Report on amendments to the Western Australian Electricity Market Metrology Procedure for Metering Installations

Date: February 2015

Document Information

Document prepared by:

Western Power
ABN 18540492861

363 Wellington Street
Perth WA 6000

Table of Contents

1 Background

The "Western Australian Electricity Market Metrology Procedure for Metering Installations" **(current Metrology Procedure**) was developed in 2006 as required by clauses 6.2 and 6.8 of the *Electricity Industry Metering Code 2005* (**Metering Code 2005**). The Metering Code 2005 was amended in 2012 and reissued as the *Electricity Industry (Metering) Code 2012* (**Metering Code 2012**).

As a consequence of the Metering Code 2005 update, the current Metrology Procedure has been reviewed to align with the Metering Code 2012, and to provide more detail about the current Western Power metering business practices, which are also consistent with the Metering Code 2012. The updated document is now titled the "Metrology Procedure for Metering Installations on the Western Power Network" (**updated Metrology Procedure**).

On 27 October 2014, the Economic Regulation Authority (**the Authority**) initiated a review of the updated Metrology Procedure following a submission from Western Power on 5 September 2014.

The Authority invited code participants[1] and other interested parties to make submissions on the updated Metrology Procedure by Monday, 1 December 2014. The Authority received submissions from Synergy and Community Electricity.

This report has been prepared to address the Authority's subsequent request to provide a report:

- Setting out the reasons for any proposed changes from the current Metrology Procedure together with evidence that the proposed changes are compliant with the Metering Code 2012.

- Providing details of how issues raised in Synergy and Community Electricity submissions have been dealt with.

[1] *code participant* is a *network operator*, a *retailer*, a *generator*, a *metering data agent*, the *IMO*, the *Authority* and a *user* who:
1. is not a *Code participant* under clause 1.2(1)(b) or 1.2(1)(c); and
2. has an *access contract* at a *connection point* on a *network* of which the *network operator* is a *Code participant*

2 Amendments made to the current Metrology Procedure

The Western Power review of the current Metrology Procedure resulted in a number of changes to the processes outlined within the document and substantial amendments to its structure.

Throughout this document, the red mark-ups reflect initial changes to the Metrology Procedure, while the blue mark-ups reflect subsequent changes made in response to matters raised by Synergy and Community Electricity through discussions and/or submissions to the Authority.

2.1 High level summary of key changes to the current Metrology Procedure

The key changes made to the current Metrology Procedure include:

- Inclusion of additional requirements around accumulation meters, bi-directional electricity flows, meter type determination and reliability of metering installations
- Clarification of the calculation of trading intervals
- Clarification of the requirement to provide notice to users of changes to standing data
- Inclusion of pre-payment meter requirements
- Clarification of ownership, security and rights of access to data
- Inclusion of requirements as to annual meter reads, customer directions for data provision and charges for provision of data
- Inclusion of requirements for provision of information by a user.

In addition to the key changes outlined above, a number of commonly used terms have been amended:

- The term **'Network Operator'** has been replaced throughout the updated Metrology Procedure by **'Western Power'**
- The term **'good electricity practice'** has been amended to **'good electricity industry practice'**
- In some instances, the term **'meter'** has been amended to **'metering installation'**, as appropriate
- In a number of instances throughout the updated Metrology Procedure, the term **'must'** has been substituted by the word **'will'**
- In a number of instances throughout the updated Metrology Procedure, the term **'will be'** has been substituted by the term **'may be'**
- The *Electricity Industry (Metering) Code 2012* is referred to as the **'Code'** in the updated Metrology Procedure.

2.2 Details of amendments to the current Metrology Procedure

This section includes details of changes made to the current Metrology Procedure resulting from formal discussions between Western Power and Synergy prior to the Synergy submission to the Authority (subsection 2.2.1). It also addresses issues raised by both Synergy and Community Electricity in their submissions to the Authority (subsections 2.2.2 and 2.2.3 respectively).

2.2.1 Issues raised by Synergy during the consultation period

Table 1 – Amendments to the current Metrology Procedure following formal discussions with Synergy during the consultation period

Section	Revised wording in the current Metrology Procedure	Western Power comments
1.4	Definitions: *metering data alarms and data statuses* – "means where interval capable *metering installations* assign specific alarms to the data channel and or the *interval metering data*."	New definition added
2.2.8	The *metering* ~~*installation*~~ database must permit collection of *data* within the timeframes specified in the relevant *service level agreement* at a level of availability of at least 99% per annum if the *metering installation* does not have a *communications link*. Where the *metering installation* does have a *communications link*, the *metering* ~~*installation*~~ database must permit collection of *data* within the timeframes specified in the relevant *service level agreement* and at a level of availability of 95% for the *communications link* and 99% for the remainder of the *metering installation*.	Minor amendment of section 2.2.8
3.2.1	*Western Power* will ensure that a schedule is developed and maintained to determine the scheduled dates for reading each *metering installation* in accordance with ~~the applicable *service level agreement*. Notwithstanding the provisions of the applicable *service level agreement*, the maximum interval between attempts to read each *meter* will be 12 months~~ clauses 5.3 and 5.4 of the *Code*, or such time specified in the applicable *service level agreement*.	Section 3.2.1 amended
4.2.3	Where *Western Power* receives a request to test or audit the *energy data* or *standing data* pursuant to sections 4.2.1(b) or 4.2.1(c), *Western Power* may: a) repeat any *validation* that has been performed in alignment with this *Metrology Procedure*; b) ensure that *metering* *data alarms and data statuses* are reported in alignment with this *Metrology Procedure*; c) ensure that aggregation of quarter-hourly *data* to half-hourly *data* has been performed in alignment with this *Metrology Procedure*; and/or d) ensure that substitution and/or estimation has been performed in alignment with this *Metrology Procedure*.	Minor amendment of section 4.2.3

Section	Revised wording in the current Metrology Procedure	Western Power comments
4.2.4	*Western Power* will make the results of the test or audit described in section 4.2.1 available to the *code* p*articipant* ~~as soon as practicable~~ in accordance with clause 5.20(4) of the *Code* or as specified in the applicable *service level agreement*.	Section 4.2.4 amended
9.2.7	*Western Power* ~~must~~ may flag all calculated metering *data* substitutions as final (F).	Minor amendment of section 9.2.7
10.1.1	*Western Power must validate interval metering data against significant metering data alarms when these are provided in the meter, as per the Code, the following alarms:* • *Power Outage/~~f~~Failure* • *Alarm/Error – i.e VT or phase failure* • *Overflow of Channel Data (Pulse over flow)* • *CRC Error/Checksum error* • *Time Reset (Time Tolerance)* *a) Where a metering installation Types 1 -5 assigns alarms to the meter data channel or the interval reading status ,Western Power may process the alarm along with the metering data as part of the required validation process;* *b) As a minimum Western Power must have systems and processes in place that capture metering data alarms;* *c) Western Power must retain all metering data alarms as part of the data audit trail;* *d) For instances where interval data was found to be corrupted, Western Power may provide replacement data in alignment with the Code and good electricity industry practice and with this Metrology Procedure; and* *e) Western Power may apply processes where data alarms may take precedence of certain types based on a priority. Channel Status codes may be deemed more serious than interval status codes and may take priority however substitution may take priority over an alarm raised in the meter.*	Section 10.1.1 amended to ensure consistency with section 10.2

2.2.2 Issues raised by Synergy in its submission to the Authority and Western Power's response to those issues

Table 2: Items contained in the Synergy submission to the Authority

Heading	Submission details	Western Power comments
1.Type 7 connection points 1.1.Transitionary arrangements for calculating energy data	Item 3.5 of the current metrology procedure specifies that energy data for Type 7 connection points will be determined in accordance with the agreement in place between retailers and the network operator as of June 2006. "3.5 Calculation of Energy Data For Type 7 Metering Installations; The Retailers and the Network Operator have agreed that type 7 consumption calculations will continue to be made by the methods and systems in place as of June 2006 for the foreseeable future. The method of substitution under this agreement is thus treated as type 74 under the Metering Code and this Metrology Procedure. 3.5.2 The metering installation and metering database associated with each type 7 meter are therefore the systems in use as of June 2006, or as agreed between those Retailers with customers at type 7 metering installations and the Network Operator…" In addition, clause 4.6(1)(c) under the Code of Conduct requires that a retailer must	Western Power has amended the updated Metrology Procedure to reflect the arrangements which have existed between Western Power and Synergy since June 2006, but had not been formally documented until 16 May 2013. The following new wording has been added to sections 3.5.4 and 9.1.2. *Nothing in this Metrology Procedure requires Western Power to modify or change Type 7 meter consumption calculations agreed between Western Power and Synergy on 16 May 2013. Type 7 meter consumption calculations will continue to be made by the methods and systems in place on that date. The agreed method is substitution method 74 under the Code and this Metrology Procedure.* *The metering installation and metering database associated with each Type 7 meter are those in use as at 16 May 2013, unless otherwise agreed between Synergy, its Type 7 metering installations customers and Western Power.*

Heading	Submission details	Western Power comments
	base a customer's bill, for a Type 7 connection point, on the procedure set out in the metrology procedure or Code. However, the proposed amendment to the metrology procedure does not give regard to this existing agreement and appears to, in effect, terminate these arrangements. This change will very likely have significant cost and compliance implications for all retailers who are currently operating on these agreements. Synergy believes that proposed metrology procedure must give regard to this existing agreement and grandfather these existing arrangements. Alternatively, Synergy requests the Authority consider specifying a transitionary period to allow retailers to budget costs and make the necessary system changes to meet the proposed changes in the metrology procedure.	
1**. Type 7 connection points** 1.2. Method of calculating energy data	Clause 6.8(a)(i) of the Code requires that the metrology procedure must at least contain information to determine, by means other than a *device*, *electricity* produced and consumed at a Type 7 *connection point.* However, the method for determining the energy data for Type 7 connection points is not detailed in the proposed *metrology procedure*. Instead	The Metrology Procedure has been amended to reflect the following explanation, as part of section 3.5.5. *Street lighting and all UMS installations are classified as Type 7 connection points and the energy data is estimated using the following calculations:* ***Street Lighting*** *kW x hours of operation x number of applicable billing days x number of assets* *In addition, the following daily charges*

Heading	Submission details	Western Power comments
	the proposed *metrology procedure* contemplates that the methods for calculation may be contained in: 1. Streetlights and UMS Data File Specification (**Specification**); or 2. Communication Rules. Synergy understands the Communication Rules does not contain the method for determining the *energy data* for Type 7 *connection points*. Further, it would be contrary to the Code for these methods to be detailed in the *communication rules*. Clause 6.7 of the Code specifically requires the *communication rules* to detail the technical specifications, file formats, protocols and timeframes as to how *data* communication is to be implemented. Therefore, Synergy assumes that the Specification, in accordance with clause 6.8(a)(i) contains the method for determining and calculating *energy data* for Type 7 *connection points.* It is important to note this data forms the basis for commercial transactions between retailers and customers under clauses 2.1(b), 2.1(c) and 5.17 of the Code. Therefore, it is reasonable that this information, on the method used by Western Power to calculate the *energy data*, is made transparent to all	*apply:* • *Fixed charge x number of assets* • *Daily asset type charge x number of asset types* ***Unmetered Supply (UMS) – LSEC Powerwatch lighting & various*** *kW x hours of operation x number of applicable billing days x number of assets* *In addition, the following daily charge applies:* • *Fixed charge x number of assets* ***Note**: For the purpose of this calculation, **kW** means kilowatts, being a unit of power equal to 1,000 watts; Hours of Operation means hours a day; Billing Days means the number of days in the bill (typically, the number of days in the current calendar month).Western Power will ensure that for Type 7 metering installations, energy data will be calculated on a monthly or bi-monthly basis in accordance with the Communication Rules Build Pack and specifically, the Streetlights and UMS Data CSV File Specification documents included within the Build Pack. The communication rules incorporate and* largely comprise the suite of technical documents known as the Build Pack, which is published on the Western Power website at: *http://www.westernpower.com.au/retailersgenerators/Build_Pack.html.* ~~Western Power will ensure that for Type 7 metering installations; energy data will be calculated on a monthly or bi-monthly basis in accordance with the Communication Rules Build Pack and specifically, the Streetlights and UMS Data CSV File Specification documents.~~

Heading	Submission details	Western Power comments
	retailers and *customers*. In addition, clause 4.6(1)(c) under the *Code of Conduct* requires that a retailer must base a customer's bill, for a Type 7 connection point, on the procedure set out in the *metrology procedure* or Code. Therefore, in Synergy's view it is reasonable and consistent with *good electricity industry practice* for the proposed *metrology procedure* to detail, in an appendix, the Specification and method for calculating the energy data.	
2.Bi-directional flows 2.1.Estimating energy data for bi-directional flows	A key objective of the Code, under clause 2.1(1) (b), is to promote the accurate metering of *electricity* production and consumption. Further, clause 3.3C of the Code requires the separate measurement and recording of bi-directional *electricity* flows at the *metering point*. The proposed *metrology procedure*, under item 1.2.1(a) and 2.3.3.5, contemplates this requirement under the Code to separately measure and determine *energy data* in relation to bi-directional flows. The proposed metrology procedure also defines "energy data" as the production or consumption of *electricity* at a *metering point*. However, the proposed *metrology procedure* does not make it clear the methods that will be used to estimate or substitute the production of *energy data* in relation to bi-directional flows for *connection points* which are	As at 31 December 2014, Western Power had 157,000 solar PV meters on the network. For the 2014 calendar year, of the 963,000 scheduled bi-directional meter readings, only 16,300 were required to be substituted (1.7%). Western Power understands that, at present, there are no defined estimation or substitution methods for bi-directional connection points which are not classed as a 'generator' under the Metering Code 2012, within the Australian energy market. This is primarily due to the difficulty in determining accurate values for the variables (such as rated capacity, location, efficiency and weather) involved with estimating energy produced by solar PV installations. Western Power's current practice is to apply Substitution Method 64, with zero generation value, to Type 6 bi-directional accumulation meters. This practice relates to a small number of meters where access to the meter has not been provided or self-read cards have not been returned to Western Power. Western Power will engage with Synergy to ascertain ways of improving its access to all meters, including bi-directional

Heading	Submission details	Western Power comments
	not classed as a *generator*. Clause 5.22(1)(b) of the Code requires that the *network operator*, must, where necessary, *substitute* and *estimate energy data* by applying, as a minimum, the rules and procedures set out in appendix 3. In Synergy's view the proposed *metrology procedure* cannot be inconsistent with the Code and the operation of the *Code of Conduct*. Therefore, Synergy assumes that the substitution or estimation methods detailed in items 7 and 8 of the proposed *metrology procedure* must also apply to bi-directional flows. If this is not the case Synergy recommends, consistent with *good electricity industry practice*, that the *metrology procedure* describes the alternative methods for substitution and estimation that must be applied to bi-directional flows, including how these alternative methods comply with the Code and is consistent with the *Code of Conduct.*	accumulation meters. Western Power has added the following section at 8.4.4 f) to reflect the current practice: *For metering points that contain bi-directional flows, Western Power will apply a substitute reading that will equal zero generation over the schedule reading period for the import channels. Export channels will be substituted in accordance with section 8.4 of the Metrology Procedure. Western Power, under clause 5.24(4) of the Code, must consider a reasonable request from a retailer to replace a substituted value for bi-directional flows for an import channel, as outlined in clause 5.22(5)(a) and (c) of the Code.*
3.Publishing energy data 3.1.Frequency of providing energy data	The Code contemplates that energy data will be obtained from the meter on an agreed scheduled date determined in accordance with a service level agreement. Consequently, the timelines, under clauses 5.3 and 5.6 of the Code, for providing validated energy data to retailers is based on	The intention of the change to section 3.2.3 of the updated Metrology Procedure was not for Western Power to publish energy data to retailer billing systems at a frequency or schedule of its choosing, contrary to any service level agreement or the Code. To clarify this matter, section 3.2.3 has been amended as follows:

Heading	Submission details	Western Power comments
	the scheduled reading of the meter. The Code also contemplates that a special reading of a meter may be conducted however; this reading is conducted in accordance with a retailer's request under the service level agreement. The principle of scheduled meter readings is fundamental to giving effect to the code objectives, facilitating the operation of the Code of Conduct and ensuring retailers can meet their billing obligations under the Code of Conduct. This is why the design of a retailer's billing system is underpinned by the operation of scheduled reads under the Code. The proposed amendment in item 3.2.3 of the metrology procedure suggests that Western Power may, contrary to any service level agreement or the Code, publish energy data to retailer billing systems at a frequency or schedule of their choosing. In Synergy's view, depending on the design of the retailer's billing system, such a practice may cause a retailer to breach its billing obligations under the Code of Conduct. Synergy appreciates there may be circumstances where Western Power, consistent with good electricity industry practice, is required to provide a retailer with data more	*"Notwithstanding sections 3.1.3 and 3.1.4, Western Power and the code participant may choose, by agreement, to disseminate the energy data for metering installation Types 1-5 more frequently ~~than provided for under the applicable service level agreement.~~ Under these circumstances the published meter reading schedule, substitution and other deadlines will not be affected."*

Heading	Submission details	Western Power comments
	frequently than the meter read schedule. However, this practice should be the exception rather than the norm and cannot be a decision that is made without consultation with the affected code participants. In Synergy's view the operation of the proposed amendment in item 3.2.3 needs to be, consistent with the code objectives, subject to consultation with the affected retailer and should not be contrary to services contemplated under clauses 5.1(1) and (3) of the Code.	

2.2.3 Issues raised by Community Electricity in its submission to the Authority and Western Power's response to those issues

Table 3: Items contained in the Community Electricity submission to the Authority

Heading	Submission details	Western Power comments
1.**Substitution of meter data**	It should be noted that accurate and stable meter data are important for, amongst other things: a) retailers to invoice their customers; b) Western Power to invoice its customers; and c) the IMO to settle the wholesale market; On this basis, it is important that Western Power has regard to the timeliness when substituting data and should	The Metering Code 2012 recognises issues relating to temporary unavailability or failures in the validation process. These can be attributed to technical issues with the meter, remote communication failures and data processing errors. In these instances, data substitution and estimation is allowed by the Metering Code 2012 under clause 5.22 and Appendix 3. In addition, clause 5.24 (1) of the Metering Code 2012 states that: "If a network operator uses an actual value ("first value") for energy data for a metering point, and a better

Heading	Submission details	Western Power comments
	reasonably seek to 'get it right first time', including delay of issuing data where it reasonably considers that the final solution is not going to be unreasonably delayed. In particular, when substituted data is revised or replaced by actual data, unnecessary revision of all three sets of invoices might be triggered. From the IMO perspective, it operates according to a Meter Data cut-off date that is substantially delayed relative to read dates and would not be impeded by a reasonable delay. If retailers have a need to invoice their customer in order to sustain cash flow, they can themselves estimate the data. We suggest that Western Power should be prohibited from substituting data for the purpose of expediting its invoices; if that is its intention, this should be facilitated without unnecessary disturbance to the market.	quality: (a) actual value; or (b) deemed actual value, is available ("second value"), then the network operator must replace the first value with the second value if doing so would be consistent with good electricity industry practice."
2. New section 2.4.6 *(should be 2.2.6)*	This provides for Western Power to treat as an accumulation meter an interval meter unless the retailer objects. We submit that the retailer can only be Synergy and this treatment confers on Synergy a commercial advantage via the implied inclusion of the meter in the Notional Wholesale Meter and the commensurate advantageous capacity prices. We suggest that where interval data is available it should be sent to the market.	Clause 3.2(2) of the Metering Code 2012 allows Western Power to install a meter with interval data storage capability and other enhanced technology features but (by recording it as an accumulation meter in the registry) declare it to be an accumulation meter and only record the accumulation energy data registered by the meter. Further, Division 3.4 of the Metering Code allows for the enhanced features to be provided by agreement with the individual code participants. Western Power uses interval capable meters as accumulation meters for type 6 metering installations, and it is

Heading	Submission details	Western Power comments
		Western Power's obligation under the Metering Code 2012 to only provide accumulation/ basic data to the market for this type of installation.
3. New section 3.6.5	This restricts meter data access to retailers and generators. In practice, customers themselves frequently wish to have access and may also require access to be given to their consultants. We understand that Western Power usually denies such requests and thereby forces the customer to duplicate Western Power's metering at unnecessary expense and inconvenience. We suggest that customers and their consultants should have the right of access.	Clause 4.8(3) of the Metering Code 2012 restricts direct access to a meter to only retailers and generators. Third parties or electricity consumers are not given direct access to the metering equipment as this may jeopardise the security and integrity of metering installations.
4. Changes to section 2.2.4	We suggest that this should refer to section 5.1 of the Code (Western Power's obligation to be reasonable) rather than section 3.9 (3A) (Western Power's right to make the determination).	Western Power will add a reference to section 5.1 of the Metering Code 2012 to section 2.2.4 of the updated Metrology Procedure as follows: *"If the retailer and Western Power cannot agree on the type of installation, then subject to clauses 3.9(3A) and 5.1 of the Code, Western Power may make the determination on the matter."*

3 Comparison document

Table 4 provides a section by section comparison and explanation of all amendments made by Western Power to the current Metrology Procedure.

Table 4 - Comparison Document

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
1	General	1	General		Heading unchanged
1.1	Introduction – ***Deleted***				Not required
1.2	Purpose	1.1	Purpose		Minor formatting changes only
1.3	Scope	1.2	Scope		Minor editing changes and deletion of "Explanation" on pages 7 to 8 of the current Metrology Procedure
1.4	Referenced Material - ***Deleted***				Now included in Definitions in updated Metrology Procedure
1.5 and 4	Definitions	1.4	Definitions		Moved from section 4 in the current Metrology Procedure to section 1.4 in the updated Metrology Procedure
			Definitions: metering data alarms and data statuses "means where interval capable metering installations assign specific alarms to the data channel and or the interval metering data".		New definition added following formal discussions with Synergy prior to their submission to the Authority
			Definitions: Communication Rules means, in relation to Western Power's network and subject to clause 6.7 of the Code		The marked-up changes make the Metrology Procedure consistent with the Code definition

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			governing the communication of information and data between code participants, which have been published under clause 6.19A of the Code. ~~These are known as the SWIS Communication Rules.~~ {Note: The "communication rules" incorporate and largely comprise the suite of technical documents known as the "build pack".}		
1.6	Interpretation - ***Deleted***				Not required
1.7	Commencement	1.3	Commencement		No wording changes
1.8	Metering Installation Components - ***Deleted***			3.5	The metering installation components are detailed in clause 3.5 of the Code
2	Responsibility for Meter Provision – ***Deleted***				Heading not required
2.1	Network Operator is responsible for Meter Provision – ***Deleted***	2	Provision of Metering Installations	3.5(1)	Covered by clause 3.5(1) of the Code
2.2	Enhanced Technology Features	2.3.3	Enhanced Technology Features		Heading unchanged
2.2.1		2.3.3.1	Where reasonably requested by a code participant, ~~the Network Operator~~Western Power will provide enhanced technology features in a metering installation~~s with enhanced technology features~~in accordance	3.20(1)	The marked-up changes make the Metrology Procedure consistent with the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			with clause 3.20(1) of the Code		
2.2.2		2.3.3.2	Metering installations with enhanced technology features will only be used where they meet or exceed the standards required ~~of the un-enhanced~~for Type 1-6 metering installations that would otherwise be used at the connection point under consideration.		Minor changes marked-up
2.2.3	Example deleted	2.3.3.3	Where a meter includes enhanced features ~~more normally~~ associated with a meter of a more advanced type, the normal provisions of the ~~standard~~ original type of meter apply for all aspects other than the enhanced feature.		Minor changes marked-up
2.2.4	Example deleted	2.3.3.4			Section unchanged apart from example being deleted
2.2.5	Deleted			3.21(2)	Covered by clause 3.21 (2) of the Code
2.2.6	Deleted			5.4 Appendix 3	This section is no longer applicable based on coverage by clause 5.4 of the Code - annual read obligation, and substitution obligations in appendix 3.
2.2.7	Deleted			3.22	Covered by clause 3.22 of the Code
2.2.8	Deleted			3.23	Covered by clause 3.23 of the Code
2.2.9	Deleted			Division 3.4	This section is no longer required as any changes to enhanced technology

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
					are provided through Code amendments
		2.3.3.5	Where bi-directional capability is required for the metering installation, Western Power, in accordance with clause 3.3C of the Code, must ensure the net electricity production and consumption is separately measured and recorded by the meter	3.3C	New section in the updated Metrology Procedure to reflect Code amendments
2.3	Prepayment Meters	2.1	Installation of meters		Heading changed
2.3.1		2.1.2 a), b)			No wording changes for a) and b)
		2.1.2 (c)	Where pre-payment meters are installed, they will comply with the technical requirements in Part 9 of the *Code of Conduct for the Supply of Electricity to Small Use Customers*	Division 3.5	New section in the updated Metrology Procedure
2.3.2	Deleted				Pre-payment meters are Type 6 meters so this section is not required
2.3.3	Deleted				Pre-payment meters are Type 6 meters so this section is not required
2.4	Metering Installation Components-Meter Provision	2.2	Metering Installation Components		Heading changed
2.4.1		2.2.1			No wording changes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
2.4.2		2.2.2	~~The *Network Operator* must~~Western Power will ensure that the components, characteristics and requirements for *meter* provision for Type 1 – 4, Type 5 and Type 6 *metering installations* are ~~as shown in Schedules 1, 2 and 3~~in accordance with section 5.		Changes marked-up. Schedules 1, 2 and 3 have been consolidated and reflected in Section 5 of the updated Metrology Procedure
2.4.3	Deleted				Schedules 1, 2 and 3 have been consolidated and reflected in Section 5 of the updated Metrology Procedure
2.4.4	Deleted			3.14	Covered by clause 3.14 of the Code
2.4.5		2.2.4	~~The choice of~~ Western Power will make a determination of the ~~metering~~ installation type ~~will be~~ based on the historic or anticipated annual consumption and peak load at the connection point, as agreed with the retailer~~, and on the need for interval energy data and communications~~. If the retailer and Western Power cannot agree on the type of installation, then subject to clauses 3.9(3A) and 5.1 of the Code, Western Power may make the determination on the matter.	3.9(3A) 5.1	The marked-up changes make this section consistent with the Code and to address the issue raised by Community Electricity as item 4 in their submission
2.4.6		2.2.5			No wording changes
2.4.7		2.2.7(a)			No wording changes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
2.4.8	Example deleted	2.2.7(b)			No wording changes
		2.2.6	Where a Type 6 meter is capable of recording both interval energy data and accumulated energy data, it will be treated as an accumulation meter, unless otherwise agreed between Western Power and the retailer	3.2(2)	New section to make the Metrology Procedure consistent with clause 3.2(2) of the Code
		2.2.8	The metering ~~installation~~ database must permit collection of data within the timeframes specified in the relevant service level agreement at a level of availability of at least 99% per annum if the metering installation does not have a communications link. Where the metering installation does have a communications link, the metering ~~installation~~ database must permit collection of data within the timeframes specified in the relevant service level agreement and at a level of availability of 95% for the communications link and 99% for the remainder of the metering installation.	3.11	New section in the updated Metrology Procedure to expand on clause 3.11 of the Code Minor amendment of section 2.2.8 to remove the word “installation”, following formal discussions with Synergy prior to their submission to the Authority
2.5	Metrology Procedure Defines Minimum Rather Than Maximum Requirements – ***Deleted***			6.8	No longer relevant as the Code establishes minimum requirements
2.6	Removal of Meters –			3.5	No longer relevant as inconsistent with

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
	Deleted				the clause 3.5 of the Code
2.7	Testing and Inspection of Meters	2.3.1	Testing and Inspection of Meters		Heading unchanged
2.7.1		2.3.1.1	~~Network Operator must~~Western Power will ensure that meter~~sing installations~~ on its network are sampled and tested ~~and inspected~~ in accordance with ~~Schedules 1, 2 and 3.~~AS1284.13. Details of how Western Power conducts its sampling and testing are found in Appendix 2 – Meter Compliance Testing and Sampling.	3.11A	Changes marked-up and reflect changes to clause 3.11A (1) of the Code
2.7.2 to 2.7.11	Deleted			6.8(d)	Reflects the removal of clause 6.8(d) from the Code
		2.3.1.2	Western Power will ensure that its meters meet the specifications and/or guidelines outlined by the National Measurement Institute under the National Measurement Act.	3.1	New section in the updated Metrology Procedure to reflect clause 3.1 of the Code
		2.3.2	Maintenance of Metering Installations		New heading
		2.3.2.1	Where Western Power identifies a component of a metering installation is not performing in accordance with the Code, the meter specifications or in accordance with		New section in the updated Metrology Procedure for clarification purposes and to reflect current business practice

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			good electricity practice, the component will be repaired or replaced.		
		2.3.2.2	Notwithstanding section 2.3.2.1, if Western Power identifies any performance issues with wiring, fuses, or modems that form part of a metering installation, those components must be repaired or replaced in accordance with good electricity industry practice.		New section in the updated Metrology Procedure for clarification purposes and to reflect current business practice
		2.3.2.3	A code participant who becomes aware of an outage or malfunction of a metering installation or any of its components must advise Western Power as soon as practicable.		New section in the updated Metrology Procedure for clarification purposes and to reflect current business practice
		2.3.4	Replacement		New heading
		2.3.4.1	Where a population of meters has been sampled and tested in accordance with section 2.3.1.1 and deemed to have failed, Western Power will remove and replace all meters within that population in accordance with the requirements of the Code.	3.11A	New section in the updated Metrology Procedure to reflect clause 3.11A of the Code
2.8	Installation of Meter	2.1	Installation of Meters		Heading unchanged
2.8.1 a), b)		2.1.1(a)	~~The Network Operator~~ ~~must~~Western Power will ensure that when each meter and associated data logger (where the data logger is located at the metering point) is		Changes marked-up to allow for the consolidation of Schedules 1-3 as part of new Schedule 5.

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			installed, it is checked to ensure that ~~it~~: ~~a)~~ it c~~C~~omplies with the relevant requirements of ~~Schedules 1-3, respectively subject to clause 2.4.4;~~section 5 of this procedure, and it has the optical port, communications port, and/or visual display ~~located so that the optical port, communications port, and/or visual display~~which can be readily accessed for meter reading.		
2.8.2	Deleted				Meters that are procured are based on the specifications outlined in section 5 of the updated Metrology Procedure. If the samples tested comply with the specifications, the entire population held in our warehouses are also deemed to comply. This is normal industry practice and does not need to be stated in the Metrology Procedure.
		2.1.1(b)	b) the CT cores of revenue metering installations must not be used for any purpose other than revenue metering and check metering as per clauses 3.12 (1) (a) and 3.12.(1)(b) of the Code.	3.12(1)(a) 3.12(1)(b)	New section in the updated Metrology Procedure to reinforce the requirements of the Code.
		2.1.1(c)	c) the CT cores of Types 1 and 2 check metering installations must not be used for	3.12(1)(a)	New section in the updated Metrology Procedure to reinforce the requirements

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			other purposes subject to clause 3.12 (1) (a) of the Code, unless with the written approval of Western Power.		of the Code.
		2.1.1(d)	d) if only one set of VT secondary winding is provided for a Type 1 or 2 revenue and check metering installation, then the voltage supplies to both metering installations must be separately fused subject to clause 3.12 (1) (d) of the Code.	3.12(1)(d)	New section in the updated Metrology Procedure to reinforce the requirements of the Code.
3	Responsibility for Energy Data Services		Energy Data		Heading changed
3.1	Overview – ***Deleted***				Heading no longer relevant
3.2 and 3.2.1, 3.2.2	Metering Installation Components – Energy Data Services – ***Deleted***				These requirements are now contained in section 5, Components of Types 1-6 Metering Installations – Meter Provision
3.3	Meter Reading for Metering Installations	3.1	Energy data Collection		Heading changed
		3.1.1	Western Power collects energy data from metering installations by the following methods: a) manual meter read; b) remote meter read (via a communications		New section in the updated Metrology Procedure for clarification purposes and to reflect current business practice

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			link); and c) customer supplied meter read.		
		3.1.2	Western Power must for each meter on its network ,at least once in any 12 month period undertake a meter reading that provides an actual value that passes the validation process as per clause 5.4 of the Code. A copy of the meter reading schedule can be found on Western Power's website.	5.4	New section in the updated Metrology Procedure to reinforce the requirements of the Code.
		3.1.6	Western Power will ensure that for Type 7 metering installations, energy data is calculated, validated and substituted in accordance with the Code.	A3.6 A3.7	New section in the updated Metrology Procedure for reinforcement of Code changes
		3.1.9	Where Western Power receives a request from a customer to provide energy data or standing data, Western Power will provide such energy data or standing data in accordance with clauses 5.17 and 5.17A of the Code. Further requirements may be expressed in other enactments such as clause 10.7 of the Code of Conduct.	5.17 5.17A	New section in the updated Metrology Procedure for reinforcement of Code changes
3.3.1		3.1.3	~~The~~ ~~Network Operator~~Western Power will ensure that for Types 1-4 metering installations~~, of types 1-4~~, interval energy data will be collected on a monthly basis in		Changes marked-up to include reference to a service level agreement

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			accordance with the relevant service level agreement, or, by agreement with the relevant retailer~~, daily~~.		
3.3.2		3.1.4	~~The Network Operator~~Western Power will ensure that for Type 5 metering installations ~~of types 5~~, interval energy data will be collected on a monthly basis or in accordance with the relevant service level agreement.		Changes marked-up to include reference to a service level agreement
3.3.3		3.1.5	~~The Network Operator~~ Western Power will ensure that for Type 6 metering installations ~~of Type 6~~, energy data will be collected on a monthly or bi-monthly basis or in accordance with the relevant service level agreement, as agreed between ~~the Network Operator~~ Western Power and the retailer at the time of installation.		Changes marked-up to include reference to a service level agreement
3.3.4		3.2.3	Notwithstanding sections 3.1.3 and 3.1.4, Western Power and the code participant may choose, by agreement, to disseminate the energy data for metering installation Types 1-5 more frequently. ~~than provided for under the applicable service level agreement.~~ Under these circumstances the published meter reading schedule, substitution and other deadlines will not be affected.		Changes marked-up to remove reference to a service level agreement and to address the issue raised by Synergy as item 3.1 of their submission

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
3.3.5	Note deleted	3.2.2	Where ~~the Network Operator~~Western Power chooses to gather and issue energy data more frequently than the published meter reading Schedule, the retailer will only be charged for reading in accordance with the ~~agreed and~~ published meter reading schedule or in accordance with the applicable service level agreement.		Changes marked-up to include reference to a service level agreement
3.3.6		3.1.7			No wording changes
3.3.7	Deleted				The established practice within Western Power is not to use Type 6 meters as interval meters, but as accumulation meters only
3.3.8		3.2.4			No wording changes
3.3.9	Deleted				Deleted because the section does not reflect current business practice and the current service level agreements
3.3.10	Example deleted	3.3.1			No wording changes
3.3.11		3.3.2			No wording changes
3.3.12		3.2.1	Western Power will ensure that a schedule is developed and maintained to determine the scheduled dates for reading each metering installation in accordance with ~~the applicable service level agreement. Notwithstanding the~~	5.3 5.4	Section 3.2.1 amended following formal discussions with Synergy prior to their submission to the Authority

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			~~provisions of the applicable service level agreement, the maximum interval between attempts to read each meter will be 12 months~~ clauses 5.3 and 5.4 of the Code, or such time specified in the applicable service level agreement.		
3.3.13	Deleted				Deleted because the section does not reflect current business practice and the current service level agreements
3.3.14		3.2.5	~~The Network Operator~~Western Power will accept requests for special meter reads outside the published schedule in accordance with the provisions of the Communication Rules or the Code, and will respond to valid requests within the response times specified in the applicable service level agreement.	5.17A	Changes marked-up to clarify the requirements of clause 5.17A of the Code
3.3.15		3.2.5	See above		This section is reflected in section 3.2.5
3.3.16		3.1.8	Where energy data for Type 1-5 metering installations ~~of type 1-5~~ is gathered at a frequency greater than a trading interval it will be aggregated into trading intervals as per 3.16 (3A) of the Code.	3.16(3A)	Changes marked-up to clarify the requirements of clause 3.16(3A) of the Code
3.3.17		3.3.3	Where a check meter is installed which is of the same precision as the revenue meter ~~the Network Operator~~ Western Power ~~will~~ may	3.13	Changes marked-up to clarify the requirements of clause 3.13 of the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			calculate and pass to market the average of the check and revenue meter reading for active and reactive channels to be used for billing and settlement purposes, unless otherwise agreed between Western Power and the retailer.		
		3.3.5	Following a successful meter read or, substitution or estimation of energy data, the metering database will store the energy data for a period of at least 13 months in a readily accessible online format and for a further period of 5 years and 11 months in archive that is accessible independently of the format in which the data is stored.	4.9	This section 3.3.5 of the updated Metrology Procedure reflects section 8.5 of Schedule 4 and section 9.6 of Schedule 5 of the 2006 Metrology Procedure
		3.3.6	The format of the energy data must be in accordance with the Communication Rules.	6.7	New section in the updated Metrology Procedure for explanation purposes
		3.3.7	Energy data (actual, substituted or estimated) is required by Western Power by data stream for all trading intervals (that is, 48 intervals per 24 hour period) within the timeframe outlined in the Code or the applicable service level agreement.	3.16	New section in the updated Metrology Procedure to reflect clause 3.16 of the Code
3.4	Validation and Substitution/Estimation of Energy Data	3.4	Validation of Energy Data		Heading unchanged

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
3.4.1		3.4.1	~~The Network Operator must ensure that~~Western Power validates energy data collected ~~for a metering installation of~~from Types 1 ~~to-~~ 5 metering installations in accordance with ~~clause 3.3 is validated in accordance with the validation rules with~~ section 6 – Metering Installation Types 1-5 Validation		Changes marked-up. Section 10 in the current Metrology Procedure is now section 6 in the updated Metrology Procedure
3.4.2		3.4.2	~~The Network Operator must ensure that~~Western Power validates energy data collected ~~for a metering installation of~~from Type 6 metering installations in accordance with ~~the validation rules in~~ section 8 – Metering Installation Type 6 – Validation, Substitution and Estimation		Changes marked-up. Section 12 in the current Metrology Procedure is now section 8 in the updated Metrology Procedure
3.4.3	Deleted			5.20	Covered by clause 5.20 of the Code
3.4.4	Note deleted	3.4.3			Removed reference to section 3.4.3 and deleted Note
3.4.5		3.5.8	Where any of the ~~error conditions~~alarm status descriptions listed ~~as resulting in substitution in Appendix 1 are~~in section 10 occur, ~~encountered,~~ the energy data ~~will always~~may be substituted except where the reported status is determined to be ~~spurious by the Network Operator~~incorrect by Western Power. Where ~~a spurious~~an incorrect error		The marked-up changes deal with a change in description from “Metering Statuses” to “Metering Alarms”. It also removes the obligation on Western Power to consult with the retailer where incorrect error conditions are detected, especially where good electricity

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			condition has been detected, ~~the Network Operator will~~Western Power may consult with the retailer over the correct course of action or apply procedures in line with this Metrology Procedure or good electricity industry practice.		industry practice has been applied.
3.4.6		3.4.4	Where the energy data fails ~~the~~ validation ~~tests~~ under ~~clauses~~ 0~~or~~sections 3.4.1 or 3.4.2, ~~or 3.4.3 the Network Operator will always~~Western Power may review the validation failures to determine the cause of any apparently lost or erroneous energy data. Where ~~the Network Operator~~Western Power believes the error to be due to a metering installation fault identified as: a) ~~if~~ the meter ~~is believed to be~~ performing outside of its design specification, then the meter installation ~~will be placed under test~~may be tested either onsite or in the Western Power meter laboratory to determine the cause of the validation failure; or b) ~~where~~ the metering installation is ~~clearly~~ defective~~,~~, then the metering installation ~~will~~ may be repaired or replaced in accordance with the Code~~within the period defined in the~~or applicable service level agreement ~~for meter repairs~~. c) a fault associated with the measurement of data, Western Power may, acting in accordance with the Code or good electricity	5.21(11)	Changes marked-up to clarify the testing requirements due to metering installation faults and to reflect clause 5.21 (11) of the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			industry practice, make corrections or adjustments to the energy data.		
3.4.7	Example deleted	3.5.9	Where an~~y~~ alarm outlined in section 10 is ~~reported~~ triggered by the meter, regardless of whether it requires substitution of energy data, ~~or not,~~ which is not caused by a metering installation fault but which can be compensated for by an adjustment to the metering installation, the metering installation ~~must~~ may be reset, reprogrammed or otherwise adjusted as applicable, within the period defined in the applicable service level agreement for meter repairs, unless ~~the Network Operator~~Western Power is satisfied that the alarm condition triggered will not re~~oc~~cur.		The marked-up changes demonstrate and reinforce the use of good electricity industry practice by Western Power.
3.4.8		3.5.6			No wording changes
3.4.9		3.5.1			Minor wording changes
3.4.10		3.5.7			No wording changes
3.4.11		3.5.2	~~For metering installations of type 6 the Network Operator must ensure that the energy data is substituted or estimated~~ Western Power estimates or substitutes energy data from Type 6 metering installations in accordance with ~~Schedule~~		Minor marked-up changes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			section 8 – Metering Installation Type 6 – Validation, Substitution and Estimation, where: a) ~~the network Operator~~Western Power has elected to perform substitution or estimation under section 3.4.~~4~~3(c) or b) ~~the network Operator~~Western Power has elected to perform estimation under section 3.~~4.8~~5.6; or c) there has been a failure of the metering equipment; or, d) an inspection or test on the metering equipment has established that the measurement uncertainty exceeds the specified standard for that class of meter; or, e) it has not been possible to obtain a reading from the meter.		
3.4.12	Note deleted	3.5.10			No wording changes
3.4.13		3.5.11	Where it is necessary to substitute a meter reading because of an inability to access the meter, a reason code will be supplied in accordance with the NEM12 and NEM13 meter data file format specification and in	Appendix 3	Changes made include reference to the applicable clause in the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			accordance with Appendix 3 of the Code.		
		3.5.3	Western Power calculates energy data for Type 7 metering installations by way of substitution in accordance with Appendix 3, clause A3.7(5) of the Code – Substitution Method 74.	A3.7(5)	New section in the updated Metrology Procedure to reflect the Code requirements
		3.5.4	Nothing in this Metrology Procedure requires Western Power to modify or change Type 7 meter consumption calculations previously agreed between Western Power and Synergy on 16 May 2013. Type 7 consumption calculations will continue to be made by the methods and systems in place, and agreed, on that date. The agreed method of substitution is treated as type 74 under the Metering Code and this Metrology Procedure. The metering installation and metering database associated with each Type 7 meter are the systems in use as at 16 May 2013, or unless as otherwise agreed between Synergy with customers with Type 7 metering installations and Western Power.		New sections in the updated Metrology Procedure to address item 1.1 in the Synergy submission
		3.5.5	Street lighting and all UMS installations are classified as Type 7 connection points and the energy data is estimated using the following calculations:	A3.7(5)	New section in the updated Metrology Procedure to reflect clause A3.7(5) of Appendix 3 of the Code and to respond to the issue raised by Synergy as item

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			Street Lighting kW x hours of operation x number of applicable billing days x number of assets In addition, the following Daily charges apply: • Fixed Charge x number of Assets • Daily Asset Type Charge x number of Asset Types Unmetered Supply (UMS) LSEC Powerwatch lighting & various kW x hours of operation x number of applicable billing days x number of assets In addition, the following Daily charge applies: • Fixed Charge x number of Assets Note: For the purpose of this calculation, kW means kilowatts, being a unit of power equal to 1,000 watts, Hours of Operation means Hours a Day, Billing days means the Number of Days in the Bill, typically the current calendar month. Western Power will ensure that for Type 7 metering installations, energy data will be calculated on a monthly or bi-monthly basis in		1.2 in their submission

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			accordance with the Communication Rules Build Pack and specifically, the Streetlights and UMS Data CSV File Specification documents included within the Build Pack. The communication rules incorporate and largely comprise the suite of technical documents known as the Build Pack, which is published on the Western Power website at: http://www.westernpower.com.au/retailersgenerators/Build_Pack.html.		
3.5	Calculation of Energy Data for Type 7 Metering Installations – ***Deleted***			A3.6 A3.7	Now covered by clauses A3.6 and A3.7 of the Code. New Type 7 schedule has been added in the updated Metrology Procedure
3.6	Data Storage – ***Deleted***				These clauses have been incorporated into section 3 Energy Data, or are already included within the Code
3.7	Information	3.6	Access to Energy Data		Heading changed
3.7.1		3.6.1	~~The Network Operator must~~Western Power provides access to energy data to a Code Participant for each connection point at which the Code Participant supplies, generates or purchases electricity and has an access	1.3	Changes marked-up to reflect the definition of “User” in the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			contract with Western Power.		
3.7.2		3.6.3			No wording changes
3.7.3		3.3.4	~~The Network Operator~~After conducting a meter reading and obtaining energy data for a metering point, Western Power ~~must~~will provide access to that energy data to the user for the metering point and the IMO ~~for settlement and load forecasting purposes~~in accordance with clauses 5.6 and 5.7 of the Code and in accordance with the Communications Rules.	5.6 5.7	This section was amended to include the requirements of the Code and the Communications Rules
3.7.4	Deleted				Deleted because the section does not reflect current business practice
3.7.5	Deleted				Now in model Service Level Agreement
3.7.6 3.7.7		3.6.4	~~The Network Operator must~~Western Power ensures that access to ~~the~~ a metering installation and the metering database is secured from unauthorised access in line with clauses 4.8.4(a) and 4.8.4(b) of the ~~Metering~~ Code and in line with good electricity ~~and IT~~ industry practice.	4.8.4(a) 4.8.4(b)	Changes designed to reinforce the requirements of the Code
		3.6.5	The only persons entitled to have local access and/or remote access, using a read only password provided by Western Power, to the energy data from a metering	4.8	New section in the updated Metrology Procedure to reflect clause 4.8 of the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			installation are a user who is a retailer or generator of the connection point with which the metering installation is associated.		
3.8	Validation of Metering Database – ***Deleted***			Part 4	Removed because there is no requirement in the Code for the validation of the metering database (refer to Part 4)
		3.6.2	Where Western Power receives a request from a user's customer or third party to provide energy data or standing data, Western Power will provide such data in accordance with clause 5.17A of the Code.	5.17A	New section in the updated Metrology Procedure to reinforce clause 5.17A of the Code
		4	Data Quality		New Heading
		4.1	Energy Data Verification Requests		New Heading
		4.1.1	Where a code participant requests verification of energy data under clause 5.20(3) of the Code by using its Energy Data Verification Request Form, Western Power will use all reasonable endeavours to verify the energy data in accordance with this procedure by repeating any tests applicable to the metering installation type.	5.20(3)	New section in the updated Metrology Procedure provides explanation of the process to be followed by Western Power in the event of data verification requests under clause 5.20(3) of the Code
		4.1.2	In accordance with section 4.1.1, Western Power will perform the validation process applicable to the metering installation that is		New section in the updated Metrology Procedure added for clarification purposes and to reflect current

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			the subject of the verification request in order to verify the energy data.		business practice
		4.1.3	In accordance with clause 5.20(4)(b) of the Code, Western Power will make the results of the test described in section 4.2 available to the code participant as soon as practicable but no later than 5 business days after receiving the Energy Data Verification Request Form, or in accordance with the applicable service level agreement.	5.20(4)(b)	New section in the updated Metrology Procedure to reflect clause 5.20(4)(b)of the Code
3.9	Request for Testing of the Metering Installation	4.2	Test and Audit Requests		Heading changed
3.9.1		4.2.1	~~If requested by a Code Participant, the Network Operator must conduct a test to determine the consistency of data held in the metering database and data held in the meter or associated data logger of a metering installation.~~ Where a code participant reasonably requests a test or audit of: a) The accuracy of the metering installation, b) The energy data from the metering installation, or c) The standing data for the metering		Changes made to clarify the components contained in the test or audit and to reflect current business practice

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			installation; Western Power will conduct a test or audit in accordance with the request.		
3.9.2	Deleted				Deleted because the section does not reflect current business practice
3.9.3	Deleted				Deleted because the section does not reflect current business practice
3.9.4	Deleted				Now covered by Model Service Level Agreement clause 4.1
3.9.5	Deleted				Now covered by Model Service Level Agreement clause 4.1
3.9.6		4.2.8	When performing a test or audit pursuant to section 4.2.1 (b) or (c), and ~~Where~~ there is a discrepancy between: a) energy data stored in the meter or meter's/ associated data logger; and b) energy data stored in the metering database in respect of the respective meter or meter/associated data logger, the energy data stored in the meter or meter's/ associated data logger is prima facie evidence of the amount of electricity supplied		Minor changes made to section 4.2.8

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			to that metering point.		
3.9.7		4.2.9	When performing a test or audit pursuant to section 4.2.1 (b) or 4.2.1(c), if ~~Where~~ there is a discrepancy between the energy data or standing data held in the metering database and the physical inventory, the physical inventory is ~~to be taken as~~ prima facie evidence of the actual data.		Minor changes made to section 4.2.9
3.9.8	Note deleted	4.2.11	If requested by a code participant to undertake a test or audit of energy data or standing data for a metering installation, ~~the Network Operator must~~Western Power will, prior to any test being undertaken ~~in accordance with section 3.9.1~~, provide an estimate of the costs of, or associated with, that test, where the test does not fall within the scope of the applicable service level agreement.		Changes made to clarify the extent of the test or audit which is requested and whether it falls under a service level agreement
		4.2.5	Where errors are detected during the test or audit that are inconsistent with the requirements of the Code, Western Power will advise the code participants the errors detected and possible duration of the existence of errors.	5.21	New section in the updated Metrology Procedure to reflect clause 5.21 of the Code
		4.2.6	Where errors are detected during the test or audit, that are inconsistent with the	5.21	New section in the updated Metrology Procedure to reflect clause 5.21 of the

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			requirements of the Code, Western Power will restore the accuracy of the metering installation in accordance with the applicable service level agreement.		Code
		4.2.7	Where errors are detected during the test or audit that are inconsistent with the requirements of the Code, Western Power may make corrections to the lost or erroneous energy data up to 12 months based on a test or audit, to minimise adjustments to the final settlement account.	5.21	New section in the updated Metrology Procedure to reflect clause 5.21 of the Code
		4.2.13	Where a code participant requests a metering point to be tested, the meter will be tested at Base load current (Full load test) and 10% Base load current (Light load test). Western Power will use the result of the Full load test and the Light load test to calculate the Weighted Average Error for the meter. The meter will be deemed defective if the result of applying the Weighted Average Error equation exceeds the accuracy limit of the meter under test. The equation used is: ***WA error***% = $\frac{(4xFull\ Load) \quad Ligl}{5}$ *Where;*	5.21	New section in the updated Metrology Procedure to explain testing procedure undertaken in accordance with clause 5.21 of the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			WA error is the percentage Weighted Average Error for the meter [overall *meter error] at time of test,* *Full Load is the percentage full load error of meter at time of test,* *Light Load is the percentage light load error of meter at time of test.*		
3.10	Request for Testing of the Energy Data Processing	4.2	Test and Audit Requests		Heading changed
3.10.1		4.2.2	~~If requested by a Code Participant, the Network Operator must conduct a test to determine the correct processing and storage of energy data for a metering installation.~~ Where Western Power receives a request to assess the accuracy of the metering installation pursuant to section 4.2.1(a), the metering installation, or components thereof will be tested in accordance with clause 3.9 of the Code to ensure the metering installation or component tested meets the applicable accuracy requirements.	3.9	Changes marked-up, which refer back to clause 3.9 of the Code
3.10.2		4.2.3	~~This test shall ensure that~~ Where Western Power receives a request to test or audit the energy data or standing data pursuant to		Changes marked-up to reflect the current Metrology Procedure and to substitute the word “agreement” with

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			section 4.2.1 (b) or 4.2.1(c), Western Power may: a) ~~The~~repeat any validation ~~tests~~that ~~have~~ has been performed in ~~agreement~~ alignment with this Metrology Procedure; ~~and~~ b) ensure ~~T~~that metering data alarms and data statuses are reported in ~~agreement~~ alignment with this Metrology Procedure; ~~and~~ c) ensure ~~T~~that aggregation of quarter-hourly data to half-hourly data has been performed in ~~agreement~~ alignment with this Metrology Procedure; and/or d) ensure ~~T~~that substitution and/or estimation has been performed in ~~agreement~~ alignment with this Metrology Procedure.		"alignment" Also includes inserting the words "data alarms and data" in b) following formal discussions with Synergy prior to their submission to the Authority
3.10.3		4.2.4	*Western Power* will make the results of the test or audit described in section 4.2.1 available to the *code* p*articipant* ~~as soon as practicable~~ in accordance with clause 5.20(4) of the *Code* or as specified in the applicable *service level agreement*.		Amended following formal discussions with Synergy prior to their submission to the Authority
3.10.4		4.2.12	Where ~~the~~ a test or audit undertaken in accordance with ~~clause~~ section ~~3.10.1~~4.2.1 ~~determines an inconsistency, the Network Operator must pay the costs of, and associated with, that test.~~reveals a non-		Changes marked-up to include reference to the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			compliance with the Code, Western Power will not charge the code participant for conducting the test or audit.		
3.10.5	Deleted				Now covered by Model Service Level Agreement clause 4.1
3.10.6		4.2.10	~~Where~~ When performing a test or audit pursuant to sections 4.2.1 (b) or 4.2.1(c), if there is a discrepancy between energy data determined during the testing process and the energy data values stored in the metering database, the energy data determined during testing shall be prima facie evidence of the amount of electricity pertaining to the affected metering point.		Changes marked-up to include reference to “test or audit” as further explanation
3.10.7		4.2.11	If requested by a code participant, to undertake a test or audit of energy data or standing data for a metering installation, ~~the Network Operator must~~Western Power will, prior to any test being undertaken ~~in accordance with section 3.10.1~~, provide an estimate of the costs of, or associated with, that test, where the test does not fall within the scope of the applicable service level agreement.		Changes marked-up to reflect current processes and to include reference to service level agreements
3.11	Procedure Changes -			Part 6	This section has been deleted as Part 6

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
	Deleted				of the Code contains full details
3.12	Disputes - ***Deleted***			Part 8	This section has been deleted as Part 8 of the Code contains full details
3.13	Disaster Recovery, 3.13.1 to 3.13.4	3.1.10	Energy Data Collection		Now covered by section 3.1.10
4	Definitions	1.4	Definitions		Heading unchanged
5	Schedule 1 – Components of Types 1-4 Metering Installations – Meter Provision	5	Components of Types 1-6 Metering Installations – Meter Provision		Schedules 1, 2 and 3 combined under section 5 of the updated Metrology Procedure
5.59 – Schedule 1	Time Function	2.2.3	The ~~data logger~~meter internal real time clock ~~is to~~must be referenced to ~~Western~~ Australian Western Standard Time (AWST) and maintained ~~to a standard~~within an absolute error of: Type 1 ±5 seconds, Type 2 ±7 seconds, Type 3 ±10 seconds, Types 4 – 5 ± 20 seconds	3.9	Changes marked-up to reflect wording in clause 3.9 of the Code
6	Schedule 2 – Components of Type 5 Metering Installations – Meter	5	Components of Types 1-6 Metering Installations – Meter Provision		Schedules 1, 2 and 3 combined under section 5 of the updated Metrology

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
	Provision				Procedure
7	Schedule 3 – Components of Type 6 Metering Installations – Meter Provision	5	Components of Types 1-6 Metering Installations – Meter Provision		Schedules 1, 2 and 3 combined under section 5 of the updated Metrology Procedure
		5.81	All ~~utility~~ Western Power meters must comply with the National Measurement Act and in addition; • All new purchased current transformers must comply with AS60044.1 • All new purchased voltage transformers must comply with AS60044.2; and • All new purchased meters must comply with AS1284. • All new purchased meters must comply with the relevant specifications of the National Measurements Institute's M6.		Minor amendment initiated by Western Power
8	Schedule 4 – Components of Type 1-5 Metering Installations – Energy Data Services				Schedule 4 has been deleted because the components are already included in the Code or the updated Metrology Procedure, or are no longer relevant
9	Schedule 5 – Components of Type 6 Metering				Schedule 5 has been deleted because the components are already included in

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
	Installations – Energy Data Services				the Code or the updated Metrology Procedure, or are no longer relevant
10	Schedule 6 – Metering Installation Types 1-5 Validation	6	Metering Installation Types 1-5 – Validation		Heading changed
10.1	Requirement to Validate	6.1	Requirement to Validate		Heading unchanged
10.1.1		6.1.1	The energy data from Type 1-5 metering installations ~~of types 1-5~~ is required to be validated, in accordance with ~~clause 3.4.1 of this Metrology Procedure~~this section.		Minor changes marked-up
10.2	Validation of Energy Data from Types 1-5 Metering Installations with Check Metering	6.2	Validation of Energy Data from Types 1-5 Metering Installations with Check Metering		Heading unchanged
10.2.1	Example from 10.2.1 a) deleted	6.2.1	*6.2.1 – Added Text Highlighted in Red:* The following checks apply to energy data from all metering installations of Types 1-5 which have full check metering. Where discrepancies are identified between the revenue, check and SCADA validation, due to inherent SCADA lower accuracies and technical losses, these discrepancies and validation errors may not be substituted and/or replaced.		Clarifying that SCADA and metering may have different accuracies.

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			6.2.1 a) - Unchanged *6.2.1 b) – Added Text Highlighted in Red:* Where the energy data is associated with a market generator then it must be validated against SCADA data as follows: 1. Western Power must construct a validation algorithm that will facilitate comparison of interval data on a per interval basis. 2. Western Power must construct an appropriate validation algorithm as the SCADA data may be derived from a different measurement point, be of different interval collection and/or have a different base unit of measurement ,(e.g. power not energy value) with allowances for a larger error of measurement. 3. Western Power is only required to undertake validation of metering data against the SCADA data on the primary data channel, e.g. only 'B' for generators and 'E' channel validation for loads if applicable. 4. Western Power may conduct an analysis of the historical metering data for each		Provided for clarification purposes and to improve current Metrology Procedure practice and reflect current business practices.

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			connection point to ascertain what percent error differences between metering data and SCADA data is considered acceptable. Western Power may use this information to refine validation algorithms where applicable. Where discrepancies are identified between revenue and SCADA validation due inherent SCADA lower accuracies and technical losses, higher percentage error differences may occur and result in specifically assigned error percentages per connection point. SCADA Data Algorithm to validate Metering Data - Unchanged *6.2.1 c) – Added Text Highlighted in Red:* c) Check all interval meter data against nominated maximum value. The value must be less than the registered maximum value of Wh, Varh or VAh for the metering installation data stream. Maximum Varh checks may be performed as follows: 1. For CT metering installations the maximum value is to be initially defined by the applied CT ratio. However, the actual value may exceed the registered maximum value of the CT due to the		Clarification between CT and direct metering validation processes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			ability of the CT to be able to accommodate loads in excess of their maximum capacity (i.e. 200%). Where this occurs, Western Power may deem the energy flow as true and correct. When determining data flows on a per installation basis, the maximum value may be increased to cater for situations where it has been confirmed that the CT is overloaded on a short term basis. 2. For whole current meters the maximum value is to be set to the rating of the meter. *6.2.1 d) 2 - Added Text Highlighted in Red:* Check that the number of intervals with zero data is less than a specified number over a period of time that is deemed practicable and in alignment with good electricity industry practice. *6.2.1 e) - Added Text Highlighted in Red:* If an interval has a null value then the reading for that interval will be rejected, placed into exception for review, or substituted.		
10.2.1 f)		6.2.1 f)	If the meter has registered significant meter alarms over the period since the last		Changes marked-up to reflect the current business practices and removes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			successful read, the energy data for the affected intervals ~~will be rejected~~may be validated and placed into exception for review pending an assessment of the significance of the alarm. The list of alarms that will be processed is ~~given in Appendix 1, together with a note of those that are regarded as significant~~provided in Section 10.		the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied
10.2.1 g)	Note deleted	6.2.1 g)			No wording changes
10.3	Validation of Energy Data from Types 1-5 Metering Installations with Partial Check Metering	6.3	Validation of Energy Data from Types 1-5 Metering Installations with Partial Check Metering		
10.3.1 a)	Example deleted	6.3.1 a)			No wording changes
10.3.1 b)		6.3.1 b)			No wording changes
10.3.1 c)		6.3.1 c)	*Added Text Highlighted in Red:* c) Check all interval meter data against nominated maximum value. The value must be less than the registered maximum value of Wh, Varh or VAh for the metering installation data stream. Maximum Varh checks may be performed as follows: 1. For CT metering installations the maximum value is to be initially defined by		Clarification between CT and direct metering validation processes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			the applied CT ratio. However, the actual value may exceed the registered maximum value of the CT due to the ability of the CT to be able to accommodate loads in excess of their maximum capacity (i.e. 200%). Where this occurs, Western Power may deem the energy flow as true and correct. When determining data flows on a per installation basis, the maximum value may be increased to cater for situations where it has been confirmed that the CT is overloaded on a short term basis. 2. For whole current meters the maximum value is to be set to the maximum ampere rating of the meter.		
10.3.1 d) 1.		6.3.1 d) 1.			No wording changes
10.3.1 d) 2.		6.3.1 d) 2.	*Added Text Highlighted in Red:* Check that the number of intervals with zero data is less than a specified number over a period of time that is deemed practicable in alignment with good electricity industry practice.		Text added to reflect current business practices
10.3.1 e)		6.3.1 e)	*Added Text Highlighted in Red:*		Text added to reflect current business

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			If an interval has a null value then the reading for that interval will be rejected, placed in exception for review or substituted.		practices
10.3.1 f)		6.3.1 f)	If the meter has registered significant meter alarms over the period since the last successful read, the energy data for the affected intervals ~~will be rejected~~may be validated and placed into exception for review pending an assessment of the significance of the alarm. The list of alarms that will be processed is ~~given in Appendix 1 together with a note of those which are registered as significant~~provided in Section 10.		Changes marked-up to reflect the current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied
10.3.1 g)		6.3.1 g)			No wording changes
10.3.1 h)		6.3.1 h)			No wording changes
10.4	Validation of Energy Data from Types 1-5 Metering Installations without Check Metering	6.4	Validation of Energy Data from Types 1-5 Metering Installations without Check Metering		Heading unchanged
10.4.1 a)		6.4.1 a)	~~a) The value must be less than the registered maximum value of Wh, Varh or Vah for the metering installation~~ a) Check all interval meter data against nominated maximum value. The value must be less than the registered maximum value of		Clarification between CT and direct metering validation processes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			Wh, Varh or VAh for the metering installation. Maximum Varh checks may be performed as follows: 1. For CT metering installations the maximum value is to be initially defined by the applied CT ratio. However, the actual value may exceed the registered maximum value of the CT due to the ability of the CT to be able to accommodate loads in excess of their maximum capacity (i.e. 200%). Where this occurs, Western Power may deem the energy flow as true and correct. When determining data flows on a per installation basis, the maximum value may be increased to cater for situations where it has been confirmed that the CT is overloaded on a short term basis. 2. For whole current meters the maximum value is to be set to the maximum ampere rating of the meter.		
10.4.1 b) 1.		6.4.1 b) 1.			No wording changes
10.4.1 b) 2.		6.4.1 b) 2.	*Added Text Highlighted in Red:* 2) Check that the number of intervals with zero data is less than a specified number over a period of time that is deemed practicable in alignment with good electricity		Text added to reflect current business practices

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			industry practice.		
10.4.1 c)		6.4.1 c)	*Added Text Highlighted in Red:* c) If an interval has a null value then the reading for that interval will be rejected, placed into an exception for review or substituted.		Text added to reflect current business practices
10.4.1 d)		6.4.1 d)	d) If the meter has registered significant meter alarms over the period since the last successful read, the energy data for the affected intervals ~~will be rejected~~may be validated and placed into exception for review pending an assessment of the significance of the alarm. The list of alarms that will be processed is ~~given in Appendix 1 together with a note of those which are regarded as significant~~provided in Section 10.		Changes marked-up to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied
11	Schedule 7 - Metering Installation Types 1-5 – Accumulation, Substitution and Estimation	7	Metering Installation Types 1-5 – Accumulation, Substitution and Estimation		Heading changed
11.1	Note deleted				Note deleted, so heading no longer required
11.1.1	Deleted				General comment addressed in section 7

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
11.2	Requirement to Accumulate Energy data to Trading Intervals	7.1	Requirement to Accumulate Energy data to Trading Intervals		Heading unchanged
11.2.1		7.1.1			No wording changes
11.3	Network Operator Obligations – ***deleted***				Heading not required
11.3.1		7.2.1	*Added Text Highlighted in Red:* a) 11, 12, 13, 14, 15, 16, 17 and 18 for metering installation Types 1-4 b) 51, 52, 53, 54, 55 and 56 for Type 5 metering installations, c) 61,62,63,64,65 for Type 6 metering installations, and d) 71,72,73,74 for Type 7 metering installation.		Reformatted and additional text added to include substitution types for Type 6 and Type 7 metering installations
		7.2.2	*Added Text Highlighted in Red:* For connection points classed as generators: a) Western Power may directly undertake type 11, 12 or 13 substitutions as a consequence of missing or erroneous metering data that has failed validation		New section in the updated Metrology Procedure to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			b) Western Power may undertake type 16 and 18 substitutions (agreed/alternate method) following consultation and agreement with the generator participant to ensure that the substituted data is an accurate reflection of the energy intervals concerned c) In any instance where SCADA data is to be used for substitution, both the E and B channel must be used.		
11.3.2	Deleted				Not required to highlight 'generating plant'
11.3.3		7.2.3	~~The Network Operator~~ Western Power must not perform substitution of type 18, ~~16~~, 55, ~~or~~ 56, 64 and 74 without the prior agreement of the affected parties.		Minor changes marked-up
11.3.4		7.2.4			No wording changes
11.3.5		7.2.5			No wording changes
11.3.6		7.2.6	~~The Network Operator~~Western Power will notify affected Code Participants of errors and alarms associated with the energy data via the reason code as listed in ~~Appendix 1~~Section 10 in the data file format.		Minor changes marked-up

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
11.3.7	Note deleted	7.2.7	Where one or more of the readings making up the interval energy data in accordance with section ~~3.3.16~~3.1.8 has failed validation and been substituted, this will be reflected in the reason code, quality flags, and, where relevant, method flags of the interval energy data reported under ~~11.3.4~~section 7.2.5. ~~and the status reported will reflect the most serious of the statuses associated with the constituent data. Appendix 1 lists the status and defines the order of severity.~~ The alarm status will be reported in accordance with Section 10.		Minor changes marked-up and includes reference to Section 10
11.3.8		7.2.8			No wording changes
11.3.9	Example deleted	7.2.9			No wording changes
11.4 and 11.4.1	Accumulation of Data to Trading Intervals	7.3 and 7.3.1	Accumulation of Data to Trading Intervals		HH Apparent Energy in Table – Note deleted
11.5	Substitution and Estimation Types for Metering Installation Types 1-4	7.4	Substitution and Estimation Types for Metering Installation Types 1-4		Heading unchanged
11.5.1		7.4.1			No wording changes
11.5.2	Note deleted	7.4.2			No other change
11.5.3		7.4.3			No wording changes

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
11.5.4		7.4.4			No wording changes
11.5.5		7.4.5			No wording changes
11.5.6		7.4.6	(a) Where data substitution is required for any period greater than 7 days, consideration, consultation and agreement ~~must~~ may take place between the affected parties to resolve any abnormal equivalent days that may be applicable. In the interests of practicality, Western Power may use other substitution methods without consultation for periods greater than 7 days in alignment with good electricity industry practice. Where a code participant identifies discrepancies in the substitution method used, it may request Western Power to resolve those discrepancies or request an alternative substitution method is used. (b) Method 16 substitutions are: i. data substitutions of any format for periods greater than 7 days that are based on an agreement between all the affected parties; ii. changes to existing substitutions for any period that are carried out where the affected parties have directed that as a result of site or customer specific information, the original		Changes marked-up which reflect the current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			substitutions are in error.		
11.5.7		7.4.7			No wording changes
11.5.8		7.4.8	This substitution method covers the situation where an alternate method of substitution has been agreed with the Code Participant, the applicable user and the Network Operator. This may be a globally applied method or a site specific method where an adjusted profile is used to take into account local conditions which affect consumption (e.g. local holiday, not energised connection point or customer shutdown), or where alternate data may be able to be used for quality checks and minor adjustments of an estimated profile such as using meter register data.		Changes marked-up to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied
		7.4.8 a)	Not Energised Metering Points For metering points that are active but in the status of “Not Energised”, Western Power will apply a substitute reading of zero for any day(s) the metering point has ”Not Energised” status. Substitution method 18, in conjunction with the appropriate reason code will be provided by *Western Power*. ~~This substitution method covers the situation where a metering point is in the status of Not Energised. Substitution method 18, in~~		New section in the updated Metrology Procedure to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			~~conjunction with reason code, zero consumption, will be used.~~		
11.6	Substitution and Estimation Types for Metering Installation Type 5	7.5	Substitution and Estimation Types for Metering Installation Type 5		Heading unchanged
11.6.1		7.5.1			No wording changes
11.6.2		7.5.2			No wording changes
11.6.3		7.5.3	*Added Text Highlighted in Red:* (a) Where data substitution is required for any period greater than 7 days, consideration, consultation and agreement must take place between the affected parties to resolve any abnormal equivalent days that may be applicable**.** In the interests of practicality, Western Power may use other substitution methods without consultation for periods greater than 7 days in alignment with good electricity industry practice. Where a code participant identifies discrepancies in the substitution method used, it may request Western Power to resolve those discrepancies or request an alternative substitution method is used.		Changes marked up to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
11.6.4		7.5.4			No wording changes
11.6.5		7.5.5			No wording changes
		7.5.5 a)	Not Energised Metering Points For metering points that are active but in the status of "Not Energised", Western Power will apply a substitute reading of zero for any day(s) the metering point has "Not Energised" status. Substitution method 55, in conjunction with the appropriate reason code will be provided by Western Power. ~~This substitution method covers the situation where a metering point is in the status of Not Energised. Substitution method 55, in conjunction with reason code zero consumption will be used.~~		New section in the updated Metrology Procedure to reflect current business practices and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied
11.6.6		7.5.6			No wording changes
12	Schedule 8 – Metering Installation Type 6 – Validation, Substitution and Estimation	8	Metering Installation Type 6 – Validation, Substitution and Estimation		Heading changed
12.1.1	Example removed	8.1.1			No other change
12.2.1	Note deleted	8.2.1			No other change

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
12.3.1		8.3.1	When the energy data is required to be substituted or estimated, ~~the Network Operator~~Western Power may use Substitution Types 61, 62, 63, 64 or 65, as defined in section ~~12.4~~8.4.		Minor changes marked-up
12.3.2		8.3.2			No wording changes
12.3.3		8.3.4	~~The Network Operator must ensure that for all Substitution Types, substituted energy data is based on an actual meter reading, and is not based on energy data that has previously been estimated or substituted.~~ Western Power may substitute or estimate readings in conjunction with an actual read to determine the point of reference to enable calculation of the average daily consumption for a new substitution reading. Western Power may apply an actual read as a reference point for substitution to ensure any substitution applied is not based on a prior substituted or estimated reading.		Changes marked-up to reflect current business practices
12.3.4	Example deleted	8.3.5			No other change
		8.3.3	Western Power will as far as reasonably practicable, ensure that for all Substitution Types for Type 6 metering installations, substituted energy data is not based on	Appendix 3	New section in the updated Metrology Procedure to reflect current processes, which are in line with Appendix 3 of the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			energy data that has previously been estimated or substituted.		
12.4.1		8.4.1			No wording changes
12.4.2		8.4.2	c) Western Power may define additional internal procedures to reflect a more accurate assessment of the customer's consumption.		New section in the updated Metrology Procedure to reflect current processes, which are aimed at producing the most accurate assessment possible, in the situation
12.4.3		8.4.3			No wording changes
12.4.4		8.4.4	c) The code participant, applicable user and Western Power may agree to use a globally applied substitution method in advance of its application. d) The code participant, applicable user and Western Power may agree to amend a site-specific substitution method upon receipt of more accurate information relating to the site. e) For metering points that are active but in the status of "Not Energised", Western Power will apply a substituted reading~~s of~~ that will equal zero consumption for any day(s) the metering point has "Not Energised" status. Substitution method 64, in conjunction with the appropriate reason code will be provided		New section in the updated Metrology Procedure to reflect the current processes, which are aimed at agreeing an estimation method to be used between the parties Minor wording change initiated by Western Power

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			by Western Power. f) For metering points that contain bi-directional flows, Western Power will apply a substitute reading that will equal zero generation over the schedule reading period for the import channels. Export channels will be substituted in accordance with section 8.4 of the Metrology Procedure. Western Power, under clause 5.24(4) of the Code, must consider a reasonable request from a retailer to replace a substituted value for bi-directional flows for an import channel, as outlined in clause 5.22(5)(a) and (c) of the Code.		The current Metrology Procedure has been updated in response to the issue raised as item 2.1 in the Synergy submission
12.4.5		8.4.5			No wording changes
		9	Metering Installations Type 7 – Validation, Substitution and Estimation		New heading in the updated Metrology Procedure
			9.1 Requirements to Validate 9.1.1 The substitution and estimation types detailed in clauses A3.6 and A3.7 of Appendix 3 of the Code are to be undertaken by Western Power for the calculation, substitution and delivery of metering data from a metering installation Type 7.	Appendix 3	New section in the updated Metrology Procedure to reflect the Code.

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			9.1.2 Nothing in this Metrology Procedure requires Western Power to modify or change Type 7 meter consumption calculations agreed between Western Power and Synergy on 16 May 2013. Type 7 meter consumption calculations will continue to be made by the methods and systems in place, and agreed, on that date. The agreed method is Substitution Method 74 under the Metering Code and this Metrology Procedure. The metering installation and metering database associated with each Type 7 meter are the systems in use as at 16 May 2013, or unless as otherwise agreed between Synergy with customers with Type 7 metering installations and Western Power. **9.2 Type 7 Substitution Rules** 9.2.1 Western Power must carry out all metering data substitutions and estimations in accordance with this Metrology Procedure. 9.2.2 Western Power must obtain clear and concise identification as to the cause of any missing or erroneous calculated		Section 9.1.2 added to address item 1.1 in the Synergy submission New section in the updated Metrology Procedure to establish rules for Western Power when dealing with Type 7 metering data substitutions and estimations, to expand on information contained in the Code

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			metering data for which metering data substitutions are required. 9.2.3 Western Power must ensure that all metering data substitutions and estimations are based on calculated metering data and not on any previous substitutions. 9.2.4 Western Power must base calculated metering data for Type 7 metering installations in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents, as outlined in section 3.5.5: a) Where the specification has not been updated for the period concerned, calculated metering data must be based on the most recent available information and provided as an estimated value; and b) Where the specification is correct for the period concerned, the calculated metering data must be provided as an actual value; and c) Where the specification in (b) above has a subsequent update for the period concerned, the calculated metering data		

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			must be provided as a substituted value. 9.2.5 Subject to clause A3.7 of Appendix 3 of the Code, Western Power may apply the following substitution and estimations types: a) Substitutions may be type 71, 72, 73, or 74. b) Estimations must be type 75. 9.2.6 Western Power must notify the retailer for the connection point of any calculated metering data substitution within 2 business days of the calculated metering data substitution being carried out. Notification is achieved via the participant metering data file as detailed in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents. 9.2.7 Western Power ~~must~~ may flag all calculated metering data substitutions as final (F). **9.3 Substitution and Estimation Types** 9.3.1 Type 71 - Recalculation		Amended following formal discussions with Synergy prior to their submission to the Authority

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			Western Power must substitute calculated metering data with the calculated metering data obtained by a recalculation based on the current specification in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents. 9.3.2 Type 72 - Revised Specification Where the error in the calculated metering data is due to errors in the specification outlined in the Communication Rules Build Pack or the UMS Data CSV File Specification documents Western Power must substitute calculated metering data obtained by a recalculation based on the most recent inventory tables, load tables and on/off tables in which there were no errors. 9.3.3 Type 73 - Revised Algorithm Where the error in the calculated metering data is due to an error in the algorithm, Western Power must substitute the most recent calculated metering data for which there was no error. 9.3.4 Type 74 - Agreed Method		

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			Western Power has agreed this method of calculating metering data substitution (which may be a modification of an existing substitution type), in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents. **9.4 Validation for Type 7 – Registration Process** 9.4.1 Western Power must validate the calculated metering data on registration of all Type 7 metered sites to verify consistency with the specifications in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents. **9.5 Validation of Type 7 Metering Data** 9.5.1 Western Power must undertake the following validations on calculated metering data within the metering data services database: a) Check against a nominated maximum calculated metering data value. b) Calculated metering data value is		

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			numeric and greater than or equal to zero. c) Check for null (no values) calculated metering data in the metering data services database for all metering data streams. i. The aim of this check is to ensure that there is a 100% calculated metering data set (and substitution for any missing calculated metering data has been undertaken) d) Check the specifications in accordance with the Communication Rules Build Pack and specifically the Streetlights and UMS Data CSV File Specification documents. e) Check against a nominated minimum value or alternatively a ”zero‟ check which tests for an acceptable number of zero interval values over a period of time that is deemed practicable in alignment with good electricity industry practice and this Metrology Procedure. f) Calculated metering data date is greater than the previous calculated metering data date.		

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
Appendix 1	Metering Statuses – deleted				Not required in the Metrology Procedure as the metering statuses are only used for internal Western Power purposes
		10	Metering Alarms **10.1 Validation of interval metering data alarms for installations types 1-5** 10.1.1 Western Power must validate interval metering data against significant metering data alarms when these are provided in the meter, as per the code, the following alarms • Power Outage/~~f~~Failure • Alarm/Error – ie VT or phase failure • Overflow of Channel Data (Pulse over flow) • CRC Error/Checksum error • Time Reset (Time Tolerance) a) Where a metering installation types 1 -5 assigns alarms to the meter data channel or the interval reading status ,Western Power may process the alarm along with the Metering data as part of the required		New section in the updated Metrology Procedure following deletion of Appendix 1 Amended following formal discussions with Synergy prior to submissions being received and to make section 10.1.1 consistent with section 10.2 of the Metrology Procedure and removes the obligation on Western Power to consult with the retailer especially where good electricity industry practice has been applied

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
			validation process b) As a minimum Western Power must have systems and processes in place that capture metering data alarms c) Western Power must retain all metering data alarms as part of the data audit trail d) For instances where Interval data was found to be corrupted, Western Power may provide replacement data in alignment with the Code and good electricity industry practice and with this Metrology procedure e) Western Power may apply processes where data alarms may take precedence of certain types based on a priority. Channel Status codes may be deemed more serious than interval status codes and may take priority however substitution may take priority over an alarm raised in the meter. **10.2 Metering Installations Type 1 -5 Metering Data Alarm definitions** Refer to the Table in Attachment 1 below for details.		

Section	Section of the current Metrology Procedure	Section	Section of the updated Metrology Procedure	Code Reference	Comments
Appendix 2	Default Metering Installation Settings	Appendix 1	Default Metering Installation Settings		No wording changes
		Appendix 2	Meter Compliance Testing and Sampling Plan		New Appendix

Attachment 1: 10.2 Metering Installations Type 1 -5 Metering Data Alarm definitions

Description	Code	Definition	Type
Power Failure (Power Outage)	PO	This status occurs when the meter detects loss of power. During the meter data retrieval process, collection system, flags each load profile interval value between the AC Power Down and AC Power Up events with a Power Outage status bit.	Interval Status
Alarm/Error	LR	This status is based on the meter manufacturer's documentation of alarm conditions. It can reflect a field device channel status such as power drop on a phase, harmonics, or a field device interval status such as program malfunction or test mode.	Channel Status
Over Flow of Channel Data	OV	This status indicates that the actual demand value collected from the meter was beyond the range of the Demand High/Low Limits.	Channel Status
CRC Checksum Error	CR	This status occurs during an internal status check or an internal read/write function within the meter. This error condition is dependent on the meter hardware.	Interval Status
Time Reset occurred	TR	This status occurs when any time change, including DST, occurs in the meter.	Interval Status