	VBE6	X		X		
Brooklyn (Jemena)	VBL2	X	X	X		
Brooklyn (Powercor)	VBL3	X	X	X		
Brooklyn (Jemena)	VBL6	X	X	X		
Brooklyn (Powercor)	VBL7	X	X	X		
Brunswick (Citipower)	VBT2	X	X	X		
Brunswick (Jemena)	VBTS	X	X	X		
Cranbourne 220	VCB2		X			
Cranbourne (UE)	VCB5	X		X		
Cranbourne (SPI Electricity)	VCBT	X		X		
East Rowville (SPI Electricity)	VER2	X	X	X		
East Rowville (UE)	VERT	X	X	X		
Fishermens Bend (Powercor)	VFB2	X		X		
Fishermens Bend (Citipower)	VFBT	X		X		
Fosterville	VFVT		X			
Glenrowan	VGNT	X		X		
Geelong	VGT6	X		X		
Horsham	VHOT	X		X		
Heatherton	VHTS	X		X		
BHP Western Port	VJLA		X			
Kerang	VKG2	X	X	X		
Kerang	VKG6	X		X		
Keilor (Jemena)	VKT2	X	X	X		
Keilor (POWERCOR)	VKTS	X	X	X		
Mt Beauty	VMBT	X		X		
Malvern	VMT2	X		X		
Malvern	VMT6	X		X		
Pt Henry	VPTH		X			
Red Cliffs	VRC6	X	X	X		
Red Cliffs (CE)	VRCA	X	X	X	X	
Richmond	VRT2	X		X		
Richmond (UE)	VRT6	X	X	X		
Richmond (CITIPOWER)	VRT7	X	X	X		
Ringwood (UE)	VRW2	X	X	X		
Ringwood (SPI Electricity)	VRW3	X	X	X		
Ringwood (UE)	VRW6	X	X	X		

TNI Name	TNI Code	Type A	Type B	Type C	Type D	Type E
Ringwood (SPI Electricity)	VRW7	X	X	X		
Shepparton	VSHT	X	X	X		
Tatura	VSHT	X	X	X		
South Morang (Jemena)	VSM6		X			
South Morang (SPI Electricity)	VSMT		X			
Springvale (UE)	VSV2	X	X	X		
Springvale (CITIPOWER)	VSVT	X	X	X		
Tyabb	VTBT	X	X	X		
Terang	VTGT	X	X	X		
Templestowe (CITIPOWER)	VTS2	X	X	X		
Templestowe (SPI Electricity)	VTS3	X	X	X		
Templestowe (UE)	VTS4	X	X	X		
Templestowe (Jemena)	VTST	X	X	X		
Thomastown (SPI Electricity)	VTT2	X	X	X		
Thomastown (Jemena)	VTTS	X	X	X		
Wemen	VWET	X	X	X		
West Melbourne	VWM2	X	X	X		
West Melbourne (Jemena)	VWM6	X	X	X		
West Melbourne (CITIPOWER)	VWM7	X	X	X		
Wodonga	VWO6	X	X	X		
Yallourn	VYP1	X	X	X		

6.2. Interconnector Special Site Connection Points

All physical and virtual *metering installations* located at *transmission network connection points* associated with the following TNI Codes relating to *interconnectors* are classified as Special Sites.

Interconnector Name	TNI Code	Type A	Type B	Type C	Type D	Type E
Dumaresq to Buli Creek	NRQD					X
Monash	MNSH					X
Mudgeeraba to Terranora	NRQ2					X
SESS to Heywood	VRSA					X
South East SS	SESS					X
Wodonga to Red Cliffs, Murray and Guthega	VRNS	X	X			X
Murraylink Interconnector	VRS2					X

6.3. Generator Special Site Connection Points

All physical and virtual *metering installations* relating to market *generation connection points* associated with the following Connection Point IDs are classified as Special Sites.

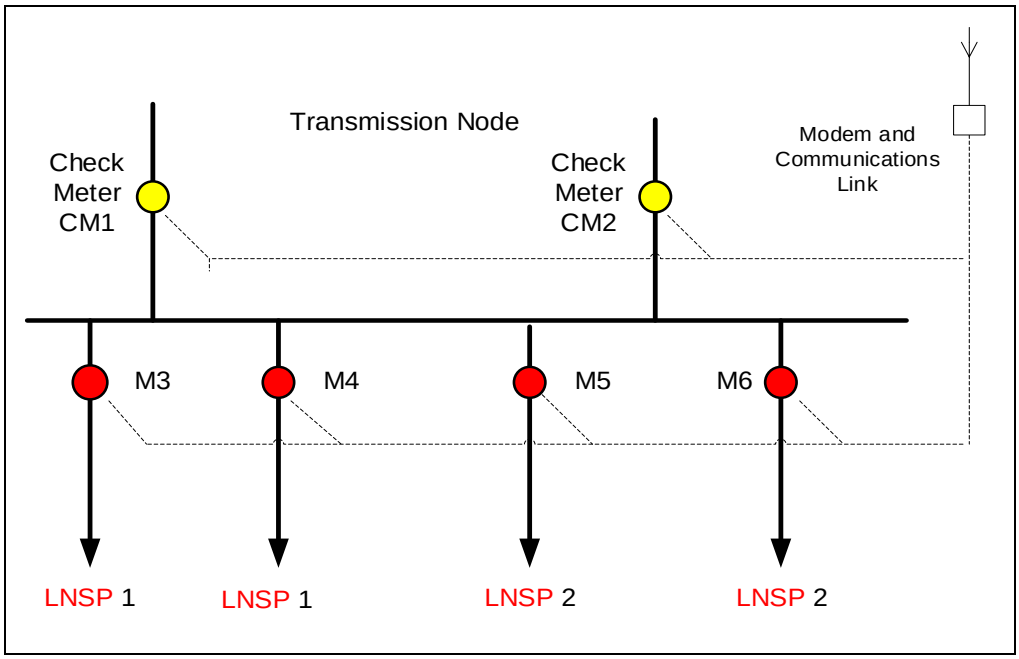
Generator Name	Connection Point ID	TNI Code	Type A	Type B	Type C	Type D	Type E
Awaba Renewable Energy Facility	NNEW2	NNEW		X			
Blowering	NBLW8	NBLW		X			
Blowering	NBLW8	NBLW		X			
Blowering Ancillary Services	NBLW1	NBLW		X			
Brown Mountain	NCMA1	NCMA		X			
Burrinjuck	NBUK	NBUK		X			
Capital Wind Farm	NCWf1R	NCWF		X			
Colongra PS Unit 1	NCLG1D	NCLG		X			
Colongra PS Unit 2	NCLG2D	NCLG		X			
Colongra PS Unit 3	NCLG3D	NCLG		X			
Colongra PS Unit 4	NCLG4D	NCLG		X			
Guthega	NGUT	NGUT	X		X		
Guthega	NGUT8	NGUT	X		X		
Jindabyne Generator	NCMA2	NCMA		X			
Liddell PS Load	NLDPL	NLDP		X			
Liddell PS Unit 1	NLDP1	NLDP		X			
Liddell PS Unit 2	NLDP2	NLDP		X			
Liddell PS Unit 3	NLDP3	NLDP		X			
Liddell PS Unit 4	NLDP4	NLDP		X			
Lower Tumut Ancillary Services 2 (pumps)	NLTS3	NLTS		X			
Lower Tumut [1]	NLTS8	NLTS	X		X		
Teralba Power Station	NNEW1	NNEW		X			
Tomago 1	NTMG1	NTMG	X	X	X		
Tomago 2	NTMG2	NTMG	X	X	X		
Tomago 3	NTMG3	NTMG	X	X	X		
Upper Tumut	NUTS	NUTS	X		X		
Upper Tumut	NUTS8	NUTS	X		X		
Vales Point PS Load	NVPPL	NVPP		X			
Vales Point PS Unit 5	NVPP5	NVPP		X			
Vales Point PS Unit 6	NVPP6	NVPP		X			
Woodland Wind Farm	NCWF2W	NCWF		X			
Condamine PS	QCND1C	QCND	X	X			
Mt Stuart PS Unit 1	QMSP1	QMSP		X			
Mt Stuart PS Unit 2	QMSP2	QMSP		X			
Mt Stuart PS Unit 3	QMSP3M	QMSP		X			
Oakey PS Unit 1	QOKY1	QOKY		X			
Oakey PS Unit 2	QOKY2	QOKY		X			
Yabulu PS	QTYP	QTYP		X			

Generator Name	Connection Point ID	TNI Code	Type A	Type B	Type C	Type D	Type E
Snowtown Wind Farm Stage 2 - North	SBLWS1	SBLW		X			
Snowtown Wind Farm Stage 2 - South	SBLWS2	SBLW		X			
Dry Creek PS Unit 1	SDCA1	SDPS		X			
Dry Creek PS Unit 2	SDCA2	SDPS		X			
Dry Creek PS Unit 3	SDCA3	SDPS		X			
Hallet Brown Hill Wind Farm	SHPS2W	SHPS		X			
Hallet PS	SHPS1	SHPS		X			
Lake Bonney Wind Farm Stage 2B	SMAY3W	SMAY		X			
Lake Bonney Wind Farm Stage 3	SMAY4A	SMAY		X			
Northern PS Unit 1	SNPA1	SNPS		X			
Northern PS Unit 2	SNPA2	SNPS		X			
Port Lincoln	SPLN	SPLN		X			
Torrens Island PS A Unit 1	STSA1	STPS		X			
Torrens Island PS A Unit 2	STSA2	STPS		X			
Torrens Island PS A Unit 3	STSA3	STPS		X			
Torrens Island PS A Unit 4	STSA4	STPS		X			
Torrens Island PS B Unit 1	STSB1	STPS		X			
Torrens Island PS B Unit 2	STSB2	STPS		X			
Torrens Island PS B Unit 3	STSB3	STPS		X			
Torrens Island PS B Unit 4	STSB4	STPS		X			
Torrens Island PS Load	STSYL	STPS		X			
Cethana	TCE11	TCE1		X			
Devils gate	TDG11	TDG1		X			
Fisher[4]	TFI11	TFI1		X			
Gordon	TGO11	TGO1		X			
Liapootah10	TLI11	TLI1		X	X		
Mackintosh	TMA11	TMA1		X			
Paloona	TPA11	TPA1		X			
Poatina	TPM11	TPM1		X			
Poatina	TPM21	TPM2		X			
Reece No.1	TRCA1	TRCA		X			
Reece No.2	TRCB1	TRCB		X			
Tarraleah	TTA11	TTA1		X			
Trevallyn	TTR11	TTR1		X			
Tribute	TTI11	TTI1		X			
Tungatinah	TTU11	TTU1		X			
Wayatinah	TWY2	TWY2		X			
Wayatinah10	TLI11	TLI1		X			

Generator Name	Connection Point ID	TNI Code	Type A	Type B	Type C	Type D	Type E
Banimboola	VDPS2	VDPS		X			
Bogong PS and McKay Creek PS	VMKP1	VT14		X			
Dartmouth PS	VDPS	VDPS		X			
Hazelwood PS Load	VHWPL	VHWP	X	X	X		
Hazelwood PS Unit 1	VHWP1	VHWP			X		
Hazelwood PS Unit 2	VHWP2	VHWP			X		
Hazelwood PS Unit 3	VHWP3	VHWP			X		
Hazelwood PS Unit 4	VHWP4	VHWP			X		
Hazelwood PS Unit 5	VHWP5	VHWP			X		
Hazelwood PS Unit 6	VHWP6	VHWP			X		
Hazelwood PS Unit 7	VHWP7	VHWP			X		
Hazelwood PS Unit 8	VHWP8	VHWP			X		
Jindabyne pump at Guthega	NGJP	NGJP	X	X	X		
Loy Yang A PS Unit 1	VLYP1	VLYP			X		
Loy Yang A PS Unit 2	VLYP2	VLYP	X	X	X		
Loy Yang A PS Unit 3	VLYP3	VLYP	X	X	X		
Loy Yang A PS Unit 4	VLYP4	VLYP			X		
Morwell PS G1, 2 and 3	VMWT1	VMWG	X	X	X		
Morwell PS G4	VMWP4	VMWP	X	X	X		
Morwell PS G5	VMWP5	VMWP	X	X	X		
Morwell PS Load	VMWTL	VMWT	X	X	X		
Murray	NMUR8	NMUR	X		X		
Newport PS	VNPS	VNPS		X			
Portland DU 1	VAPD1	VAPD		X			
Portland DU 2	VAPD2	VAPD		X			
West Kiewa PS Unit 1	VWKP1	VWKP		X			
West Kiewa PS Unit 2	VWKP2	VWKP		X			
Yallourn W PS Load	VYP2L	VYP2	X	X	X		
Yallourn W PS Unit 1	VYP21	VYP3	X	X	X		
Yallourn W PS Unit 2	VYP22	VYP2	X	X	X		
Yallourn W PS Unit 3	VYP23	VYP2	X	X	X		
Yallourn W PS Unit 4	VYP24	VYP2	X	X	X		

APPENDIX A. EXAMPLES OF SPECIAL SITE CATEGORIES

Type A - Metrology Configuration – Example 1



Explanation:

(a) *Transmission network connection point(s)* feeding different LNSP areas using nodal *check metering installations*. The above configuration illustrates:

(i) *Local area connection points* are metered with *meters* M3, M4, M5 and M6.

(ii) The *connection points* have type 2 *metering installations*, the *check meters* being CM1 and CM2.

(iii) Feeders via *meters* M3 and M4 are *local area connection points* to LNSP 1.

(iv) Feeders via *meters* M5 and M6 are *local area connection points* to LNSP 2.

(b) Under the above configuration, to meet the requirements under the NER and procedures authorised under the NER:

(i) All *metering data* must be Validated against the *check metering data* in accordance with the Metrology Procedure: Part B.

(ii) Any *metering data* Substitutions for missing or erroneous *metering data* must be undertaken in accordance with Metrology Procedure: Part B.

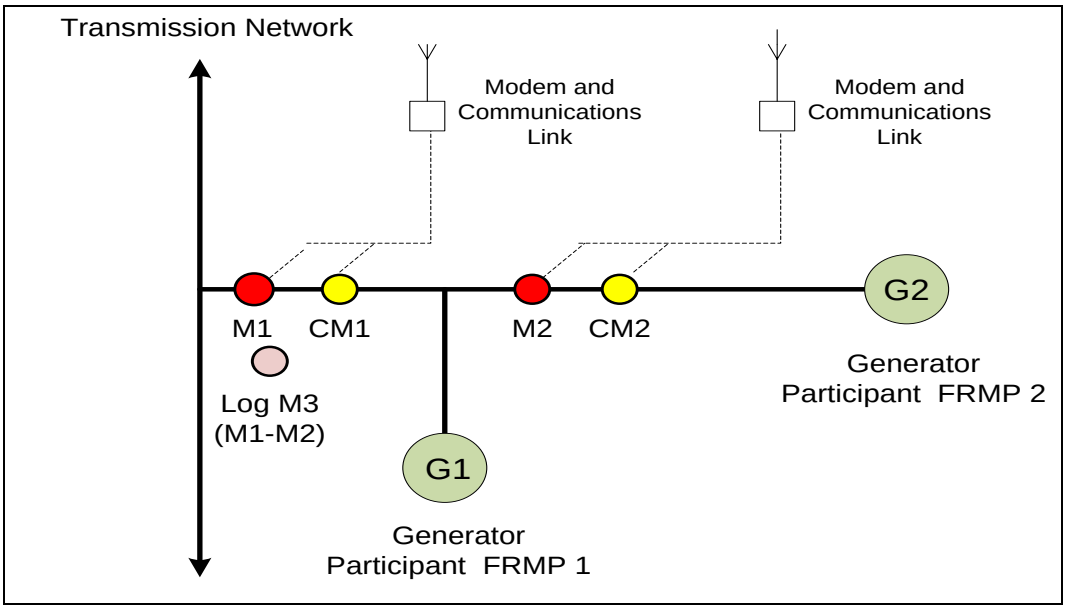
(A) Validation test to be performed is (CM1 + CM2) = (M3 + M4 + M5 + M6).

(B) Substitution scenario (e.g. loss of *metering data* for M5). Substitution value can be calculated from M5 = (CM1 + CM2 – (M3 + M4 + M6)).

Note:

Configuration requires that only one MDP to be appointed for all of these *connection points* otherwise the Validation, Substitution and *metering data* calculations are not able to be effectively undertaken for LNSP 1 and LNSP 2 *local areas*.

Type A - Metrology Configuration - Example 2



Explanation:

The above configuration illustrates:

(a) Generator 1 is a *market connection point* with AEMO. The *metering installation* is a type 1 or type 2 for Generator 1 *connection point*. *Meters* installed are M1 and *check meter* CM1.

(b) Subsequent to Generator 1's registration, Generator 2 is registered and also has a type 1 or type 2 *metering installation* but *metering* for Generator 2 is located downstream of Generator 1's *metering*.

(c) Both Generators 1 & 2 have *connection points* at the same physical point but the metrology is complex.

(d) The installed metrologies for the Generators are physically separated from each another.

(e) The *Market Participants* for the Generators may be different.

(f) All *metering data* must be validated and substituted against the *check metering data* and in accordance with Metrology Procedure: Part B:

  (i) Validations test to be performed are CM1 = M1 and CM2 = M2.

  (ii) Substitutions - To enable any accurate Substitutions for Generator 1, both sets of *metering data* are required.

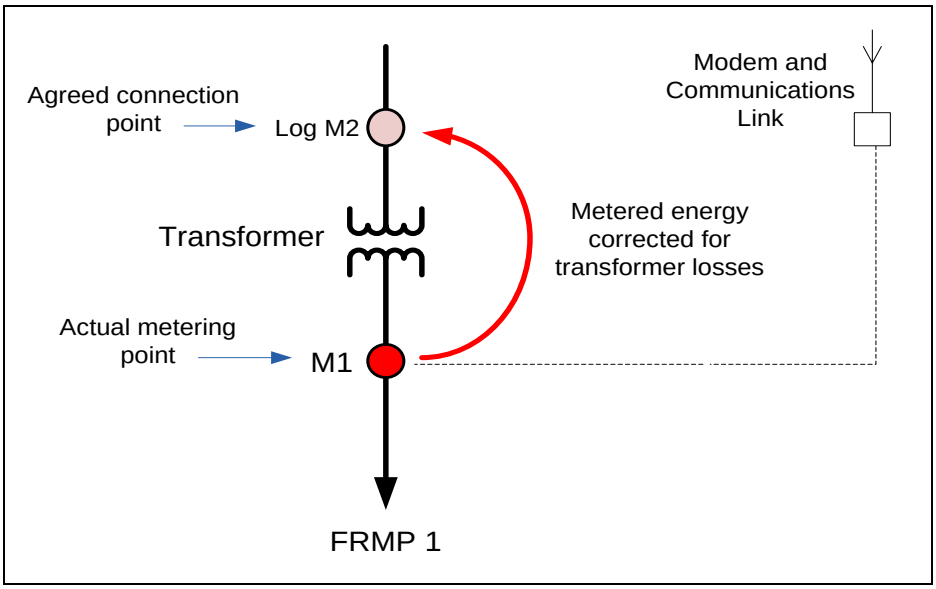
  (iii) *Settlements energy* for (FRMP 2) Generator 2 = M2 *energy*.

  (iv) *Settlements energy* for (FRMP 1) Generator 1 = Log M3 = (M1 – M2).

Note:

- Configuration requires that only one MDP be appointed for these *connection points*, otherwise the *metering data* collection, Validation and Substitution is not able to be effectively undertaken.
- Correct calculation of FRMP1 *energy* is not able to be achieved effectively unless there is a single MDP for both *connection points*.

Type B - Complex Algorithm - Example 1



Explanation:

Market connection point where constraints exist for the *metering* to be located at the *connection point*. The above configuration illustrates:

(a) *Metering point* is not at the *market connection point* and is located on the other side of *transformer*.

(i) *Metering point* has meter M1.

(ii) *Connection point* has logical meter 'Log M2'.

(b) Logical meter 'Log M2' is the *energy* measured by M1 corrected for *transformer* losses.

An example calculation would be:

Log M2 = M1 ± [t x (MVA load^2 x (Vr/Va) ^{2} / Rated MVA^2) x CuLoss + FeLoss / t]

Where:

MVA load = calculated from the kWh and kVarh *interval metering data*

e.g. MVA load^2 = ((E1/1000)^2+(Q1/1000)^2)

Vr – rated *voltage* of *transformer*

Va – actual operating *voltage* in relation to tap setting of *transformer*

Rated MVA – rated MVA specification of *transformer*

Cu Loss – Rated MVA copper loss of *transformer*

Fe Loss – iron loss of *transformer*

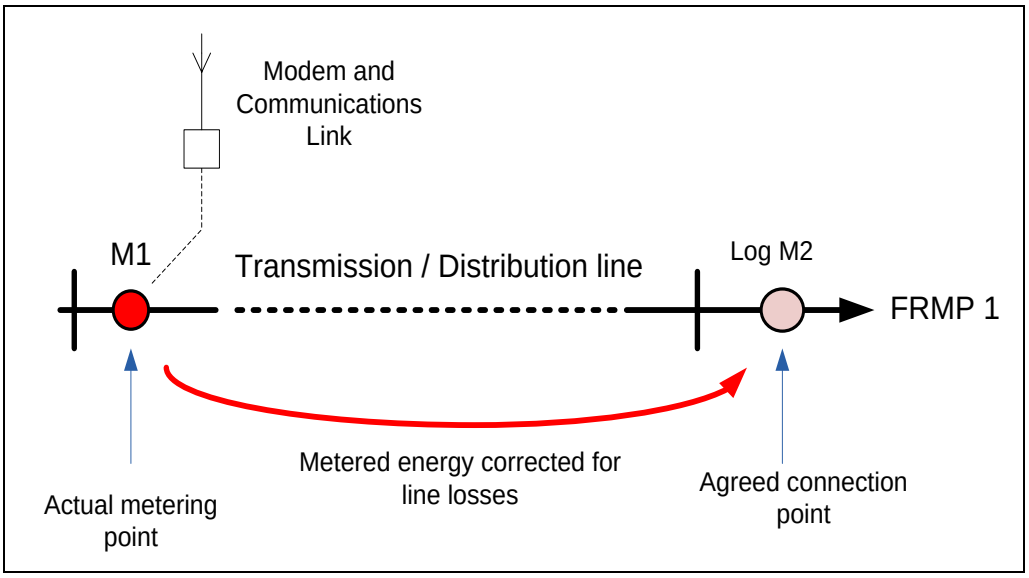
t – Number of measurement intervals per hour (e.g. t = 2 for 30-minute interval, 4 for 15-minute interval and 12 for 5-minute interval)

Note:

- A logical calculation to be performed for each interval of *metering data*.

- Logical equations will need 'If Then Else' statements in algorithm structure to manage effect of interval *energy* variances, constants and directional changes with import and export *energy* flows.
- This example does not apply to *embedded networks connected* to a *distribution network*.

Type B - Complex Algorithm – Example 2



Explanation:

A *market connection point* where constraints exist for the *metering* to be located at the *connection point*. The above configuration illustrates:

(a) *Metering point* is not at the *market connection point* and is located at the end of the *transmission/ distribution* line.

(i) *Metering point* has *meter* M1.

(ii) *Connection point* has logical meter 'Log M2'.

(b) 2. Logical meter 'Log M2' is the *energy* measured by M1 corrected for line losses.

An example calculation would be:

Log M2 = M1 ± [line loss]

Log M2 = M1 ± $[I^2.R.h]$ = $((E1^2 + Q1^2) / V^2) \times R \times t$

Where:

I^2 – calculated from the nominal line *voltage* and requisite interval kWh and kVarh *interval metering data* measurements.

V – being the nominal rated line *voltage* (kV).

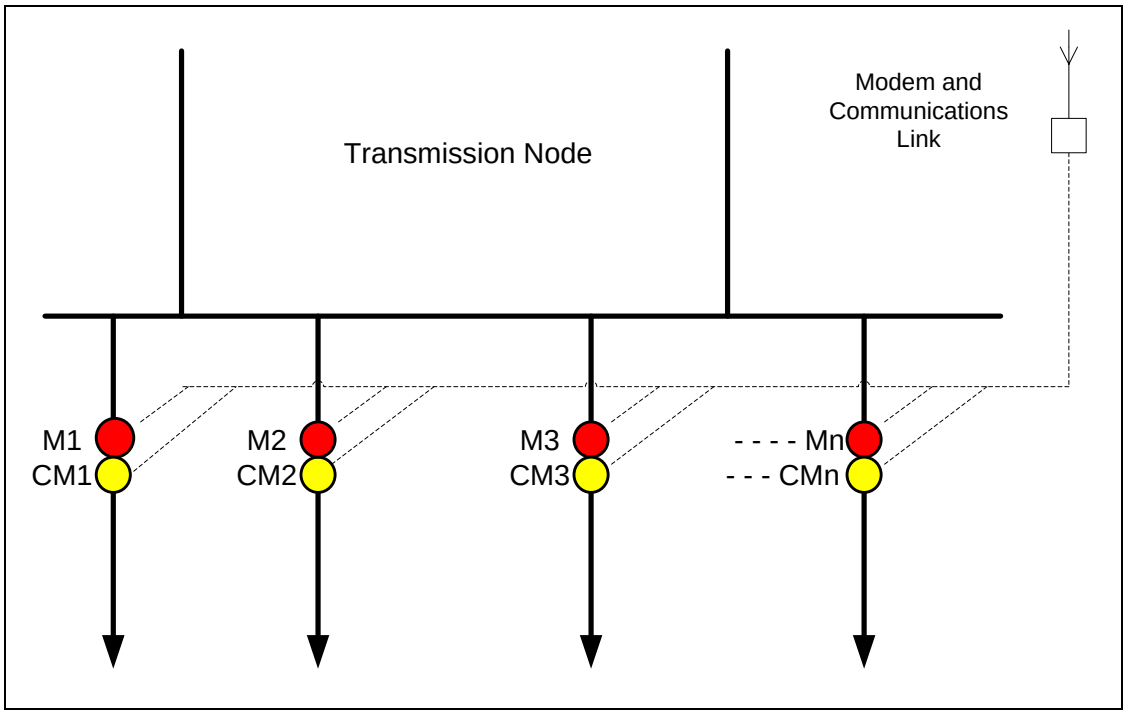
R – being the line resistance in 'ohms'.

t – Number of measurement intervals per hour (e.g. t = 2 for 30-minute interval, 4 for 15-minute interval and 12 for 5-minute interval).

Note:

- A logical calculation to be performed for each interval of *metering data*.
  Logical equations will need 'If Then Else' statements in algorithm structure to manage effect of interval *energy* variances, constants and directional changes with import and export *energy* flows.
- This example does not apply to *embedded networks connected* to a *distribution network*.

Type C - Communication Configuration – Example 1



Explanation:

Multiple *transmission network connection point(s)* and *metering installations* located at a single *transmission* node on the one *communications interface*. The above configuration illustrates:

(a) Each *market connection point* and associated *metering installations* have master and *check meters* installed.

(b) All *meters* are configured to a single *communications interface*, therefore only one point of interface for *metering data* collection for all *connection point(s)*. Configuration issues are:

  (i) One *communications* interface.

  (ii) Configuration requires data access only via the 'master' meter of the group.

  (iii) *Meter* passwords and access security become complex for MC and MPB.

  (iv) Resolution of communication faults become more complex for MC and MPB.

(c) All *metering data* must be validated against the *check metering data* and in accordance with the Metrology Procedure: Part B.

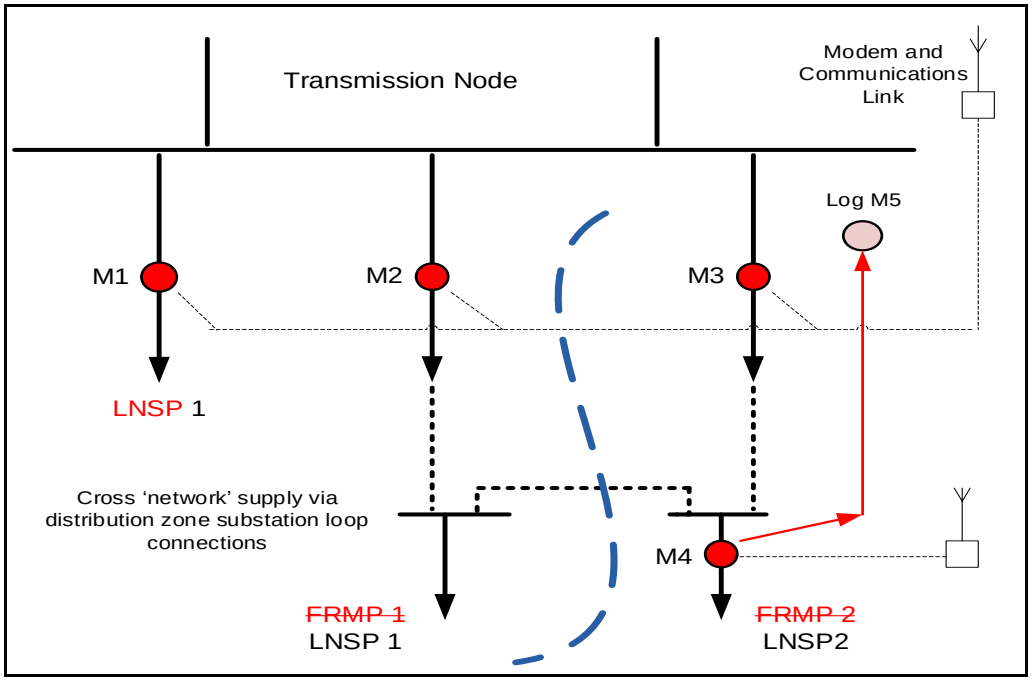
(d) Access to *metering data* has to be scheduled appropriately to ensure that congestion does not occur.

Validation test to be performed is (CM1 = M1)..... (CMn = Mn) etc

Note:

- To avoid congestion, reduce risk and optimise *metering data* collection, it is appropriate that a single MDP is appointed for these *connection points*.

Type D – Cross Border – Example 1



Transmission network connection point(s) feeding different LNSP areas. The above configuration illustrates:

(a) Primary *market connection points* are metered with *meters* M1, M2, and M3.

(b) Feeders via *meter* M1 is a *local area connection point* to LNSP 1.

(c) Feeders via *meters* M2 and M3 are *local area connection points* to both LNSP 1 and LNSP 2 with a complex 'cross border' *connection*.

(d) The *energy* to FRMP 2 metered via M4 which has its own *communications interface*.

(e) The *energy* to FRMP 2 via the zone substation loop must be corrected/referenced back to the *transmission* node by correcting for any *transformer* and line losses.

Logical Calculations to be performed are:

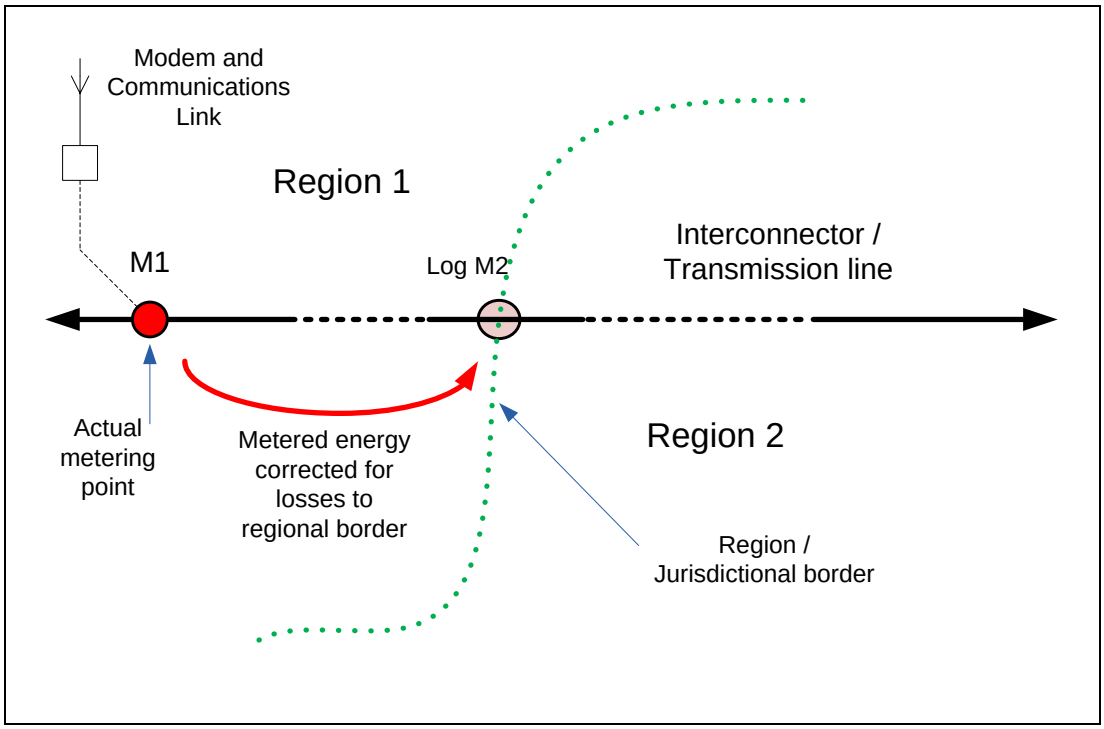
LNSP 1 *energy* = M1 + M2 + M3 – Log M5

LNSP 2 *energy* = Log M5 = M4 ± [line and *transformer* losses from *transmission* node]

Note:

- Configuration requires that only 1 MDP be appointed for all of these *connection points* otherwise the Substitution and *metering data* calculations cannot be otherwise effectively undertaken.
- Correct calculation of LNSP 2 *local area energy* must be a precursor to any calculation of LNSP 1 *local area energy* within the MDP system.
- Logical equations will need 'If Then Else' statements in algorithm structure to manage interval *energy* variances and effect of import/export *energy* flow directions.
- MDP system must 'fail' calculation if any one parameter of logical is missing (not collected) or does not pass validation.

Type E – Interconnector – Example 1



Explanation:

Market connection point for an *Interconnector* where constraints exist for the *metering* to be located at the *regional* border. The above configuration illustrates:

(a) *Interconnector metering point* is not at the *regional* border.

(i) *Metering point* has *meter* M1.

(ii) *Regional* border point for *energy* interchange has logical meter 'Log M2'.

(b) Logical meter 'Log M2' is the *energy* measured by M1 corrected for losses to the *regional* border for the Jurisdictions concerned.

Example calculation: Log M2 = M1 ± [losses]

The assessment of losses can be:

(i) Dynamic line loss calculation similar to 'Complex algorithm' Type B example 2.

(ii) Application of a static loss factor.

Note:

- A logical calculation to be performed for each TI of *metering data*.
- Logical equations will need 'If Then Else' statements in algorithm structure to manage interval *energy* variances and effect of import/export *energy* flow directions.
- The NER make AEMO responsible for the collection of *metering data* for an *interconnector* and the engagement of an MDP.